



Pushing Performance

HARTING Cable Assemblies



People | Power | Partnership

Transforming customer wishes into concrete solutions



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

The HARTING Group currently comprises 36 subsidiary companies and worldwide distributors employing a total of approximately 3,300 staff.



HARTING Subsidiary company



HARTING Representatives



We aspire to top performance.

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

Always at hand, wherever our customers may be.

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

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

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

Our claim: Pushing Performance.

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

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

Quality creates reliability – and warrants trust.

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

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



HARTING technology creates added value for customers.

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

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

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

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

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

HARTING solutions extend across technology boundaries.

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

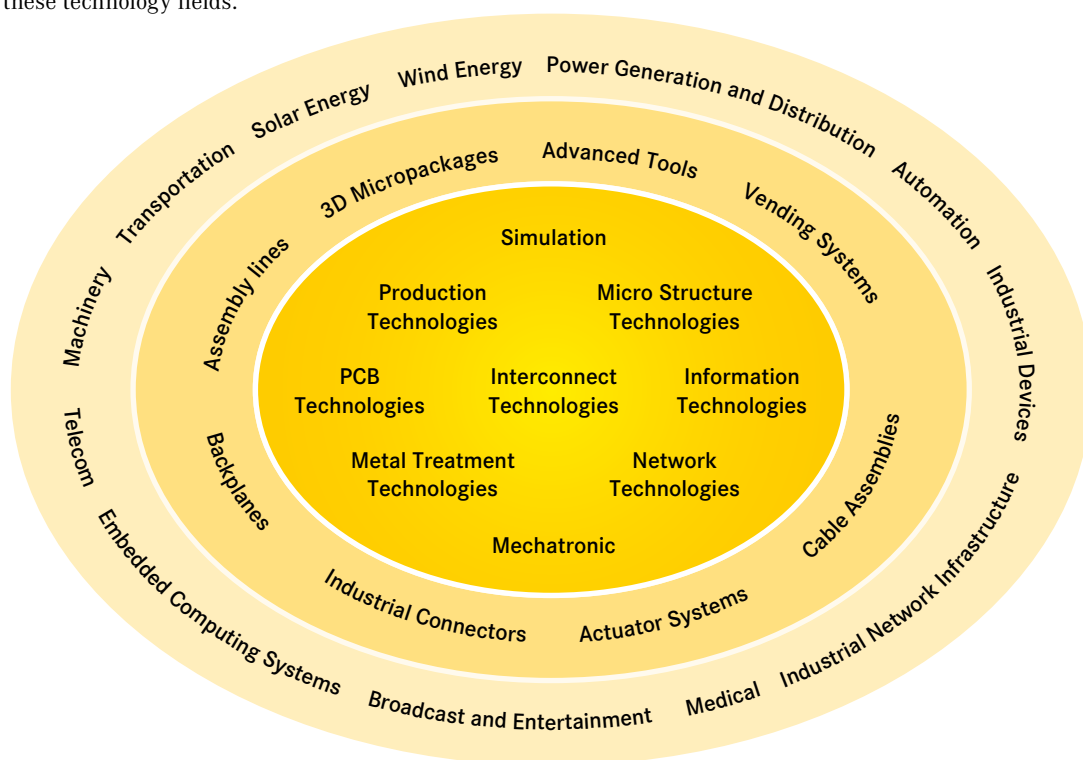
In order to ensure the future proof design of RF- and EMC-compatible interface solutions, the central HARTING laboratory (certified to EN 45001) provides simulation tools, as well as experimental, testing and diagnostics facilities all the way through to scanning electron microscopes. In the selection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



HARTING knowledge is practical know-how generating synergy effects.

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

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



The cabling represents the backbone of an application. Mistakes during the selection and laying of cables may lead to serious errors in data transfer, data loss and even total network failure. Especially in the demanding environments, reliable



and fully functional cables are an important element in planning and implementing high-performance networks ensuring a high degree of availability.

HARTING offers a wide range of cable assemblies, which are specially designed for use in different environment. Data transfer in the Categories 5, 6 and 7 according to ISO/IEC 11801 is supported.

Additionally options like solid, stranded, or trailing cable are provided. Oil resistance, high mechanical stability and halogen-free are only a few of the features **HARTING** demands from on its cables.

The range of **HARTING** cable assemblies uses these upscale cables combined with high-grade

connectors. All of them use different types of connectors like har-mik®, har-link®, **HARTING** PushPull, fibre optic and many more.

All **HARTING** cable assemblies provide an optimized electrical and mechanical support. Since these products are tested 100 % a stable quality on a high level can be assured. Without having any assembly work the application can “play” by “unpacking and plug”, so that “plug and play” becomes reality.

By covering various lengths and supporting customized solutions, including overmoulding, a wide range of applications can be served. For the overmoulding solutions we offer different materials like PVC, PUR and more. The overmoulding solution can be used with inner shielding or without. **HARTING** offers both standard cable assemblies and customer specific versions for small and high volumes!





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HARTING offers cable assemblies by utilising the well-known connectors har-mik[®], har-link[®], D-Sub and SEK.

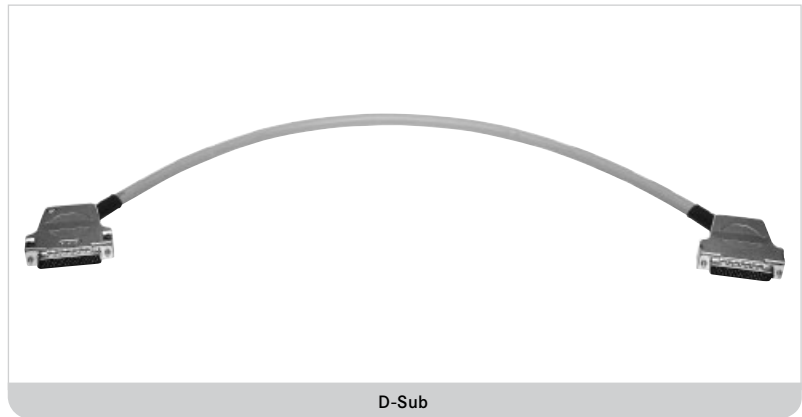
The har-link[®] cable assemblies have excellent data transmission properties for high speed

The time transmission test (eye pattern) shows opened eye-diagram of har-link[®] cable assemblies at a transmission data rate up to 100 Mbps.

HARTING offers a wide range of D-Sub contacts with perfect crimp connection.



har-link[®]



D-Sub

networking and telecommunications. In addition har-link[®] supports hot plugging as required by modern bus system such as CompactPCI, S-bus and VME.

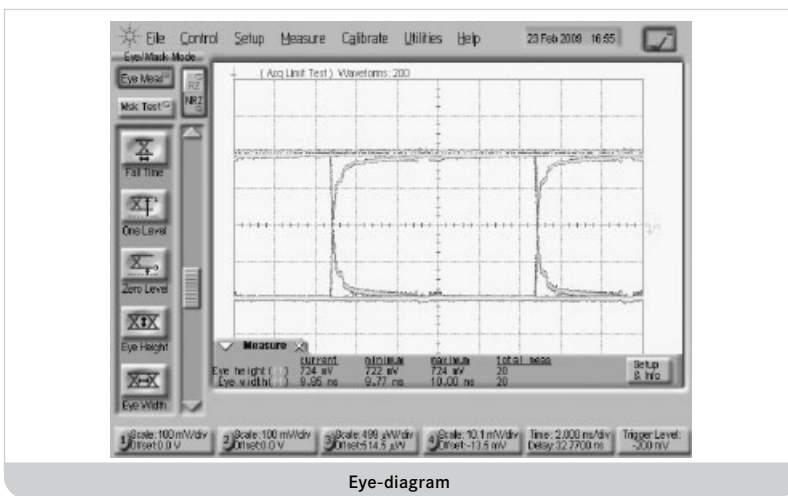
har-link[®] cable assemblies allow data transmission up to 2 Gbit/s per pair and are therefore perfectly suited for modern transmission protocols such as low voltage differential signals. The design of the har-link[®] connector allows differential pairs to be placed horizontally, thus reducing the skew at high frequencies and considering high signal integrity.

HARTING uses nickel plated D-Sub contacts. The advantage in this case is that no “Whisker creation” is guaranteed.

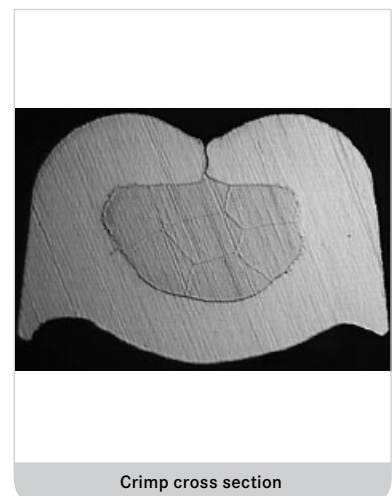
Furthermore HARTING fulfils all crimp norms (DIN/IEC 60352-2) which are important for crimp connections. Tensile strength will be tested from HARTING as well in accordance to IEC 60512.

HARTING crimp contacts are fit for different cores, AWG 20, 21, 22, 24, 26 and 28.

The HARTING portfolio covers high density versions including different polarisation as well.



Eye-diagram



Crimp cross section

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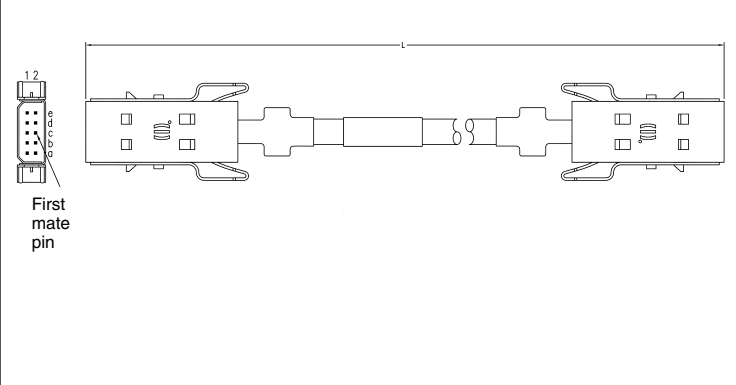


Identification	Part No.	Drawing	Dimensions in mm
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Standard cable assembly har-link® 10 pole, male
 Cable: 5 twisted pairs, AWG 28, shielded, PVC
 Wiring: 1:1

Length: L = 0.5 m
 L = 1.0 m
 L = 2.0 m

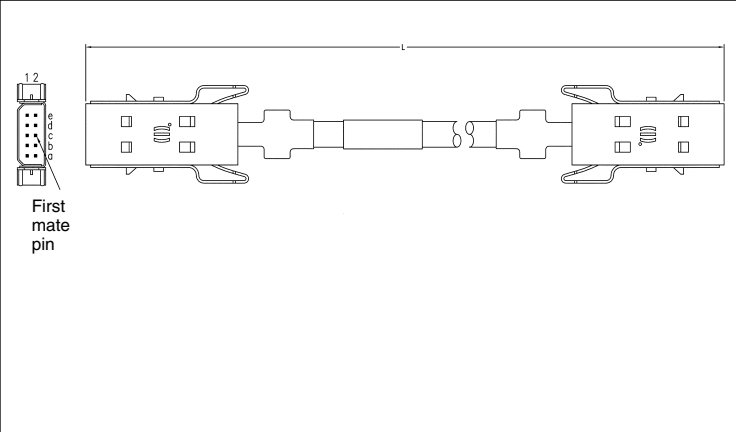
33 27 243 0500 001
 33 27 243 1000 002
 33 27 243 2000 003



High end cable assembly har-link® 10 pole, male
 Cable: 5 twisted pairs, AWG 30, double shielded, PVC
 Wiring: 1:1

Length: L = 0.5 m
 L = 1.0 m
 L = 2.0 m

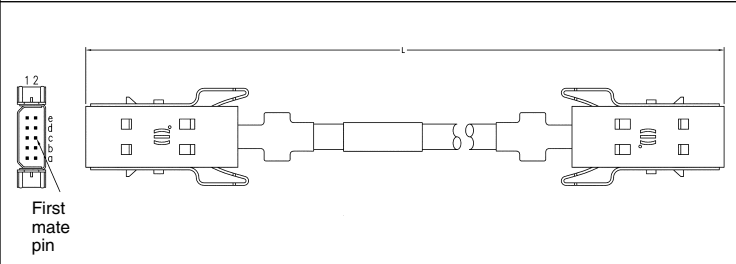
33 27 243 0500 006
 33 27 243 1000 007
 33 27 243 2000 008



High end cable assembly har-link® 10 pole, male
 Cable: 5 twisted pairs, AWG 30, double shielded, PVC
 Wiring: acc. to IEEE 1355

Length: L = 0.5 m
 L = 1.0 m
 L = 2.0 m

33 27 243 0500 015
 33 27 243 1000 016
 33 27 243 2000 017



IEEE 1355 wiring

Connector 1	Connector 2
2-e	1-a
1-e	2-a
2-d	1-b
1-d	2-b
2-c	2-c
1-c	1-c
2-b	1-d
1-b	2-d
2-a	1-e
1-a	2-e

Cables for insulation displacement termination

Identification	No. of pairs	Standard version	Part No.	
				<i>Halogen free version with screened pairs</i>
Twisted pair cable with braid shield AWG 28 AWG 30 Length per reel: 100 m*	5	60 90 005 6003	60 90 005 6009	
	10	60 90 010 6003		
	13	60 90 013 6003		
	14	60 90 014 6003		
	18	60 90 018 6003		
	20	60 90 020 6003		
	25	60 90 025 6003		
	34	60 90 034 6003		
	40	60 90 040 6003		
	48	60 90 048 6003		
	50	60 90 050 6003		

Drawing	No. of pairs	Outside diameter		<table border="1"> <thead> <tr> <th>No. of pairs</th> <th>Outside diameter</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>5.5 ± 0.3</td> </tr> </tbody> </table>	No. of pairs	Outside diameter	5	5.5 ± 0.3
		No. of pairs	Outside diameter					
		5	5.5 ± 0.3					
Nominal	Max							
5	5.4	5.6						
10	6.2	6.5						
13	6.5	6.8						
14	6.5	6.8						
18	7.4	7.7						
20	7.7	8.2						
25	8.2	8.5						
34	8.7	9.0						
40	9.9	10.4						
48	10.1	10.6						
50	13.0	13.5						

	Standard version	<i>Halogen free version with screened pairs</i>
	Number of pairs	5, 10, 13, 14, 18, 20, 25, 34, 40, 48, 50
Voltage rating	30 V (style UL 2789)	100 V
Maximum conductor resistance (20 °C)	233 Ω/km	350 Ω/km
Minimum insulation resistance (20 °C)	1 MΩ/km	10 GΩ/km
Nominal differential impedance (TDR)	85 Ω	95 Ω ± 5 Ω
Nominal differential capacitance (1 kHz)	110 pF/m	45 pF/m
Propagation velocity	60 %	
Temperature range	- 20 °C ... + 105 °C	- 25 °C ... + 80 °C
Cable materials		
Conductor	7 x 0.13 mm stranded tinned copper	7 x 0.1 mm stranded tinned copper
Insulation (except 50 pairs) (for 50 pairs)	PVC Ø 0.62 mm PVC Ø 0.65 – 0.80 mm	Polypropylene Ø 0.74 mm
Shield	Tinned copper braid, covering ≥ 80 %	Tinned copper braid, covering ≥ 65 %
Jacket	PVC	FRNC
Flammability rating	IEC 332-1	
Sheath marking	AWM 2789 60°C 30V VW1 36963	AWM 21283 80°C 30V VW1

* Except 60 90 050 6003: 150 m reel
Italic print: Halogen free version



Identification

Part No.

Drawing

Dimensions in mm

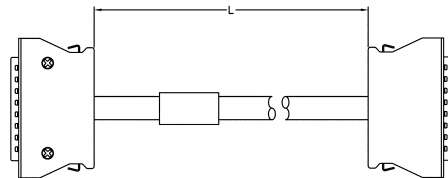
**Cable assembly har-mik®
pin and socket, 68 pole,
male**

Hood: metal hood with top entry

Cable: 34 twisted pairs, AWG 28, shielded, PVC

Wiring: 1:1

Length: L = 0.5 m	33 60 214 5000 102
L = 1.0 m	33 60 213 1000 103
L = 2.0 m	33 60 213 2000 104
L = 5.0 m	33 60 213 5000 105
L = 10.0 m	33 60 212 1000 106
L = 15.0 m	33 60 212 1500 107
L = 20.0 m	33 60 212 2000 108



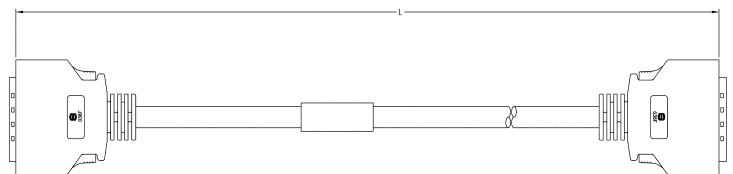
**Cable assembly har-mik®
bellows, 36 pole, male**

Hood: shielded plastic hood with top entry

Cable: 18 twisted pairs, AWG 28, shielded, PVC

Wiring: 1:1

Length: L = 0.5 m	33 60 214 5000 088
L = 1.0 m	33 60 211 0010 089
L = 2.0 m	33 60 211 0020 090
L = 5.0 m	33 60 211 0050 091
L = 10.0 m	33 60 211 0100 092
L = 15.0 m	33 60 211 0150 093
L = 20.0 m	33 60 211 0200 094





Identification

Part No.

Drawing

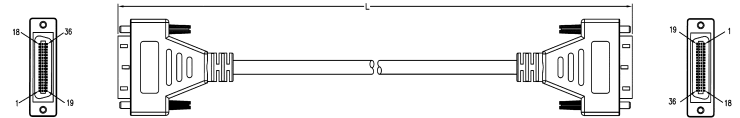
Dimensions in mm

Cable assembly har-mik®
bellows, 36 pole, male

Hood: overmoulded
with top entry
Cable: 18 twisted pairs,
AWG 28, shielded, PVC
Wiring: 1:1

Length: L = 0.5 m
L = 1.0 m
L = 1.5 m
L = 2.0 m
L = 5.0 m

33 60 224 5000 191
33 60 223 1000 192
33 60 223 1500 193
33 60 223 2000 194
33 60 223 5000 195

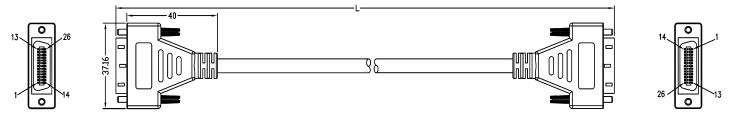


Cable assembly har-mik®
bellows, 26 pole, male

Hood: overmoulded
with top entry
Cable: 13 twisted pairs,
AWG 28, shielded, PVC
Wiring: 1:1

Length: L = 0.5 m
L = 1.0 m
L = 1.5 m
L = 2.0 m
L = 5.0 m

33 60 224 5000 180
33 60 223 1000 181
33 60 223 1500 182
33 60 223 2000 183
33 60 223 5000 184

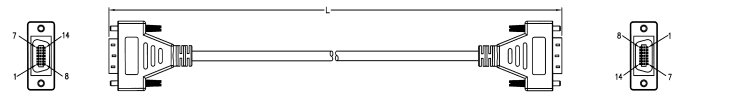


Cable assembly har-mik®
bellows, 14 pole, male

Hood: overmoulded
with top entry
Cable: 7 twisted pairs,
AWG 28, shielded, PVC
Wiring: 1:1

Length: L = 0.5 m
L = 1.0 m
L = 1.5 m
L = 2.0 m
L = 5.0 m

33 60 224 5000 186
33 60 223 1000 187
33 60 223 1500 188
33 60 223 2000 189
33 60 223 5000 190



Cables for insulation displacement termination

Identification	No. of wires	Part No.
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Flat cable for IDC connector Pitch 0.635 mm AWG 30 Length per reel: 100 ft 30.48 m	50	60 90 050 6008
	68	60 90 068 6008

Drawing	Dimensions in mm															
	<table border="1"> <thead> <tr> <th></th> <th>a ± 0.25</th> <th>b ± 0.05</th> <th>c ± 0.2</th> <th>d ± 0.05</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>31.75</td> <td>0.635</td> <td>31.12</td> <td>0.68</td> </tr> <tr> <td>68</td> <td>43.20</td> <td>0.635</td> <td>42.55</td> <td>0.68</td> </tr> </tbody> </table>		a ± 0.25	b ± 0.05	c ± 0.2	d ± 0.05	50	31.75	0.635	31.12	0.68	68	43.20	0.635	42.55	0.68
	a ± 0.25	b ± 0.05	c ± 0.2	d ± 0.05												
50	31.75	0.635	31.12	0.68												
68	43.20	0.635	42.55	0.68												
	The tolerance b is not cumulative															

Technical characteristics

Number of wires	50, 68
Voltage rating	150 V
Current rating	1.5 A max. per conductor
Impedance	75 Ω
Nominal differential capacitance (1 kHz)	90 pF/m
Pitch	0.635 mm
UL style	2678
Temperature range	- 30 °C ... + 105 °C
Materials	
Conductor	7 x 0.102 mm regular tinning or Z-bonding AWG 30
Insulation	PVC



Identification

Part No.

Drawing

Dimensions in mm

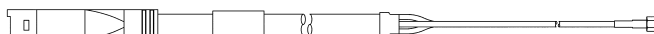
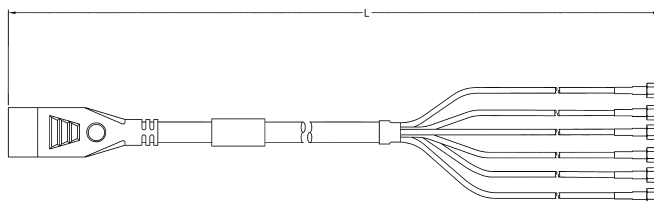
Cable assembly Mini Coax,
6 position female
connector (straight) to SMA
crimp connector

Hood: overmoulded
with top entry

Wiring: 1:1

Length: L = 0.5 m
L = 1.5 m
L = 2.0 m

33 07 233 0500 109
33 07 233 1500 110
33 07 233 2000 111



Cable assembly Mini Coax,
6 pole male

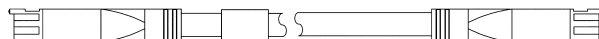
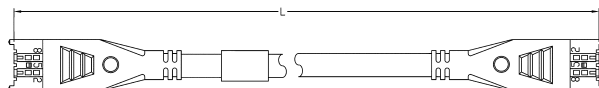
Hood: overmoulded
with top entry

Cable: Mini Coax cable

Wiring: 1:1

Length: L = 0.5 m
L = 1.5 m
L = 2.0 m

33 07 223 0500 112
33 07 223 1500 113
33 07 223 2000 114





Identification	Part No.	Drawing	Dimensions in mm
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**Cable assembly D-Sub HD
78 pole, male**

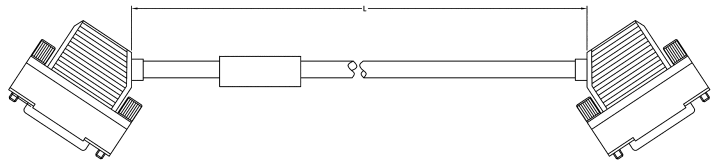
Hood: shielded plastic hood
with side entry,
screw 4-40 UNC

Cable: 39 twisted pairs,
AWG 26, double shielded, PVC

Wiring: 1:1

- Length: L = 0.5 m
 L = 1.0 m
 L = 2.0 m
 L = 5.0 m
 L = 10.0 m
 L = 20.0 m

- 33 56 212 0050 028
 33 56 213 1000 002
 33 56 213 2000 016
 33 56 212 0500 029
 33 56 212 1000 030
 33 56 212 2000 031



**Cable assembly D-Sub HD
44 pole, male**

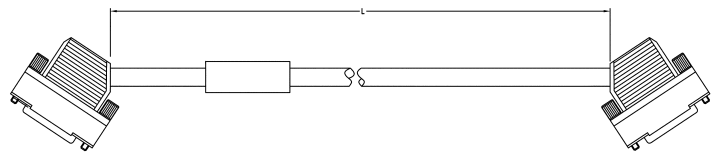
Hood: shielded plastic hood
with side entry,
screw 4-40 UNC

Cable: 22 twisted pairs,
AWG 26, double shielded, PVC

Wiring: 1:1

- Length: L = 0.5 m
 L = 1.0 m
 L = 1.5 m
 L = 2.0 m
 L = 5.0 m
 L = 10.0 m

- 33 56 213 0500 023
 33 56 213 1000 024
 33 56 213 1500 022
 33 56 213 2000 025
 33 56 213 5000 026
 33 56 212 1000 027



**Cable assembly D-Sub HD
44 pole, male**

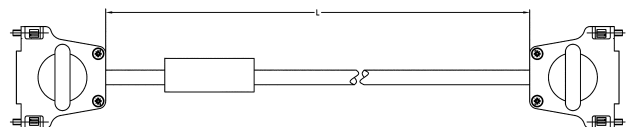
Hood: metal hood with top
entry, screw 4-40 UNC

Cable: 24 twisted pairs,
AWG 26, double shielded, PVC

Wiring: 1:1

- Length: L = 0.5 m
 L = 1.0 m
 L = 5.0 m
 L = 10.0 m
 L = 20.0 m

- 33 56 212 0050 032
 33 56 212 0100 033
 33 56 212 0500 034
 33 56 212 1000 035
 33 56 212 2000 036





Identification	Part No.	Drawing	Dimensions in mm
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**Cable assembly D-Sub HD
44 pole, male**

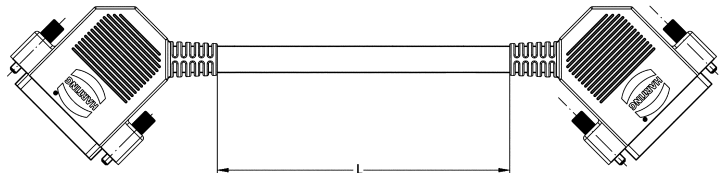
Hood: overmoulded
with side entry

Cable: 24 twisted pairs, solid
wires, AWG 26, shielded,
halogen free

Wiring: 1:1

Length: L = 0.5 m
L = 1.0 m
L = 2.0 m
L = 5.0 m

33 56 224 5000 001
33 56 221 0010 001
33 56 221 0020 001
33 56 221 0050 001



**Cable assembly D-Sub
9 pole, male**

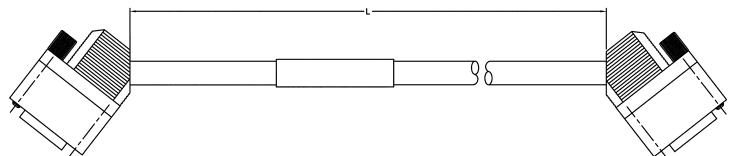
Hood: shielded plastic hood
with side entry,
screw 4-40 UNC

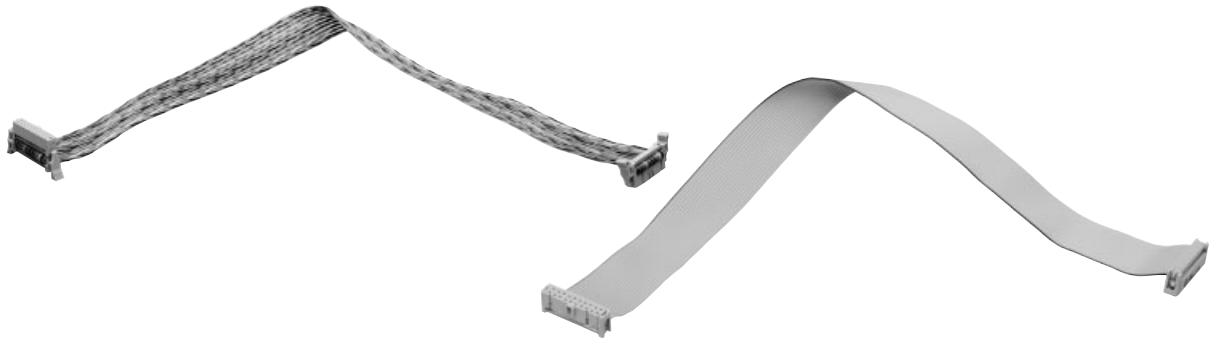
Cable: 5 twisted pairs,
stranded, AWG 24, shielded,
PVC

Wiring: 1:1

Length: L = 0.5 m
L = 1.0 m
L = 1.5 m
L = 2.0 m
L = 5.0 m

33 66 214 5000 058
33 66 213 1000 059
33 66 213 1500 060
33 66 213 2000 061
33 66 213 5000 062



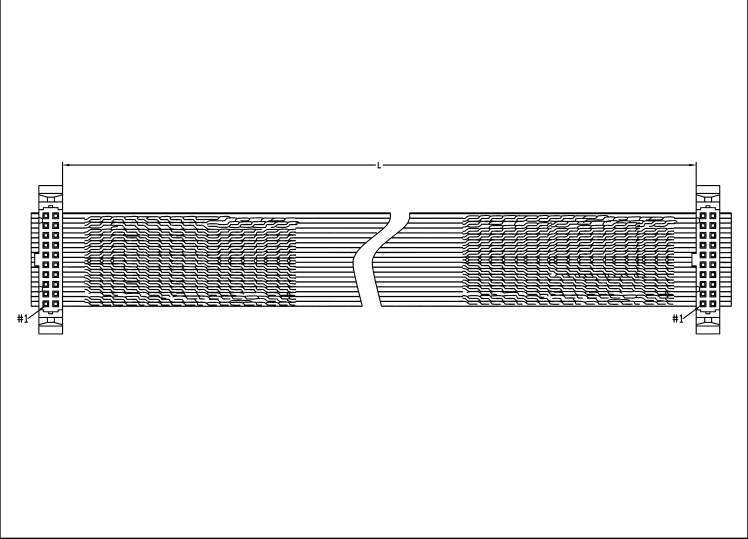


Identification	Part No.	Drawing	Dimensions in mm
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**Cable assembly SEK
20 pole, female**
 Cable: Flat cable,
 10 twisted pairs, AWG 28/7,
 1.27 mm pitch
 Wiring: 1:1

Length: L = 0.5 m
 L = 1.0 m
 L = 1.5 m

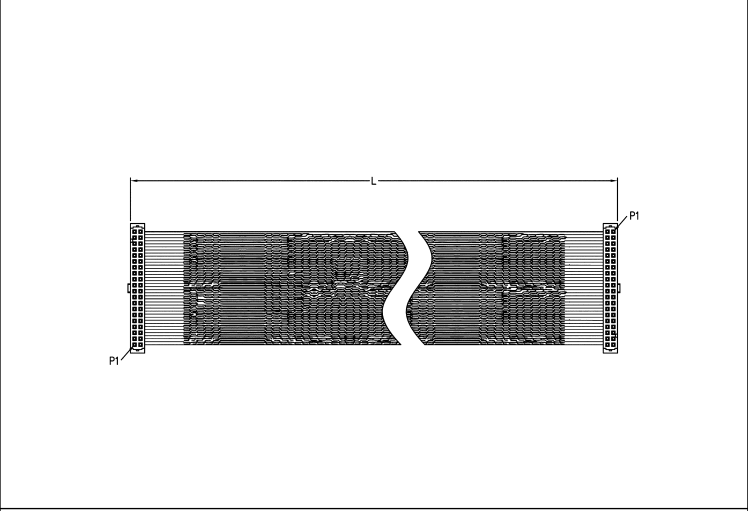
33 18 243 0500 060
 33 18 243 1000 062
 33 18 243 1500 068



**Cable assembly SEK
40 pole, female**
 Cable: Flat cable,
 20 twisted pairs, AWG 28/7,
 1.27 mm pitch
 Wiring: 1:1

Length: L = 0.5 m
 L = 1.0 m
 L = 1.5 m

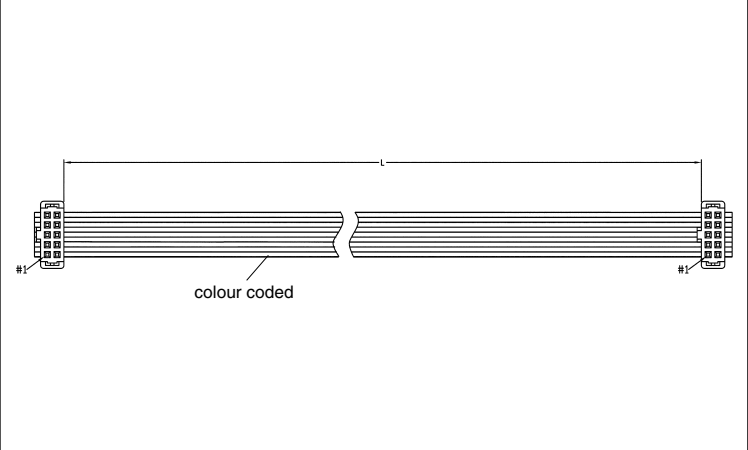
33 18 243 0500 055
 33 18 243 1000 057
 33 18 243 1500 069



**Cable assembly SEK
10 pole, female**
 Cable: Flat cable, grey,
 10 wires, AWG 28/7,
 1.27 mm pitch
 Wiring: 1:1

Length: L = 0.1 m
 L = 0.2 m
 L = 0.5 m
 L = 0.8 m
 L = 1.0 m

33 18 243 0100 063
 33 18 243 0200 064
 33 18 243 0500 065
 33 18 243 0800 066
 33 18 243 1000 067



Cables for insulation displacement termination

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm			
Flat cable grey UL AWM-style 2651 CSA	6	09 18 006 700		Conductor material _____ Copper tinned Gauge _____ AWG 28/7 0.089 mm ² Voltage rating _____ 300 V _{r.m.s.} Current rating at 25 °C _____ 2.1 A max. Capacity unbalanced _____ 45.9 pF/m Impedance unbalanced _____ 105 Ω Propagation delay _____ 4.9 ns/m nominal Insulation material _____ PVC Temperature rating (operating) _____ -20 °C ... + 105 °C Temperature rating (static) _____ -30 °C ... + 105 °C Flammability rating _____ UL: VW-1 Insulation resistance _____ > 100 MΩ/km			
	9	09 18 009 700					
	10	09 18 010 700					
	14	09 18 014 700					
	15	09 18 015 700					
	16	09 18 016 700					
	18	09 18 018 700					
	20	09 18 020 700					
	24	09 18 024 700					
	25	09 18 025 700					
	26	09 18 026 700					
	28	09 18 028 700					
	30	09 18 030 700					
	34	09 18 034 700					
	37	09 18 037 700					
	40	09 18 040 700					
	50	09 18 050 700					
	60	09 18 060 700					
	64	09 18 064 700					
	Length per reel						
30.48 m (100 feet)	1						
100 m (328 feet)	4						
Flat cable grey non-halogenated	6	09 18 006 700		Conductor material _____ Copper tinned Gauge _____ AWG 28/7 0.089 mm ² Voltage rating _____ 300 V _{r.m.s.} Current rating _____ 1.3 A Capacity unbalanced _____ 42.7 pF/m at 1 MHz Impedance unbalanced _____ 100 Ω Inductance _____ 0.56 mH/m Propagation delay _____ 4.8 ns/m Insulation material _____ Non-halogenated flame retardent Polyolefin Temperature rating _____ -40 °C ... + 90 °C Insulation resistance _____ 10000 MΩ/km			
	9	09 18 009 700					
	10	09 18 010 700					
	14	09 18 014 700					
	15	09 18 015 700					
	16	09 18 016 700					
	18	09 18 018 700					
	20	09 18 020 700					
	24	09 18 024 700					
	25	09 18 025 700					
	26	09 18 026 700					
	28	09 18 028 700					
	34	09 18 034 700					
	37	09 18 037 700					
	40	09 18 040 700					
	50	09 18 050 700					
	60	09 18 060 700					
	64	09 18 064 700					
	Length per reel						
	30.48 m (100 feet)	1					
100 m (328 feet)	4						

Important: always store reel vertically

Cables for insulation displacement termination

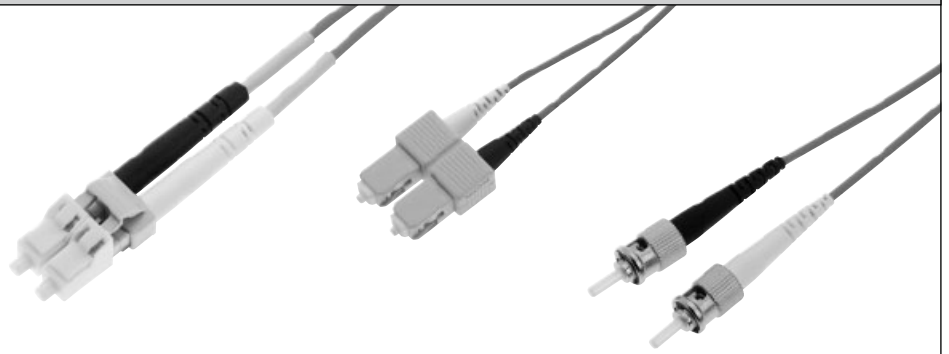
Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
<p>Flat cable colour coded</p> <p>Length per reel 30.48 m (100 feet)</p> <p>UL AWM-style 2651</p>	<p>6</p> <p>9</p> <p>10</p> <p>14</p> <p>15</p> <p>16</p> <p>18</p> <p>20</p> <p>24</p> <p>25</p> <p>26</p> <p>28</p> <p>30</p> <p>34</p> <p>37</p> <p>40</p> <p>50</p> <p>60</p> <p>64</p>	<p>09 18 006 7005</p> <p>09 18 009 7005</p> <p>09 18 010 7005</p> <p>09 18 014 7005</p> <p>09 18 015 7005</p> <p>09 18 016 7005</p> <p>09 18 018 7005</p> <p>09 18 020 7005</p> <p>09 18 024 7005</p> <p>09 18 025 7005</p> <p>09 18 026 7005</p> <p>09 18 028 7005</p> <p>09 18 030 7005</p> <p>09 18 034 7005</p> <p>09 18 037 7005</p> <p>09 18 040 7005</p> <p>09 18 050 7005</p> <p>09 18 060 7005</p> <p>09 18 064 7005</p>	<p>Colour code sequence (in 10 steps) brown, red, orange, yellow, green, blue, violet, grey, white, black</p> <p>Conductor material _____ Copper tinned Gauge _____ AWG 28/7 0.09 mm² Voltage rating _____ 300 V_{r.m.s.} Current rating at 25 °C _____ 2.1 A max. Conductor resistance _____ 221 mΩ/m Capacity unbalanced _____ 42.7 pF/m Impedance unbalanced _____ 105 Ω Inductance unbalanced _____ 0.68 μH/m Signal delay _____ 4.9 ns/m Insulation material _____ PVC Temperature rating (operating) _____ -20 °C ... + 105 °C Temperature rating (static) _____ -30 °C ... + 105 °C Flammability rating _____ UL: VW 1 Insulation resistance _____ 100 MΩ/km</p>	
<p>Flat cable twisted pair</p> <p>Length per reel 30.48 m (100 feet)</p> <p>UL AWM-style 20 130</p>	<p>10</p> <p>14</p> <p>16</p> <p>20</p> <p>26</p> <p>34</p> <p>40</p> <p>50</p> <p>60</p> <p>64</p>	<p>09 18 010 7006</p> <p>09 18 014 7006</p> <p>09 18 016 7006</p> <p>09 18 020 7006</p> <p>09 18 026 7006</p> <p>09 18 034 7006</p> <p>09 18 040 7006</p> <p>09 18 050 7006</p> <p>09 18 060 7006</p> <p>09 18 064 7006</p>	<p>Conductor material _____ Copper tinned Gauge _____ AWG 28/7 0.089 mm² Voltage rating _____ 300 V_{r.m.s.} Conductor resistance _____ 221 mΩ/m Capacity unbalanced _____ 49 pF/m Impedance unbalanced _____ 105 Ω Signal delay _____ 5.2 ns/m Insulation material _____ PVC Temperature rating _____ -20 °C ... + 105 °C Flammability rating _____ UL: VW 1 Insulation resistance _____ 10⁴ MΩ/km</p>	

Cables for insulation displacement termination

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm												
Round flat cable																
with screening (shielding)																
	9	09 18 009 70	① max. 6.86	<p>① Flat cable, AWG 28/7 ② Aluminium / Polyester tape (spiral wrap) ③ 85 % minimum coverage tinned copper braid ④ Outer jacket: black PVC</p>												
	10	09 18 010 70	6.86													
	14	09 18 014 70	7.37													
	15	09 18 015 70	7.62													
UL listed PLCC CL2	16	09 18 016 70	7.87													
CSA certified AWM FT-1	20	09 18 020 70	8.38													
	25	09 18 025 70	9.14													
	26	09 18 026 70	9.14													
	34	09 18 034 70	10.16													
	37	09 18 037 70	10.41													
	40	09 18 040 70	10.92	<p>① Flat cable, AWG 28/7 ② Clear polyester ③ Outer jacket: black PVC</p>												
Length per reel	50	09 18 050 70	12.19													
30.48 m (100 feet)	60	09 18 060 70	13.21													
	64	09 18 064 70	13.46													
100 m (328 feet)																
without screening (shielding)																
	9	09 18 009 70	6.35	<p>① Flat cable, AWG 28/7 ② Clear polyester ③ Outer jacket: black PVC</p>												
	10	09 18 010 70	6.35													
	14	09 18 014 70	6.60													
	15	09 18 015 70	6.86													
UL listed PLCC CL2	16	09 18 016 70	7.11													
CSA certified AWM FT-1	20	09 18 020 70	7.62													
	25	09 18 025 70	8.38													
	26	09 18 026 70	8.38													
	34	09 18 034 70	9.40													
	37	09 18 037 70	9.65													
	40	09 18 040 70	10.16	<table border="1"> <thead> <tr> <th>No. of contacts</th> <th>a</th> <th>b</th> <th>c</th> </tr> </thead> <tbody> <tr> <td>9 to 26</td> <td>19.05</td> <td>19.05</td> <td>38.10</td> </tr> <tr> <td>34 to 64</td> <td>38.10</td> <td>19.05</td> <td>57.15</td> </tr> </tbody> </table>	No. of contacts	a	b	c	9 to 26	19.05	19.05	38.10	34 to 64	38.10	19.05	57.15
No. of contacts	a	b	c													
9 to 26	19.05	19.05	38.10													
34 to 64	38.10	19.05	57.15													
Length per reel	50	09 18 050 70	11.43													
30.48 m (100 feet)	60	09 18 060 70	12.45													
	64	09 18 064 70	12.70													
100 m (328 feet)																

Conductor material _____ Copper tinned
 Gauge _____ AWG 28/7 0.089 mm²
 Voltage rating _____ 300 V_{r.m.s.}
 Conductor resistance _____ 225 mΩ/m
 Capacity unbalanced _____ 78.7 pF/m
 Impedance unbalanced _____ 75 Ω
 Signal delay _____ 5.25 ns/m nom.
 Insulation material _____ PVC
 Temperature rating _____ -20 °C ... + 105 °C
 Flammability rating _____ UL: VW 1
 Insulation resistance _____ 10⁴ MΩ/km

* Not normally kept in stock
Important: always store reels vertically

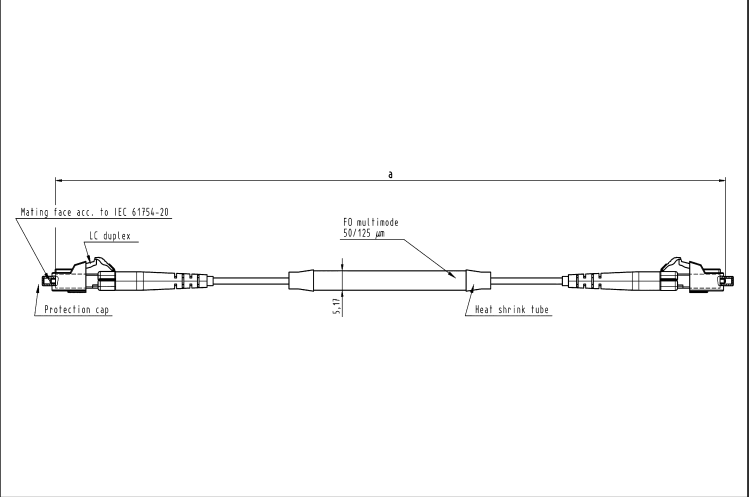


Identification	Part No.	Drawing	Dimensions in mm
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Jumper cable
2 x LC duplex
Multi Mode 50/125 µm

Length: a = 1 m
a = 2 m
a = 3 m
a = 4 m
a = 5 m
a = 6 m
a = 7 m
a = 8 m
a = 9 m
a = 10 m

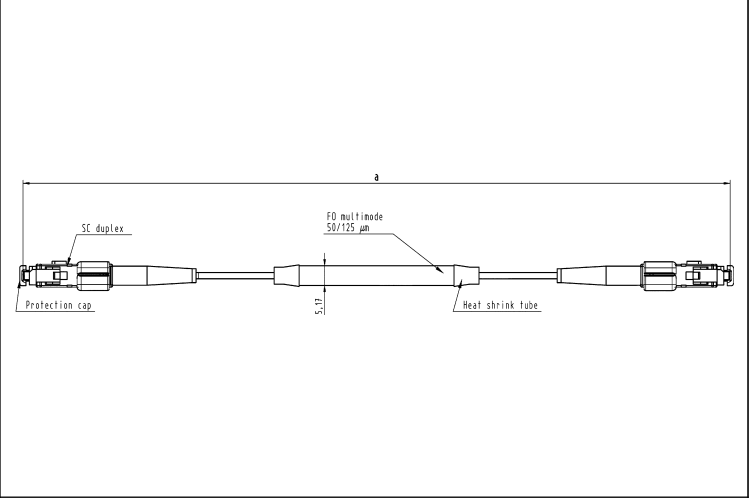
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33 01 241 0020 005
33 01 241 0030 005
33 01 241 0040 005
33 01 241 0050 005
33 01 241 0060 005
33 01 241 0070 005
33 01 241 0080 005
33 01 241 0090 005
33 01 241 0100 005



Jumper cable
2 x SC duplex
Multi Mode 50/125 µm

Length: a = 1 m
a = 2 m
a = 3 m
a = 4 m
a = 5 m
a = 6 m
a = 7 m
a = 8 m
a = 9 m
a = 10 m

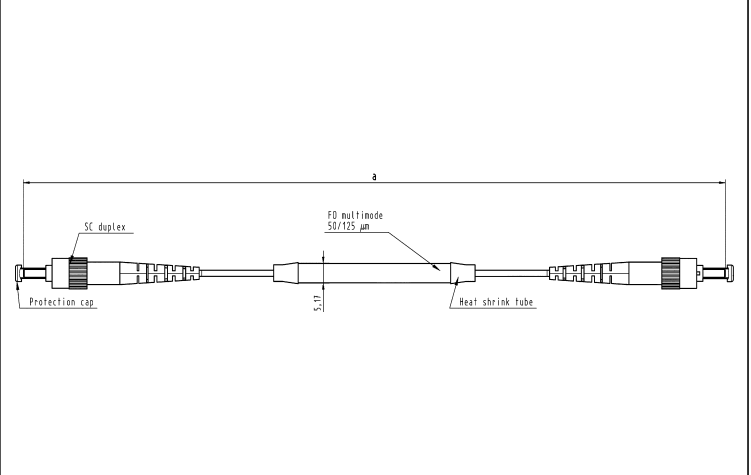
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33 01 241 0020 006
33 01 241 0030 006
33 01 241 0040 006
33 01 241 0050 006
33 01 241 0060 006
33 01 241 0070 006
33 01 241 0080 006
33 01 241 0090 006
33 01 241 0100 006

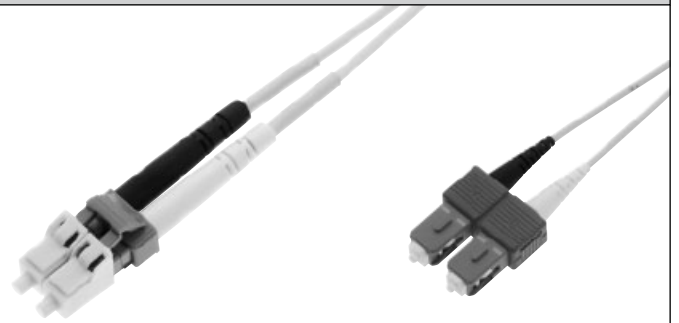


Jumper cable
2 x ST duplex
Multi Mode 50/125 µm

Length: a = 1 m
a = 2 m
a = 3 m
a = 4 m
a = 5 m
a = 6 m
a = 7 m
a = 8 m
a = 9 m
a = 10 m

33 01 241 0010 007
33 01 241 0020 007
33 01 241 0030 007
33 01 241 0040 007
33 01 241 0050 007
33 01 241 0060 007
33 01 241 0070 007
33 01 241 0080 007
33 01 241 0090 007
33 01 241 0100 007





Identification

Part No.

Drawing

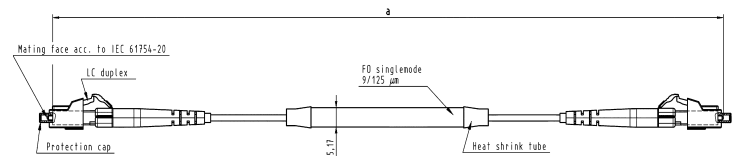
Dimensions in mm

Jumper cable

2 x LC duplex
Single Mode 9/125 μm

- Length: a = 1 m
 a = 2 m
 a = 3 m
 a = 4 m
 a = 5 m
 a = 6 m
 a = 7 m
 a = 8 m
 a = 9 m
 a = 10 m

- 33 01 241 0010 008
 33 01 241 0020 008
 33 01 241 0030 008
 33 01 241 0040 008
 33 01 241 0050 008
 33 01 241 0060 008
 33 01 241 0070 008
 33 01 241 0080 008
 33 01 241 0090 008
 33 01 241 0100 008

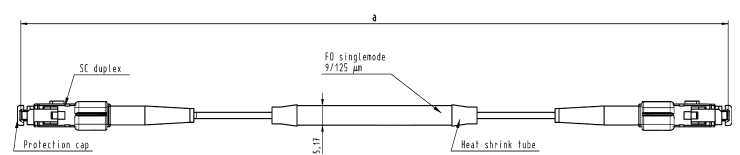


Jumper cable

2 x SC duplex
Single Mode 9/125 μm

- Length: a = 1 m
 a = 2 m
 a = 3 m
 a = 4 m
 a = 5 m
 a = 6 m
 a = 7 m
 a = 8 m
 a = 9 m
 a = 10 m

- 33 01 241 0010 009
 33 01 241 0020 009
 33 01 241 0030 009
 33 01 241 0040 009
 33 01 241 0050 009
 33 01 241 0060 009
 33 01 241 0070 009
 33 01 241 0080 009
 33 01 241 0090 009
 33 01 241 0100 009





Identification

Part No.

Drawing

Dimensions in mm

SCRJ

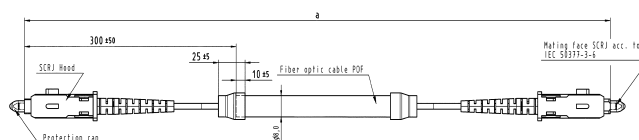
double ended

Hood: plastic hood with top entry

Cable: POF, multi mode,
980/1000 μm ,
PROFINET type C

- Length: a = 1 m
 a = 2 m
 a = 5 m
 a = 10 m
 a = 20 m

- 33 02 211 0010 001
 33 02 211 0020 001
 33 02 211 0050 001
 33 02 211 0100 001
 33 02 211 0200 001



SCRJ

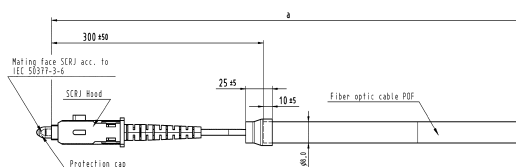
single ended

Hood: plastic hood with top entry

Cable: POF, multi mode,
980/1000 μm ,
PROFINET type C

- Length: a = 1 m
 a = 2 m
 a = 5 m
 a = 10 m
 a = 20 m

- 33 02 111 0010 001
 33 02 111 0020 001
 33 02 111 0050 001
 33 02 111 0100 001
 33 02 111 0200 001





Identification	Part No.	Drawing	Dimensions in mm
<p>Cable assembly SFP+</p> <p>Cable: 2 pair twinax, AWG 28, PVC</p> <p>Wiring according to SFF 8431</p> <p>Length: L = 0.5 m L = 1.0 m L = 1.5 m</p>	<p>33 70 211 0050 007 33 70 211 0100 008 33 70 211 0150 009</p>		
<p>Cable assembly QSFP+</p> <p>Cable: 8 pair twinax, AWG 30, PVC</p> <p>Wiring according to SFF 8436</p> <p>Length: L = 0.5 m L = 1.0 m L = 1.5 m</p>	<p>33 74 211 0050 010 33 74 211 0100 011 33 74 211 0150 012</p>		
<p>Cable assembly QSFP+</p> <p>Cable: 8 pair twinax, AWG 26, PVC</p> <p>Wiring according to SFF 8436</p> <p>Length: L = 0.5 m L = 1.0 m L = 1.5 m</p>	<p>33 76 211 0050 007 33 76 211 0100 008 33 76 211 0150 009</p>		



Identification	Part No.	Drawing	Dimensions in mm
<p>Cable assembly har-flex® 6 pole</p> <p>Cable: Flat cable, 6 wires, AWG 30, 0.635 mm pitch</p> <p>Wiring: 1:1</p> <p>Length: L = 0.1 m L = 0.2 m L = 0.5 m</p>	<p>33 15 243 0100 001 33 15 243 0200 002 33 15 243 0500 003</p>		
<p>Cable assembly har-flex® 12 pole</p> <p>Cable: Flat cable, 12 wires, AWG 30, 0.635 mm pitch</p> <p>Wiring: 1:1</p> <p>Length: L = 0.1 m L = 0.2 m L = 0.5 m</p>	<p>33 15 243 0100 004 33 15 243 0200 005 33 15 243 0500 006</p>		
<p>Cable assembly har-flex® 26 pole</p> <p>Cable: Flat cable, 26 wires, AWG 30, 0.635 mm pitch</p> <p>Wiring: 1:1</p> <p>Length: L = 0.1 m L = 0.2 m L = 0.5 m</p>	<p>33 15 243 0100 007 33 15 243 0200 008 33 15 243 0500 009</p>		



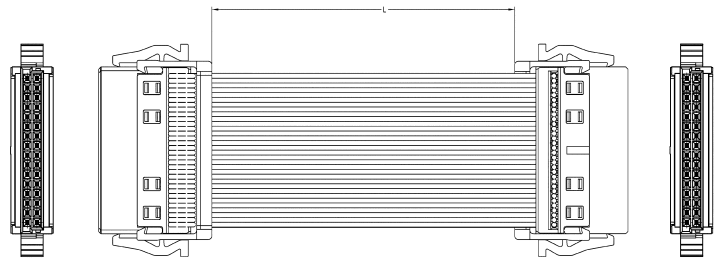
Identification	Part No.	Drawing	Dimensions in mm
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**Cable assembly har-flex®
32 pole**

Cable: Flat cable,
32 wires, AWG 30,
0.635 mm pitch
Wiring: 1:1

Length: L = 0.1 m
L = 0.2 m
L = 0.5 m

33 15 243 0100 010
33 15 243 0200 011
33 15 243 0500 012

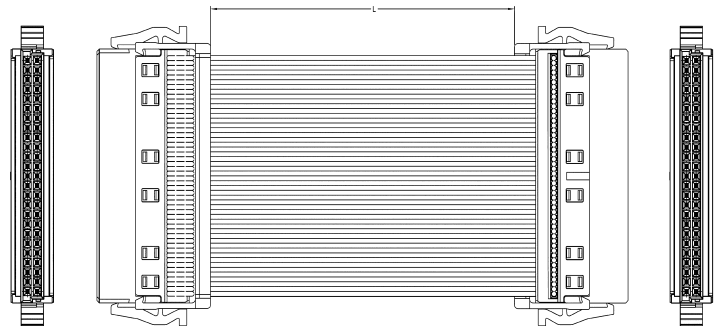


**Cable assembly har-flex®
50 pole**

Cable: Flat cable,
50 wires, AWG 30,
0.635 mm pitch
Wiring: 1:1

Length: L = 0.1 m
L = 0.2 m
L = 0.5 m

33 15 243 0100 013
33 15 243 0200 014
33 15 243 0500 015



HARTING offers a wide range of cable assemblies in either copper, hybrid (power and data) or fibre optic based around its comprehensive range of I/O connectors.

These cable assemblies are manufactured using the innovative **HARTING** PushPull technology and the classic Han® 3 A housings with different kinds of inserts. These housings are available in either metal or plastic.

The selected materials and the special manufacturing processes allow the use of **HARTING** cable assemblies under such environmental conditions that are also characterized through

extreme fluctuations of temperature, high ozone levels and ultraviolet radiation.

The **HARTING** product portfolio offers fully assembled 100 % tested cable harnesses and removes the need for on-site assembly activity. Customer specific requirements are available on request.

The application range of **HARTING** cable assemblies are amongst others in telecom outdoor and wind energy. Right in the outdoor area on base stations **HARTING** cable assemblies are ideally suited for easier handling, transportation and reduced installation time.



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Han[®] 3 A, Hybrid RJ45	02.13
Han[®] 3 A, RJ45 · HARTING PushPull, RJ45	02.14

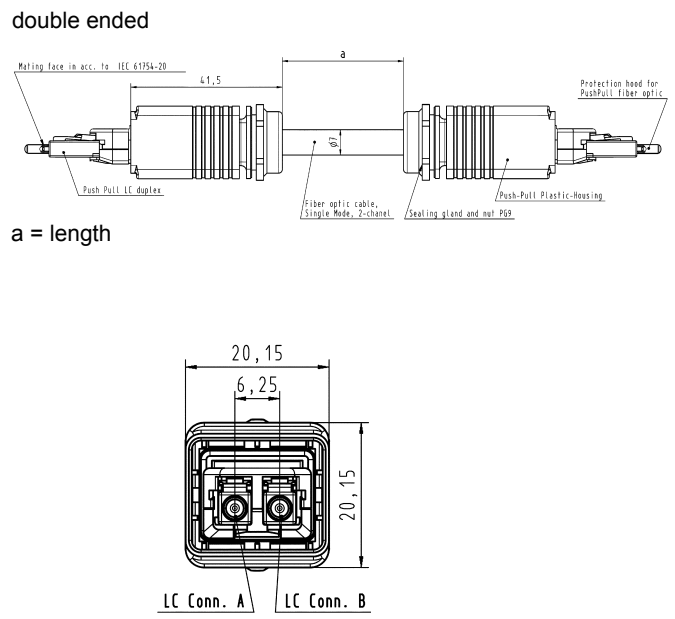


Identification	Part No.	Drawing	Dimensions in mm
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Fibre optic cable, double ended, single mode

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

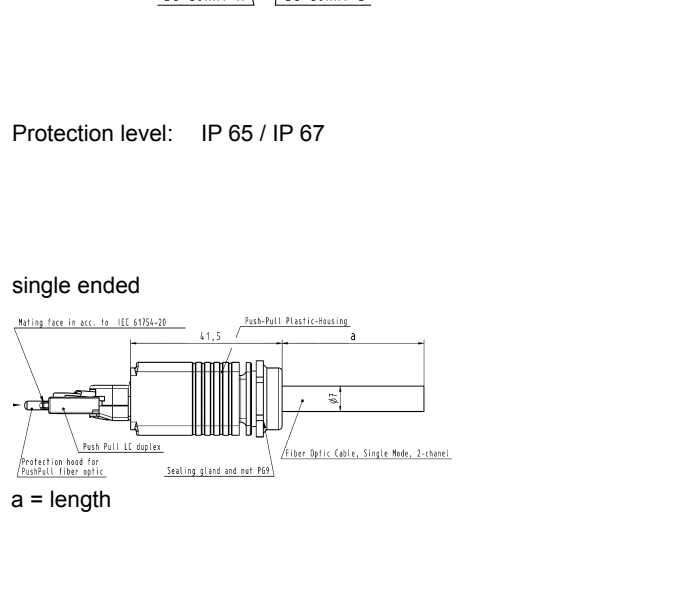
33 58 211 0010 002
 33 58 211 0050 002
 33 58 211 0100 002
 33 58 211 0200 002
 33 58 211 0400 002
 33 58 211 0500 002
 33 58 211 1000 002



Fibre optic cable, single ended, single mode

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

33 58 111 0010 002
 33 58 111 0050 002
 33 58 111 0100 002
 33 58 111 0200 002
 33 58 111 0400 002
 33 58 111 0500 002
 33 58 111 1000 002



Fibre optic breakout cable, single mode

Length: 10 m
 Length: 20 m
 Length: 100 m

33 58 751 0100 002
 33 58 751 0200 002
 33 58 751 1000 002

PUR jacket
 2-fibre single mode
 Outer diameter: 6.5 mm
 Min. bending radius: 10.4 cm
 Installation: 10.4 cm
 Operating: 5.2 cm

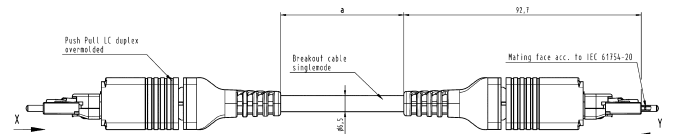


Identification	Part No.	Drawing	Dimensions in mm
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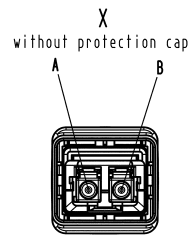
Fibre optic cable, double ended,
single mode
overmolded

Length: a =	1 m	33 58 231 0010 015
a =	5 m	33 58 231 0050 015
a =	10 m	33 58 231 0100 015
a =	20 m	33 58 231 0200 015
a =	40 m	33 58 231 0400 015
a =	50 m	33 58 231 0500 015
a =	60 m	33 58 231 0600 015
a =	100 m	33 58 231 1000 015
a =	300 m	33 58 231 3000 015

double ended

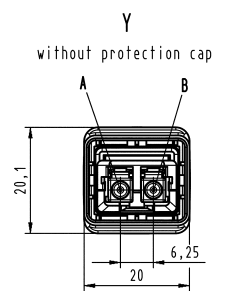


a = length



Loading-Plan

A — blue — B
B — orange — A



Fibre optic breakout cable,
single mode

Length: 10 m	20 m	33 58 751 0100 002
Length: 20 m		33 58 751 0200 002
Length: 100 m		33 58 751 1000 002



PUR jacket

2-fibre single mode

Outer diameter: 6.5 mm

Min. bending radius:

Installation: 10.4 cm

Operating: 5.2 cm

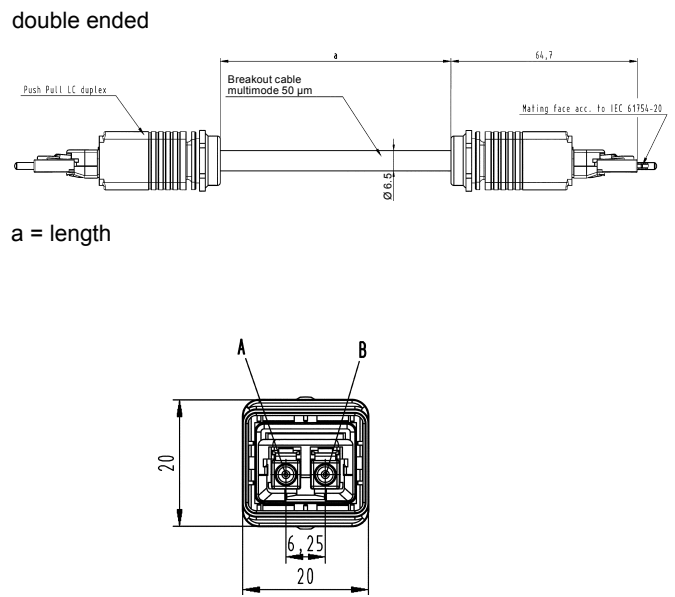


Identification	Part No.	Drawing	Dimensions in mm
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Fibre optic cable, double ended, multi mode, 50 µm

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

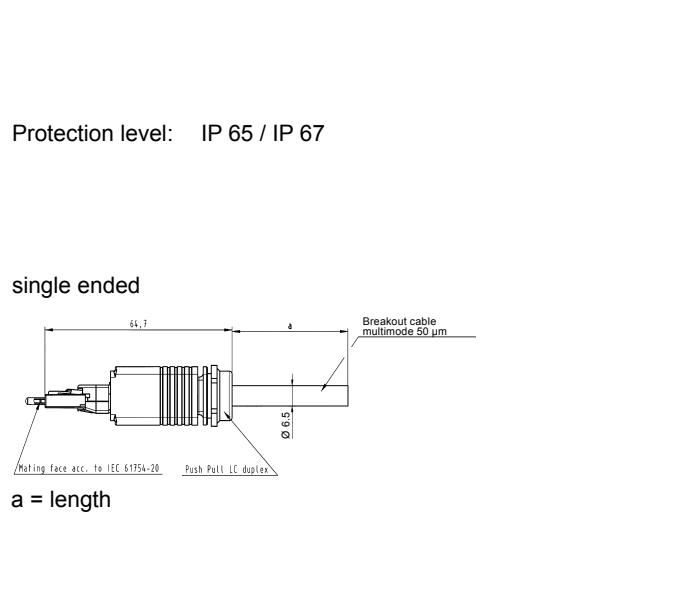
33 58 211 0010 004
 33 58 211 0050 004
 33 58 211 0100 004
 33 58 211 0200 004
 33 58 211 0400 004
 33 58 211 0500 004
 33 58 211 1000 004



Fibre optic cable, single ended, multi mode, 50 µm

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

33 58 111 0010 004
 33 58 111 0050 004
 33 58 111 0100 004
 33 58 111 0200 004
 33 58 111 0400 004
 33 58 111 0500 004
 33 58 111 1000 004



Fibre optic breakout cable, multi mode, 50 µm

Length: 10 m
 Length: 20 m
 Length: 100 m

33 58 751 0100 003
 33 58 751 0200 003
 33 58 751 1000 003

PUR jacket	
2-fibre multi mode	50 µm
Outer diameter:	6.5 mm
Min. bending radius:	
Installation:	10.4 cm
Operating:	5.2 cm

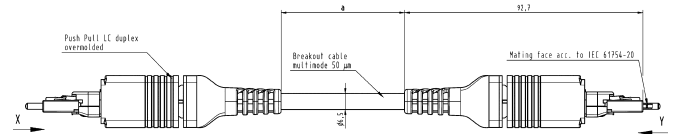


Identification	Part No.	Drawing	Dimensions in mm
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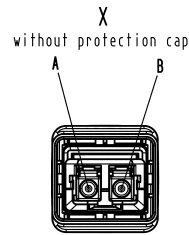
Fibre optic cable, double ended, multi mode, 50 µm overmolded

Length: a = 1 m	33 58 231 0010 017
a = 5 m	33 58 231 0050 017
a = 10 m	33 58 231 0100 017
a = 20 m	33 58 231 0200 017
a = 40 m	33 58 231 0400 017
a = 50 m	33 58 231 0500 017
a = 60 m	33 58 231 0600 017
a = 100 m	33 58 231 1000 017
a = 300 m	33 58 231 3000 017

double ended

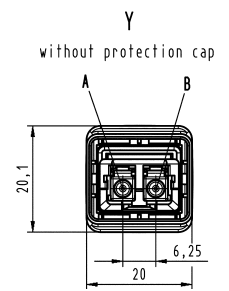


a = length



Loading-Plan

A — blue — B
B — orange — A



Fibre optic breakout cable, multi mode

Length: 10 m	33 58 751 0100 003
Length: 20 m	33 58 751 0200 003
Length: 100 m	33 58 751 1000 003



PUR jacket
 2-fibre multi mode 50 µm
 Outer diameter: 6.5 mm
 Min. bending radius:
 Installation: 10.4 cm
 Operating: 5.2 cm

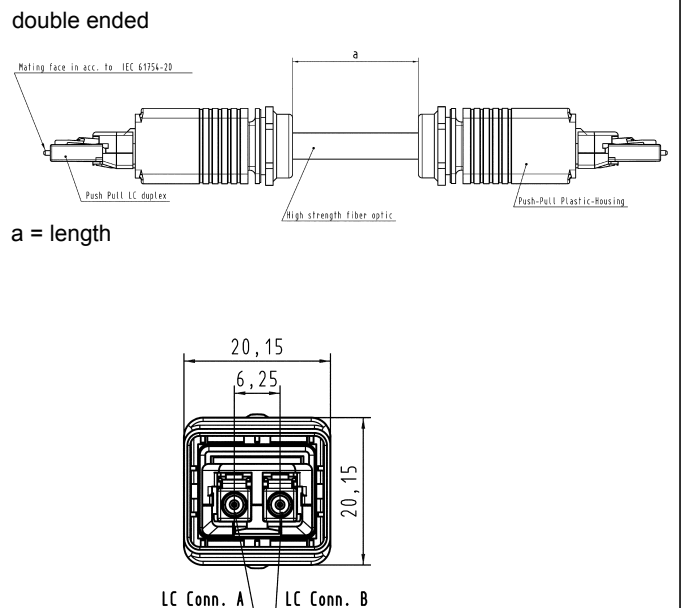


Identification	Part No.	Drawing	Dimensions in mm
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Fibre optic cable, double ended, multi mode, 62.5 µm

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

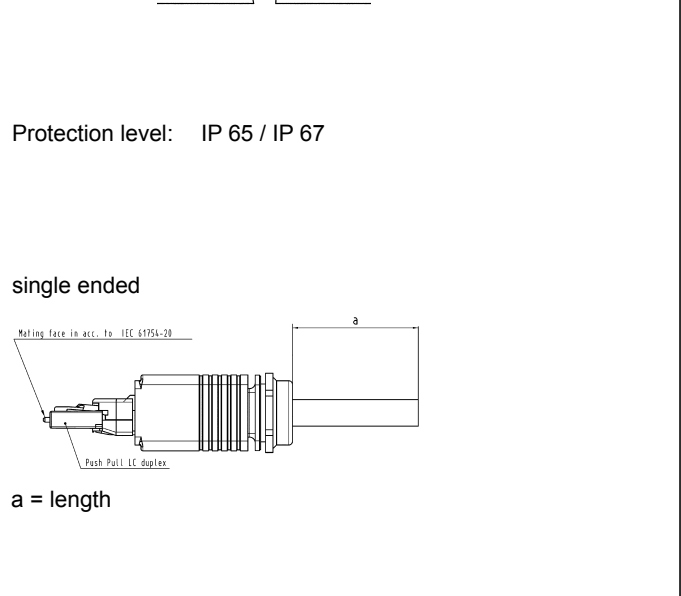
33 58 211 0010 001
 33 58 211 0050 001
 33 58 211 0100 001
 33 58 211 0200 001
 33 58 211 0400 001
 33 58 211 0500 001
 33 58 211 1000 001



Fibre optic cable, single ended, multi mode, 62.5 µm

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

33 58 111 0010 001
 33 58 111 0050 001
 33 58 111 0100 001
 33 58 111 0200 001
 33 58 111 0400 001
 33 58 111 0500 001
 33 58 111 1000 001



Fibre optic breakout cable, multi mode, 62.5 µm

Length: 10 m
 Length: 20 m
 Length: 100 m

33 58 751 0100 001
 33 58 751 0200 001
 33 58 751 1000 001

PUR jacket	
2-fibre multi mode	62.5 µm
Outer diameter:	7 mm
Min. bending radius:	
Installation:	10.5 cm
Operating:	7.0 cm

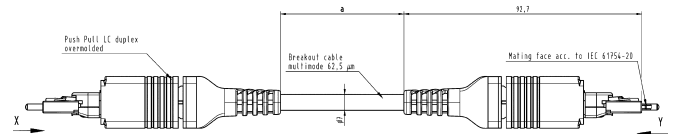


Identification	Part No.	Drawing	Dimensions in mm
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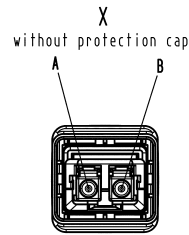
Fibre optic cable, double ended, multi mode, 62.5 µm overmolded

Length: a = 1 m	33 58 231 0010 016
a = 5 m	33 58 231 0050 016
a = 10 m	33 58 231 0100 016
a = 20 m	33 58 231 0200 016
a = 40 m	33 58 231 0400 016
a = 50 m	33 58 231 0500 016
a = 60 m	33 58 231 0600 016
a = 100 m	33 58 231 1000 016
a = 300 m	33 58 231 3000 016

double ended

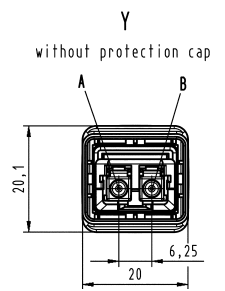


a = length



Loading-Plan

A — blue — B
B — orange — A



Fibre optic breakout cable, multi mode, 62.5 µm

Length: 10 m	33 58 751 0100 001
Length: 20 m	33 58 751 0200 001
Length: 100 m	33 58 751 1000 001



PUR jacket
 2-fibre multi mode 62.5 µm
 Outer diameter: 7 mm
 Min. bending radius:
 Installation: 10.5 cm
 Operating: 7.0 cm

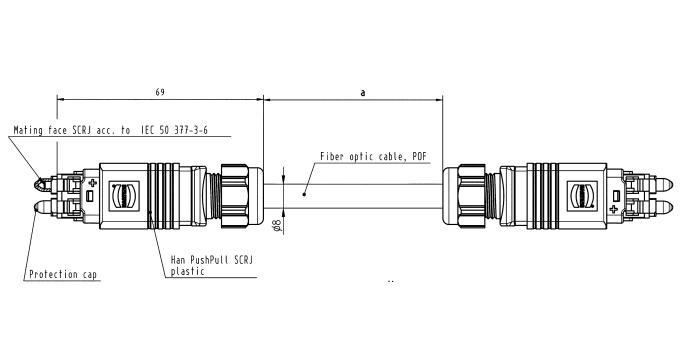


Identification	Part No.	Drawing	Dimensions in mm
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Han® PushPull SCRJ
 double ended
 Hood: plastic with top entry
 Cable: POF, multi mode,
 980/1000 μm,
 PROFINET type C

Length: a = 1 m
 a = 2 m
 a = 5 m
 a = 10 m
 a = 20 m

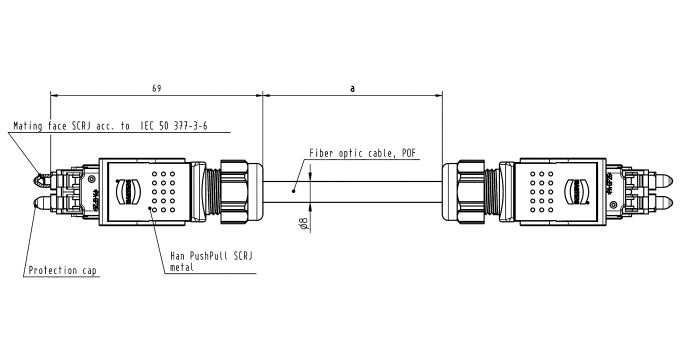
33 53 211 0010 001
 33 53 211 0020 001
 33 53 211 0050 001
 33 53 211 0100 001
 33 53 211 0200 001



Han® PushPull SCRJ
 double ended
 Hood: metal with top entry
 Cable: POF, multi mode,
 980/1000 μm,
 PROFINET type C

Length: a = 1 m
 a = 2 m
 a = 5 m
 a = 10 m
 a = 20 m

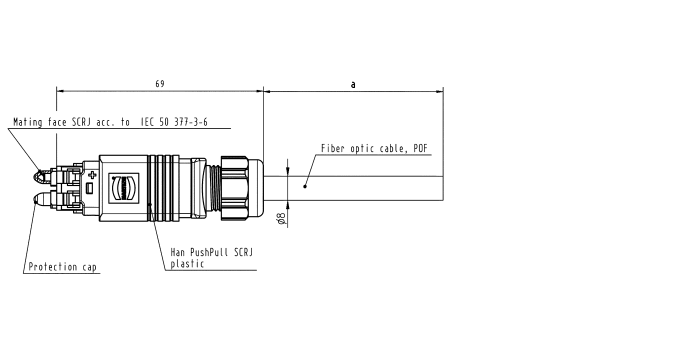
33 53 211 0010 002
 33 53 211 0020 002
 33 53 211 0050 002
 33 53 211 0100 002
 33 53 211 0200 002



Han® PushPull SCRJ
 single ended
 Hood: plastic with top entry
 Cable: POF, multi mode,
 980/1000 μm,
 PROFINET type C

Length: a = 1 m
 a = 2 m
 a = 5 m
 a = 10 m
 a = 20 m

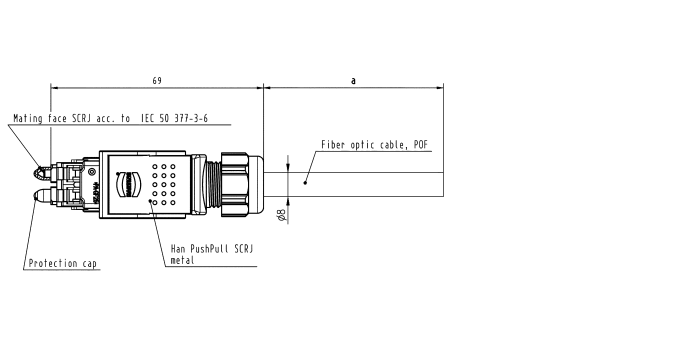
33 53 111 0010 001
 33 53 111 0020 001
 33 53 111 0050 001
 33 53 111 0100 001
 33 53 111 0200 001



Han® PushPull SCRJ
 single ended
 Hood: metal with top entry
 Cable: POF, multi mode,
 980/1000 μm,
 PROFINET type C

Length: a = 1 m
 a = 2 m
 a = 5 m
 a = 10 m
 a = 20 m

33 53 111 0010 002
 33 53 111 0020 002
 33 53 111 0050 002
 33 53 111 0100 002
 33 53 111 0200 002





Identification	Part No.	Drawing	Dimensions in mm
<p>Fibre optic cable, double ended, single mode, metal 2 x Han® 3 A, 2 x LC duplex</p> <p>Length: a = 1 m a = 5 m a = 10 m a = 20 m a = 40 m a = 50 m a = 100 m</p>	<p>33 54 211 0010 001 33 54 211 0050 001 33 54 211 0100 001 33 54 211 0200 001 33 54 211 0400 001 33 54 211 0500 001 33 54 211 1000 001</p>	<p>double ended</p> <p>a = length</p>	
<p>Fibre optic cable, single ended, single mode, metal 1 x Han® 3 A, 2 x LC duplex</p> <p>Length: a = 1 m a = 5 m a = 10 m a = 20 m a = 40 m a = 50 m a = 100 m</p>	<p>33 54 111 0010 001 33 54 111 0050 001 33 54 111 0100 001 33 54 111 0200 001 33 54 111 0400 001 33 54 111 0500 001 33 54 111 1000 001</p>	<p>Protection level: IP 65 / IP 67</p> <p>single ended</p> <p>a = length</p>	
<p>Fibre optic breakout cable, single mode</p> <p>Length: 10 m Length: 20 m Length: 100 m</p>	<p>33 54 751 0100 001 33 54 751 0200 001 33 54 751 1000 001</p>	<p>PVC jacket 4-fibre single mode Outer diameter: 9.5 mm Min. bending radius: Installation: 15 x OD Operating: 10 x OD</p>	

Further cable lengths are available on request

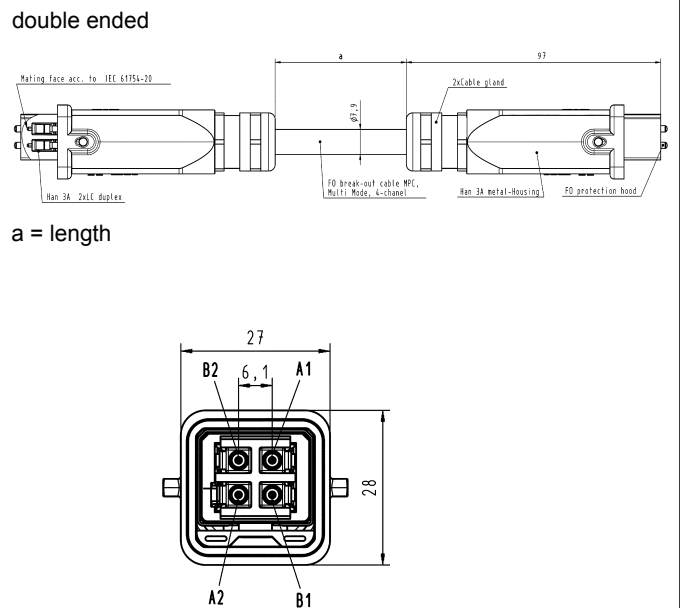


Identification	Part No.	Drawing	Dimensions in mm
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Fibre optic cable, double ended, multi mode, metal, 50 µm
 2 x Han® 3 A, 2 x LC duplex

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

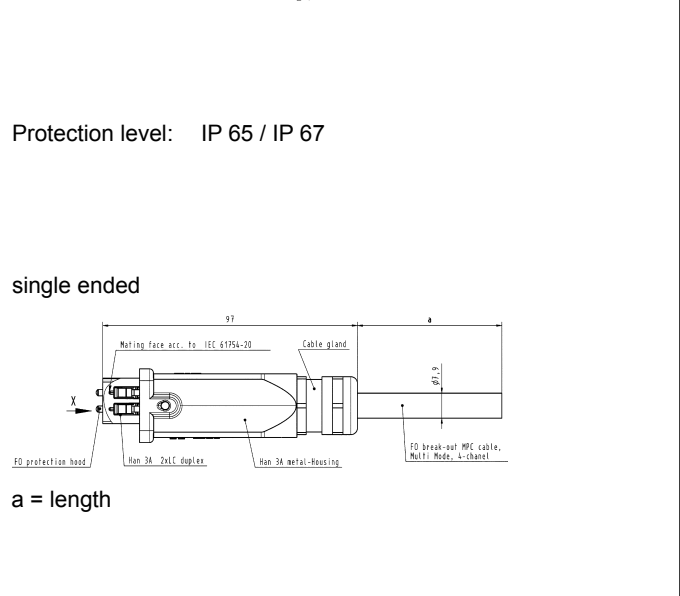
33 54 211 0010 002
 33 54 211 0050 002
 33 54 211 0100 002
 33 54 211 0200 002
 33 54 211 0400 002
 33 54 211 0500 002
 33 54 211 1000 002



Fibre optic cable, single ended, multi mode, metal, 50 µm
 1 x Han® 3 A, 2 x LC duplex

Length: a = 1 m
 a = 5 m
 a = 10 m
 a = 20 m
 a = 40 m
 a = 50 m
 a = 100 m

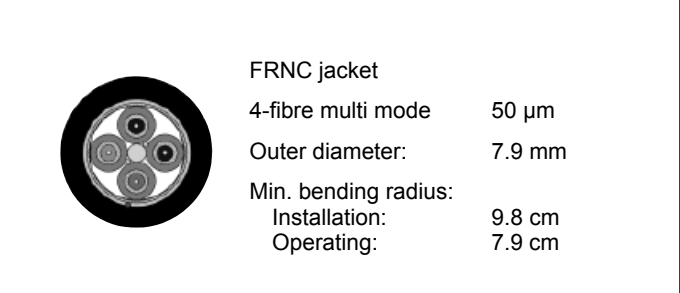
33 54 111 0010 002
 33 54 111 0050 002
 33 54 111 0100 002
 33 54 111 0200 002
 33 54 111 0400 002
 33 54 111 0500 002
 33 54 111 1000 002



Fibre optic breakout cable , multi mode, 50 µm

Length: 10 m
 Length: 20 m
 Length: 100 m

33 54 751 0100 002
 33 54 751 0200 002
 33 54 751 1000 002





Identification

Part No.

Drawing

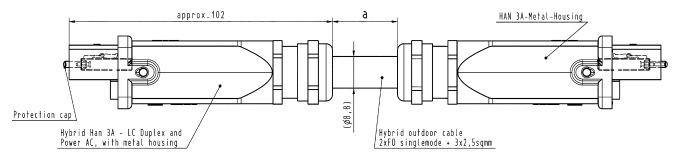
Dimensions in mm

Hybrid fibre optic cable,
single mode, double ended
2 x FO + 3 x 2.5 mm², 2 x Han® 3 A

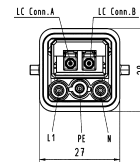
Length: a = 1 m	AC version DC version
a = 5 m	AC version DC version
a = 10 m	AC version DC version
a = 20 m	AC version DC version
a = 40 m	AC version DC version
a = 50 m	AC version DC version
a = 100 m	AC version DC version

33 57 211 0015 003	33 57 211 0015 004
33 57 211 0055 003	33 57 211 0055 004
33 57 211 0105 003	33 57 211 0105 004
33 57 211 0205 003	33 57 211 0205 004
33 57 211 0405 003	33 57 211 0405 004
33 57 211 0505 003	33 57 211 0505 004
33 57 211 1005 003	33 57 211 1005 004

double ended



a = length



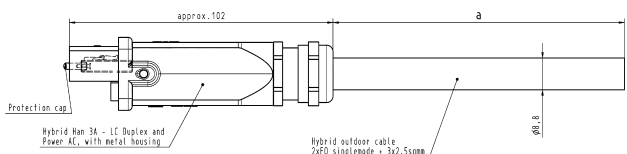
Protection level: IP 65 / IP 67

Hybrid fibre optic cable,
single mode, single ended
2 x FO + 3 x 2.5 mm², 1 x Han® 3 A

Length: a = 1 m	AC version DC version
a = 5 m	AC version DC version
a = 10 m	AC version DC version
a = 20 m	AC version DC version
a = 40 m	AC version DC version
a = 50 m	AC version DC version
a = 100 m	AC version DC version

33 57 111 0015 003	33 57 111 0015 004
33 57 111 0055 003	33 57 111 0055 004
33 57 111 0105 003	33 57 111 0105 004
33 57 111 0205 003	33 57 111 0205 004
33 57 111 0405 003	33 57 111 0405 004
33 57 111 0505 003	33 57 111 0505 004
33 57 111 1005 003	33 57 111 1005 004

single ended



a = length

Hybrid fibre optic cable,
single mode

Length: 10 m
Length: 20 m
Length: 500 m

33 57 851 0100 003	33 57 851 0200 003	33 57 851 5000 003
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PVC jacket
2 x 9/125 + 3 x 2.5 mm²
Outer diameter: 8.8 mm
Min. bending radius:
Installation: 9 cm
Operating: 18 cm



Identification	Part No.	Drawing	Dimensions in mm
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Hybrid fibre optic cable, multi mode, double ended
 2 x G50/125 + 3 x 2.5 mm²

Length: a = 1 m AC version
 DC version

 a = 5 m AC version
 DC version

 a = 10 m AC version
 DC version

 a = 20 m AC version
 DC version

 a = 40 m AC version
 DC version

 a = 50 m AC version
 DC version

 a = 100 m AC version
 DC version

33 57 211 0015 001
 33 57 211 0015 002

33 57 211 0055 001
 33 57 211 0055 002

33 57 211 0105 001
 33 57 211 0105 002

33 57 211 0205 001
 33 57 211 0205 002

33 57 211 0405 001
 33 57 211 0405 002

33 57 211 0505 001
 33 57 211 0505 002

33 57 211 1005 001
 33 57 211 1005 002

double ended

a = length

Protection level: IP 65 / IP 67

Hybrid fibre optic cable, multi mode, single ended
 2 x G50/125 + 3 x 2.5 mm²

Length: a = 1 m AC version
 DC version

 a = 5 m AC version
 DC version

 a = 10 m AC version
 DC version

 a = 20 m AC version
 DC version

 a = 40 m AC version
 DC version

 a = 50 m AC version
 DC version

 a = 100 m AC version
 DC version

33 57 111 0015 001
 33 57 111 0015 002

33 57 111 0055 001
 33 57 111 0055 002

33 57 111 0105 001
 33 57 111 0105 002

33 57 111 0205 001
 33 57 111 0205 002

33 57 111 0405 001
 33 57 111 0405 002

33 57 111 0505 001
 33 57 111 0505 002

33 57 111 1005 001
 33 57 111 1005 002

single ended

a = length

Hybrid fibre optic cable, multi mode, 50 µm

Length: 10 m 33 57 851 0100 002

Length: 20 m 33 57 851 0200 002

Length: 500 m 33 57 851 5000 002

33 57 851 0100 002

33 57 851 0200 002

33 57 851 5000 002

PVC jacket

2 x G50/125 + 3 x 2.5 mm²

Outer diameter: 12.6 mm

Min. bending radius:

single: 5 x OD

repeated: 10 x OD

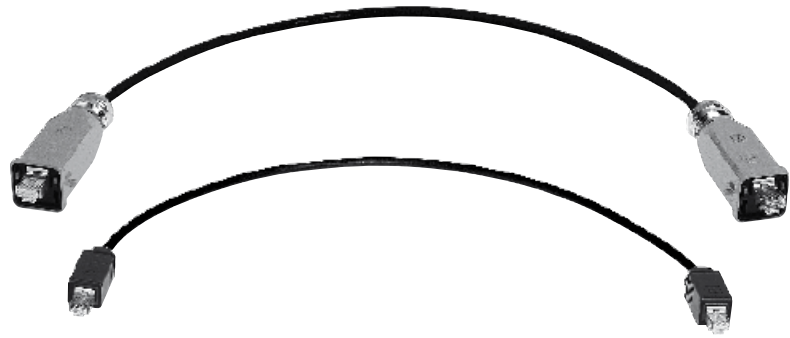


Identification	Part No.	Drawing	Dimensions in mm
<p>Hybrid cable, double ended, 4 x 2 x AWG 26/7 + 3 x 2.5 mm²</p> <p>Length: a = 1 m AC version DC version</p> <p> a = 5 m AC version DC version</p> <p> a = 10 m AC version DC version</p> <p> a = 20 m AC version DC version</p>	<p>33 57 211 0010 001 33 57 211 0010 002</p> <p>33 57 211 0050 001 33 57 211 0050 002</p> <p>33 57 211 0100 001 33 57 211 0100 002</p> <p>33 57 211 0200 001 33 57 211 0200 002</p>	<p>double ended</p> <p>a = length</p>	
<p>Hybrid cable, single ended, 4 x 2 x AWG 26/7 + 3 x 2.5 mm²</p> <p>Length: a = 1 m AC version DC version</p> <p> a = 5 m AC version DC version</p> <p> a = 10 m AC version DC version</p> <p> a = 20 m AC version DC version</p>	<p>33 57 111 0010 002 33 57 111 0010 001</p> <p>33 57 111 0050 002 33 57 111 0050 001</p> <p>33 57 111 0100 002 33 57 111 0100 001</p> <p>33 57 111 0200 002 33 57 111 0200 001</p>	<p>Protection level: IP 65 / IP 67</p> <p>Data part: Transmission properties in accordance with ISO/IEC 11801:2002: Class D</p> <p>single ended</p> <p>a = length</p>	
<p>Hybrid outdoor cable</p> <p> Length: 10 m</p> <p> Length: 20 m</p> <p> Length: 500 m</p>	<p>33 57 851 0100 001</p> <p>33 57 851 0200 001</p> <p>33 57 851 5000 001</p>	<p>PVC jacket</p> <p>4 x 2 x AWG 26/7 + 3 x 2.5 mm²</p> <p>Outer diameter: 12 mm</p> <p>Min. bending radius: single: 5 x OD repeated: 10 x OD</p>	

Further cable lengths are available on request



Identification	Part No.	Drawing	Dimensions in mm
<p>HARTING PushPull Outdoor cable, RJ45, 4-wire</p> <p>Length: a = 1.5 m</p> <p>a = 3.0 m</p> <p>a = 5.0 m</p> <p>a = 10.0 m</p> <p>a = 20.0 m</p>	<p>09 47 363 6069</p> <p>09 47 363 6071</p> <p>09 47 363 6073</p> <p>09 47 363 6078</p> <p>09 47 363 6080</p>	<p>double ended</p> <p>a = length</p>	
<p>Han[®] 3 A Outdoor cable, RJ45, 4-wire</p> <p>Length: a = 1.5 m</p> <p>a = 3.0 m</p> <p>a = 5.0 m</p> <p>a = 10.0 m</p> <p>a = 20.0 m</p>	<p>09 45 715 0064</p> <p>09 45 715 0066</p> <p>09 45 715 0068</p> <p>09 45 715 0073</p> <p>09 45 715 0075</p>	<p>double ended</p> <p>a = length</p>	
<p>Outdoor cable 4-wire, RJ45, Cat. 5, PVC</p> <p>Length: 20 m ring</p> <p>Length: 50 m ring</p> <p>Length: 100 m ring</p> <p>Length: 500 m reel</p>	<p>09 45 600 0135</p> <p>09 45 600 0145</p> <p>09 45 600 0105</p> <p>09 45 600 0115</p>	<p>Wire: stranded tinned copper, AWG 22/7</p> <p>Overall screen: aluminate foil overlapped, tinned copper wire braid, braid coverage about 85 %</p> <p>Overall diameter: 6.3 – 6.7 mm</p>	



Identification	Part No.	Drawing	Dimensions in mm
<p>HARTING PushPull Outdoor cable, RJ45, 8-wire, Cat. 5e</p> <p>Length: a = 1.5 m a = 3.0 m a = 5.0 m a = 10.0 m a = 20.0 m</p>	<p>09 45 745 1105 09 45 745 1107 09 45 745 1109 09 45 745 1114 09 45 745 1116</p>	<p>double ended</p> <p>a = length</p>	
<p>Han® 3 A Outdoor cable, RJ45, 8-wire, Cat. 5e</p> <p>Length: a = 1.5 m a = 3.0 m a = 5.0 m a = 10.0 m a = 20.0 m</p>	<p>09 45 715 1105 09 45 715 1107 09 45 715 1109 09 45 715 1114 09 45 715 1116</p>	<p>double ended</p> <p>a = length</p>	
<p>Outdoor cable 8-wire, RJ45, Cat. 5 / Cat. 5e, PVC</p> <p>Length: 20 m ring Length: 50 m ring Length: 100 m ring Length: 500 m reel</p>	<p>09 45 600 0230 09 45 600 0240 09 45 600 0200 09 45 600 0220</p>	<p>Wire: bare stranded copper, AWG 26/7</p> <p>Overall screen: aluminium bonded polyester tape and tinned copper wire braid, braid coverage about 85 %</p> <p>Overall diameter: 6.5 – 6.9 mm</p>	

Further cable lengths are available on request



Identification

Part No.

Drawing

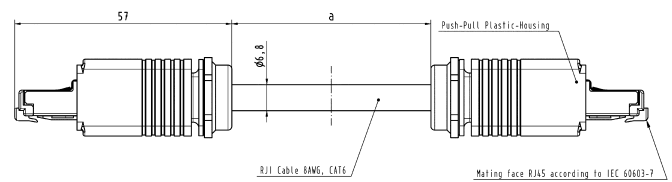
Dimensions in mm

**HARTING PushPull
Outdoor cable, RJ45,
8-wire, Cat. 6**

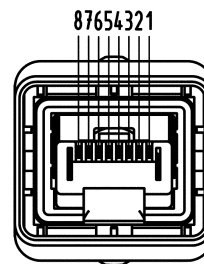
- Length: a = 1.5 m
 a = 3.0 m
 a = 5.0 m
 a = 10.0 m
 a = 20.0 m

- 09 45 745 1578
 09 45 745 1580
 09 45 745 1582
 09 45 745 1587
 09 45 745 1589

double ended



a = length

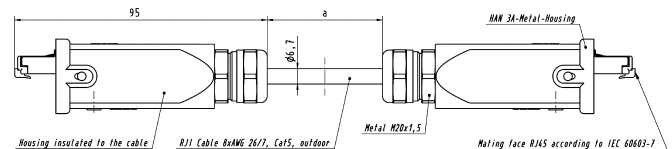


**Han® 3 A
Outdoor cable, RJ45,
8-wire, Cat. 6**

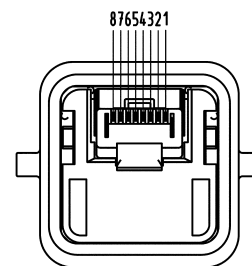
- Length: a = 1.5 m
 a = 3.0 m
 a = 5.0 m
 a = 10.0 m
 a = 20.0 m

- 09 45 715 1583
 09 45 715 1585
 09 45 715 1587
 09 45 715 1592
 09 45 715 1594

double ended



a = length



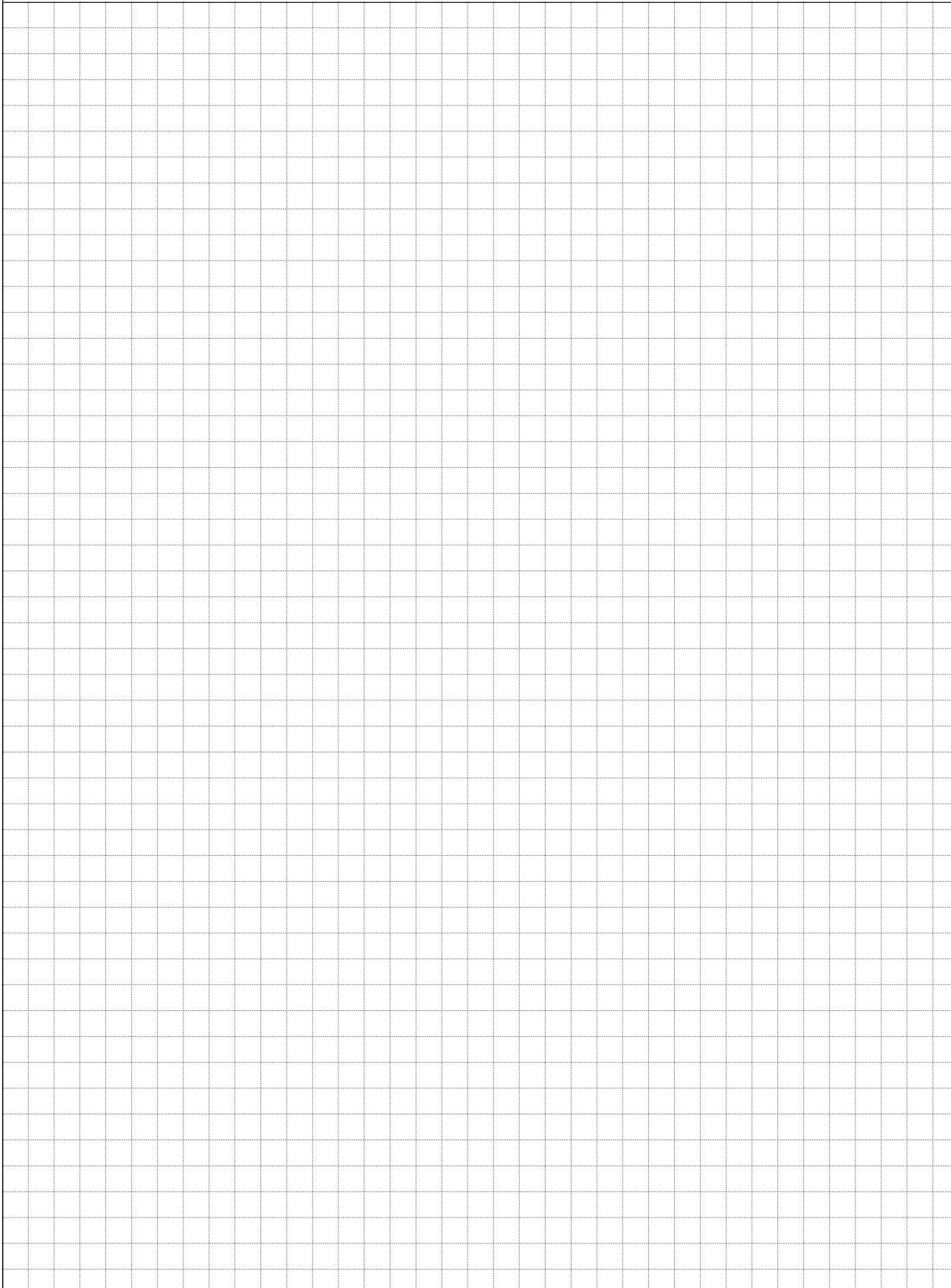
**Outdoor cable 8-wire, RJ45,
Cat. 6, PVC**

- Length: 20 m ring
 Length: 50 m ring
 Length: 100 m ring
 Length: 500 m reel

- 09 45 600 0531
 09 45 600 0541
 09 45 600 0501
 09 45 600 0521



- Wire: bare stranded copper, AWG 27/7
 Pairs: aluminate foil overlapped PIMF
 Overall screen: tinned copper wire braid, braid coverage about 60 %
 Overall diameter: 6.3 – 6.9 mm



The chapter on „cable assemblies for Industrial Ethernet” describes a part of the complete **HARTING** product line for installing Ethernet cabling at machines, plants and production facilities in an industrial environment.

The product line includes:

- Four-wire cables for setting up flexible connections and for fixed installations
- Assembled system cables in IP 20 and IP 65 / IP 67 versions

The four-wire cabling is specially designed for Ethernet transmission of data with a max. transmission rate of 100 Mbit/s data can be reliably transmitted at either 10 Mbit/s or 100 Mbit/s, with the clear assignment of the contacts of the RJ45 connector.

This complies with the following specifications:

- 10 Mbit/s Ethernet, corresponding to 10 Base-T
- 100 Mbit/s Ethernet, corresponding to 100 Base-T (Fast Ethernet)

Cabling components based on the M12 D-coding system are also a part of the four-wire cable product line, since both RJ45 and M12 connectors are common in automation engineering.



In addition to IEEE 802.3 Ethernet, the following Ethernet-based Fieldbus applications, with or without real-time functionality, can be transmitted (not a complete listing):

- PROFINET (including PROFINET RT / real-time), according to IEC 61 784-5-3
- EtherNet/IP
- Modbus / TCP
- Ethernet Powerlink
- VARAN Bus

This type of cabling is driven by the progressive implementation of various Fieldbus systems on Ethernet platforms. The special requirements placed on the cabling are often developed by manufacturing companies and user organizations. These requirements sometimes contain specific characteristics for connecting applications and networks. Withal these somewhat proprietary trends in development, there is also a movement towards international standardization, for example within the IEC SC65C committee.

The key points, particularly for the field of cabling, are established in IEC 61918. However the adoption of the ISO/IEC 24702 norm – for generic cabling in industrial buildings – ensures seamless communication between eight-wire building cabling and four-wire machinery-island cabling.

Content

Page

RJ45

03.02

M12

03.06

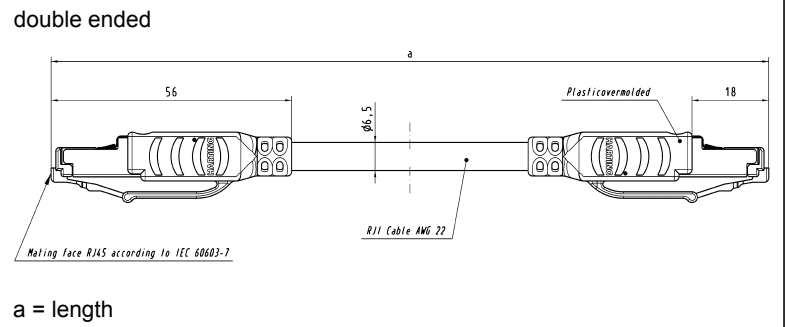


Identification	Part No.	Drawing	Dimensions in mm
----------------	----------	---------	------------------

HARTING RJ Industrial®
System cable RJ45,
4-wire
AWG 22/1, solid

Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

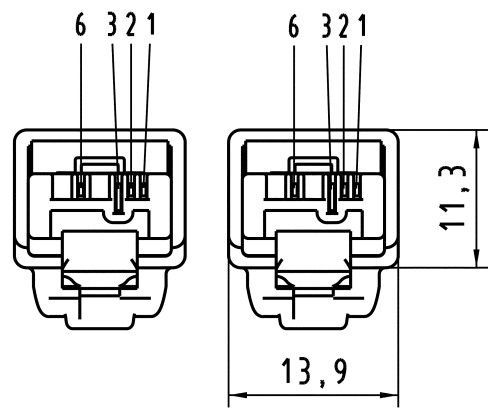
09 45 771 0023
09 45 771 0025
09 45 771 0027
09 45 771 0051
09 45 771 0053



HARTING RJ Industrial®
System cable RJ45,
4-wire
AWG 22/7, stranded

Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

09 45 771 1123
09 45 771 1125
09 45 771 1127
09 45 771 1151
09 45 771 1153



HARTING RJ Industrial®
System cable RJ45,
4-wire
AWG 22/7, trailing

Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

09 45 771 1164
09 45 771 1166
09 45 771 1168
09 45 771 1173
09 45 771 1175



Identification

Part No.

Drawing

Dimensions in mm

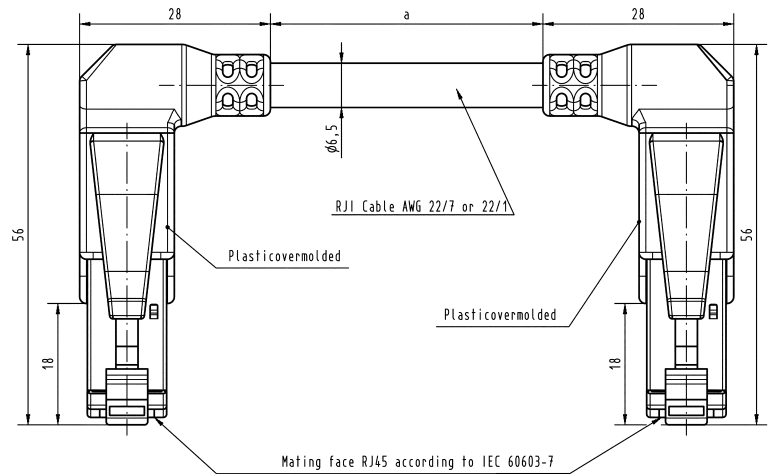
HARTING RJ Industrial®
System cable
RJ45, angled, 4-wire

AWG 22/1, solid

- Length: a = 1.5 m
 a = 3.0 m
 a = 5.0 m
 a = 10.0 m
 a = 20.0 m

- 09 47 050 6003
 09 47 050 6005
 09 47 050 6007
 09 47 050 6012
 09 47 050 6014

double ended



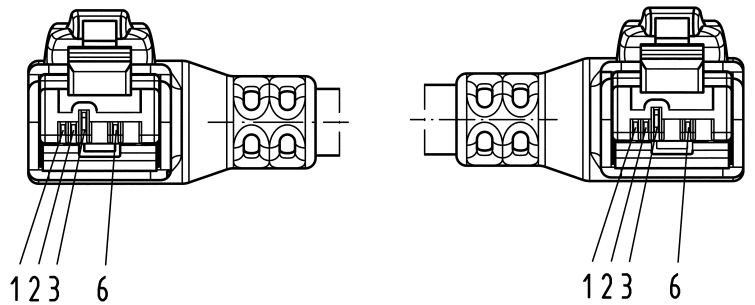
HARTING RJ Industrial®
System cable
RJ45, angled, 4-wire

AWG 22/7, stranded

- Length: a = 1.5 m
 a = 3.0 m
 a = 5.0 m
 a = 10.0 m
 a = 20.0 m

- 09 47 050 6025
 09 47 050 6027
 09 47 050 6029
 09 47 050 6034
 09 47 050 6036

a = length



HARTING RJ Industrial®
System cable
RJ45, angled, 4-wire

AWG 22/7, trailing

- Length: a = 1.5 m
 a = 3.0 m
 a = 5.0 m
 a = 10.0 m
 a = 20.0 m

- 09 47 050 6047
 09 47 050 6049
 09 47 050 6051
 09 47 050 6056
 09 47 050 6058

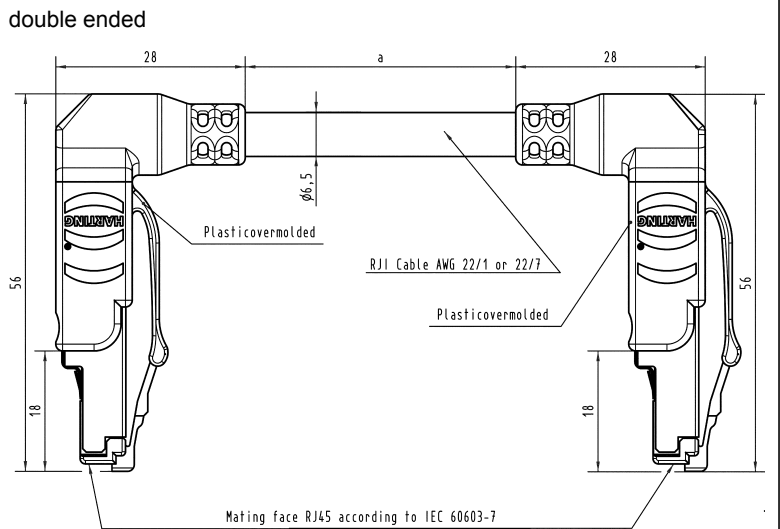


Identification	Part No.	Drawing	Dimensions in mm
----------------	----------	---------	------------------

HARTING RJ Industrial®
System cable
RJ45, angled, 4-wire
AWG 22/1, solid

Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

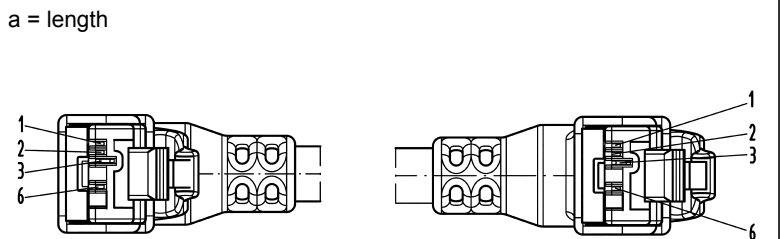
09 47 030 4003
09 47 030 4005
09 47 030 4007
09 47 030 4012
09 47 030 4014



HARTING RJ Industrial®
System cable
RJ45, angled, 4-wire
AWG 22/7, stranded

Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

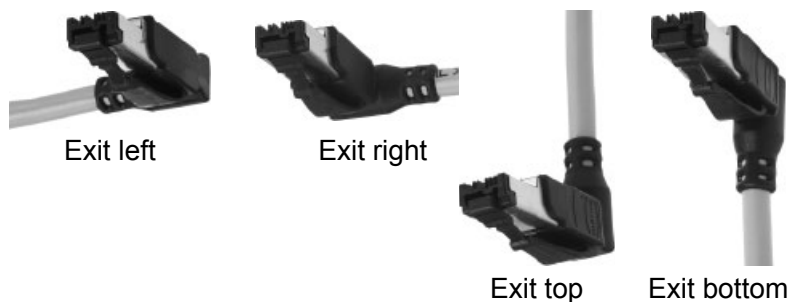
09 47 030 4025
09 47 030 4027
09 47 030 4029
09 47 030 4034
09 47 030 4036



HARTING RJ Industrial®
System cable
RJ45, angled, 4-wire
AWG 22/7, trailing

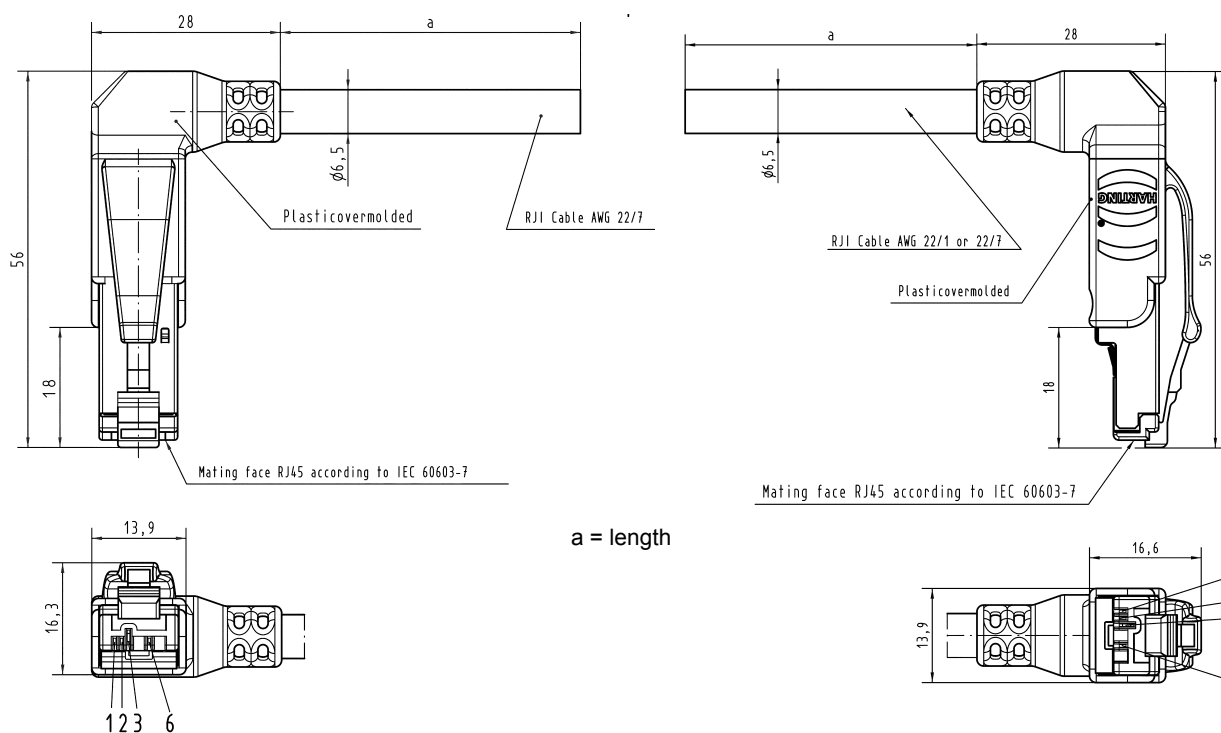
Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

09 47 030 4047
09 47 030 4049
09 47 030 4051
09 47 030 4056
09 47 030 4058

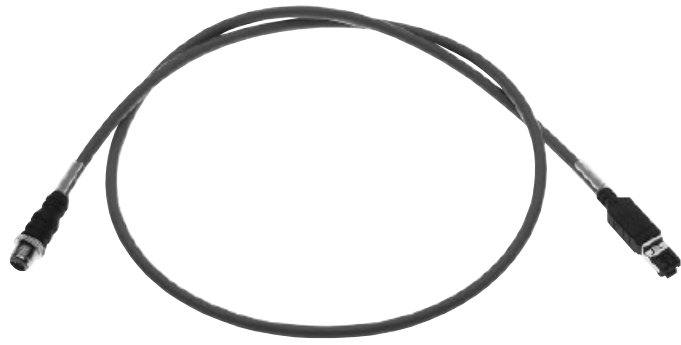


Identification	Part No.				
	angled left	angled right	angled top	angled bottom	
HARTING RJ Industrial® System cable RJ45, 4-wire, angled one side pre-assembled, second side open Type A	Length: a = 1.5 m	09 47 050 0003	09 47 060 0003	09 47 030 0003	09 47 040 0003
	a = 3.0 m	09 47 050 0005	09 47 060 0005	09 47 030 0005	09 47 040 0005
	a = 5.0 m	09 47 050 0007	09 47 060 0007	09 47 030 0007	09 47 040 0007
	a = 10.0 m	09 47 050 0012	09 47 060 0012	09 47 030 0012	09 47 040 0012
	a = 20.0 m	09 47 050 0014	09 47 060 0014	09 47 030 0014	09 47 040 0014
HARTING RJ Industrial® System cable RJ45, 4-wire, angled one side pre-assembled, second side open Type B	Length: a = 1.5 m	09 47 050 0025	09 47 060 0025	09 47 030 0025	09 47 040 0025
	a = 3.0 m	09 47 050 0027	09 47 060 0027	09 47 030 0027	09 47 040 0027
	a = 5.0 m	09 47 050 0029	09 47 060 0029	09 47 030 0029	09 47 040 0029
	a = 10.0 m	09 47 050 0034	09 47 060 0034	09 47 030 0034	09 47 040 0034
	a = 20.0 m	09 47 050 0036	09 47 060 0036	09 47 030 0036	09 47 040 0036
HARTING RJ Industrial® System cable RJ45, 4-wire, angled one side pre-assembled, second side open Type C	Length: a = 1.5 m	09 47 050 0047	09 47 060 0047	09 47 030 0047	09 47 040 0047
	a = 3.0 m	09 47 050 0049	09 47 060 0049	09 47 030 0049	09 47 040 0049
	a = 5.0 m	09 47 050 0051	09 47 060 0051	09 47 030 0051	09 47 040 0051
	a = 10.0 m	09 47 050 0056	09 47 060 0056	09 47 030 0056	09 47 040 0056
	a = 20.0 m	09 47 050 0058	09 47 060 0058	09 47 030 0058	09 47 040 0058

single ended



Further cable lengths are available on request



Identification

Part No.

Drawing

Dimensions in mm

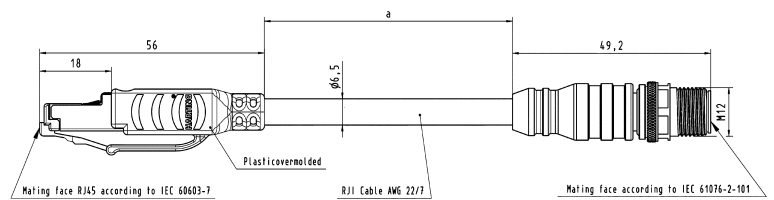
Han® M12 to RJ45 (IP20),
overmoulded
System cable, D-coding,
4-wire

AWG 22/7
trailing PUR

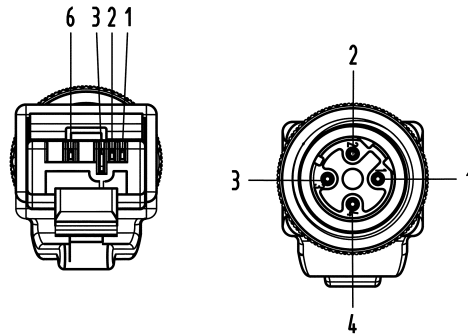
- Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

- 09 45 700 5023
09 45 700 5025
09 45 700 5027
09 45 700 5051
09 45 700 5053

double ended



a = length



Han® M12 to RJ45,
overmoulded
System cable, D-coding,
4-wire

AWG 22/7
stranded PVC outdoor

- Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

- 09 45 700 5064
09 45 700 5066
09 45 700 5068
09 45 700 5073
09 45 700 5075

Contact assignment

Signal	M12 D-coding	RJ45
TD+	1	1
TD-	3	2
RD+	2	3
RD-	4	6



Identification

Part No.

Drawing

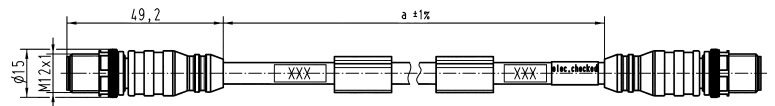
Dimensions in mm

Han® M12, D-coding
System cable, 4-wire
2 x 2 x AWG 22/7, PUR

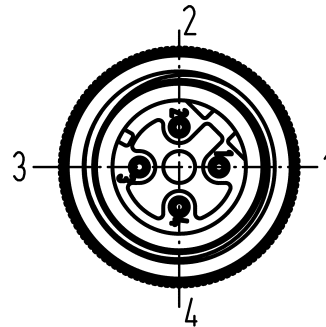
Length: a = 1.5 m
a = 3.0 m
a = 5.0 m
a = 10.0 m
a = 20.0 m

21 03 485 1451
21 03 485 1403
21 03 485 1405
21 03 485 1410
21 03 485 1420

double ended



a = length



HARTING offers a wide range of cable assemblies to cover applications in different market areas. For this, there is a broad portfolio of standard products existing. Nevertheless, HARTING also offers the service of customer specific goods. With this, the high level components are integrated into a framework for ascending the value chain and give a best in class service to the customers.

Therefore, our worldwide sales force is always close to our customers in order to work out the specific needs.

For these products HARTING uses its complete range, for example Han® or HARTING PushPull. With the usage of several connectors, there are different types, like copper, fibre optic or hybrid present, which are all served by HARTING.



har-mik®

Herewith, efficient processes and reliable technologies are available and will be applied for the individual applications and the referring custom-made products. Influencing factors and environmental conditions are considered here to set up the best solution for the HARTING customer.



Han-Modular®

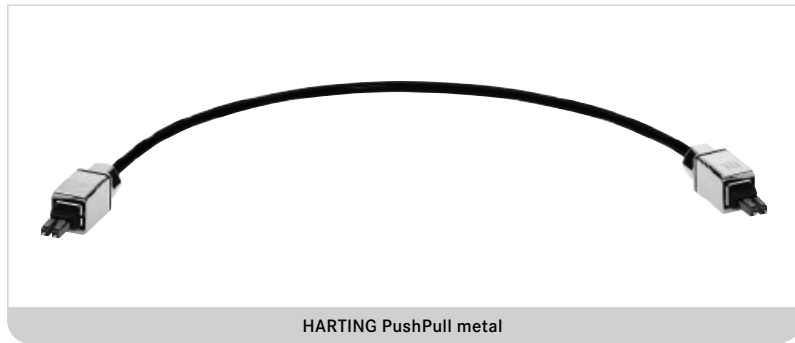
Especially by utilising the whole Han® range, applications like wind energy, transportation or machinery are covered with high level products. Here, the long term **HARTING** experience in these fields is applied.

Power cables, data cables, hybrid and modular assemblies are the result of this combination. By arranging the various hoods and inserts and going further with the Han-Modular®, the diversity to satisfy specific needs is exceptional.

This is combined with raw cables which are designed for special needs and fulfil extraordinary demands. Together with the experience in engineering and production, this brings **HARTING** into the position to play a leading role in offering custom specific cable assemblies.

The leading role in customized cable assemblies business is well founded, because **HARTING** is using the whole range of communication channels to give best support for the customer. **HARTING** is providing solutions to make best use of customer's

benefit. One instance of interworking between tool shop, assembly shop and engineering is one customized solution called "Y-splitter". Cost and time for installation can be decreased by using cable assemblies with this overmolded Y-splitter.



HARTING PushPull metal



D-Sub mixed



PushPull cable assembly with Y- splitter

Please send me further information:

DVD HARKIS® basic



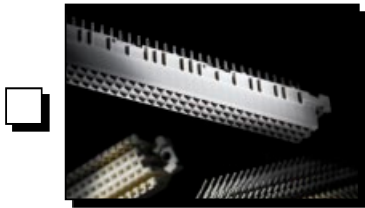
Interface Connectors



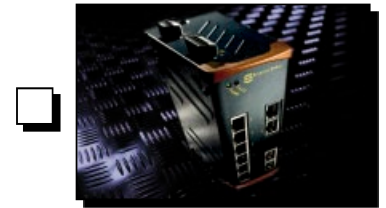
Device Connectivity



Industrial Connectors Han®



**Connectors
DIN 41612**



**Ethernet
Network Solutions**



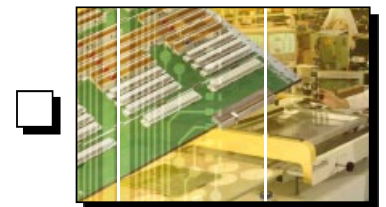
**Coaxial and Metric
Connectors**



**Application
brochure**



TCA Connectors



**Backplanes and
Integrated Systems**

Sender:

Company: _____

Department: _____

Name: _____

Prenome: _____

Function: _____

Street: _____

Postcode/Town: _____

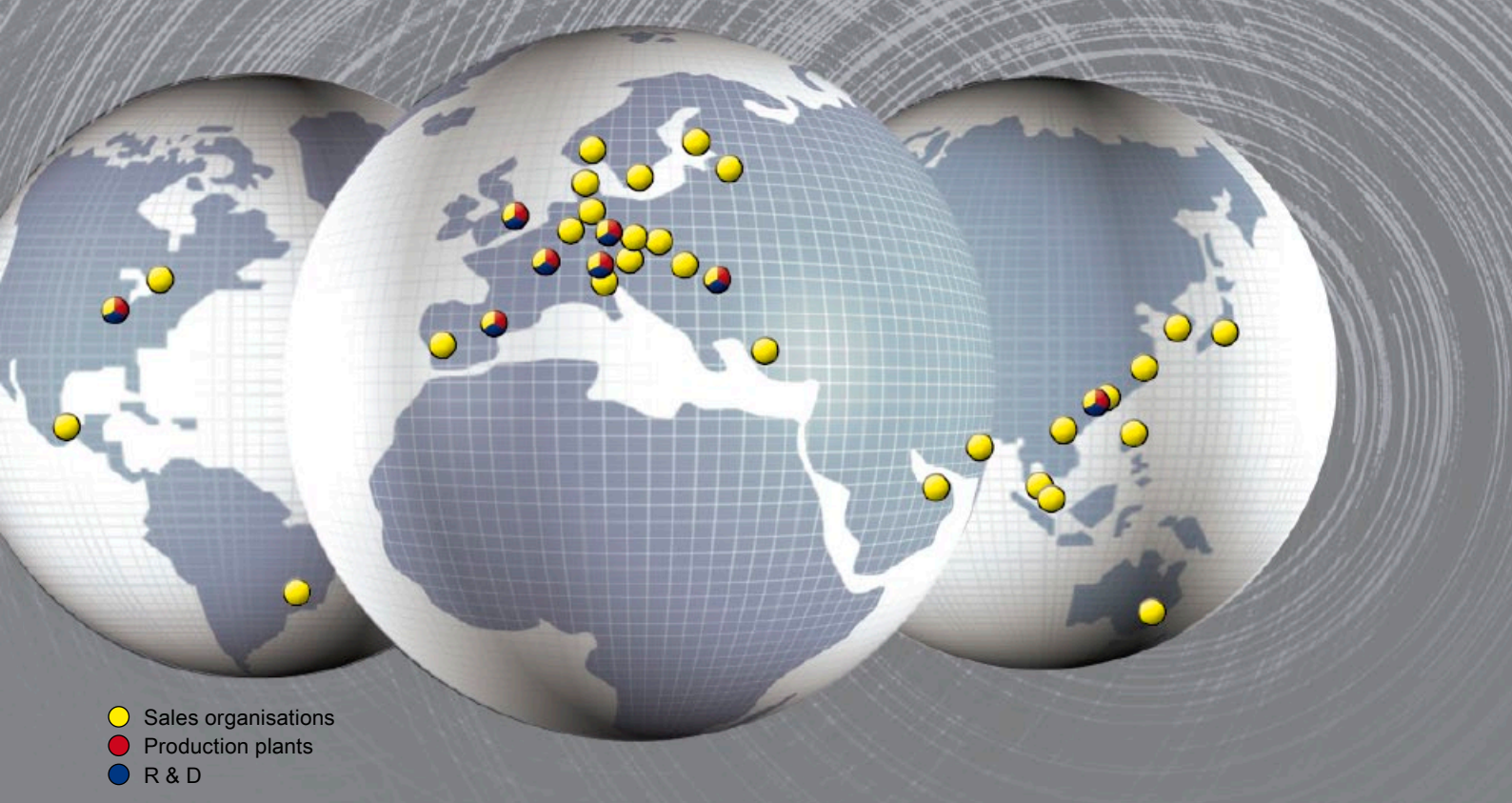
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Pushing Performance

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