



Pushing Performance
Since 1945



PEOPLE. POWER. PARTNERSHIP.

HARTING

Ethernet portfolio guide

Contents

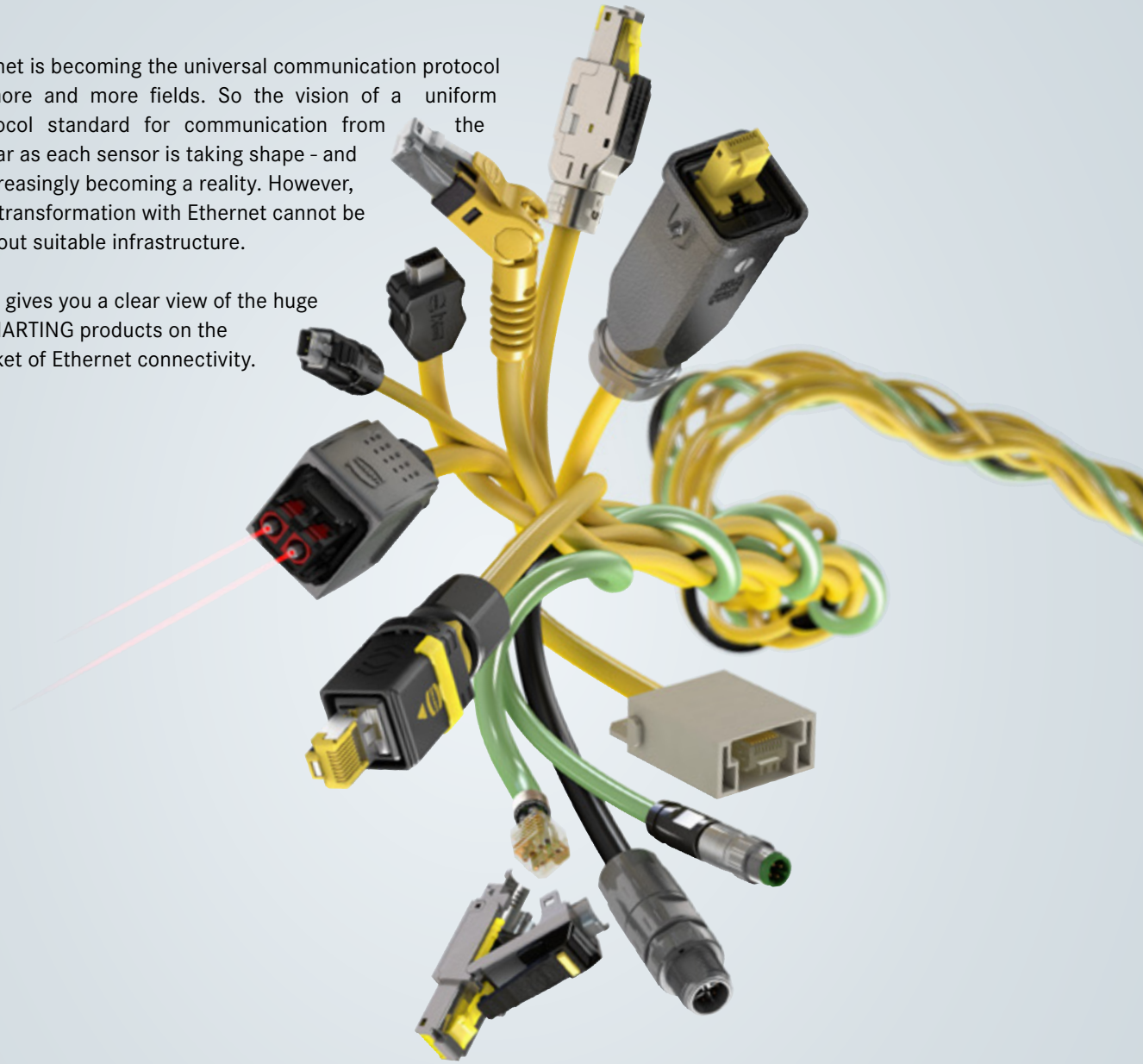
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Introduction

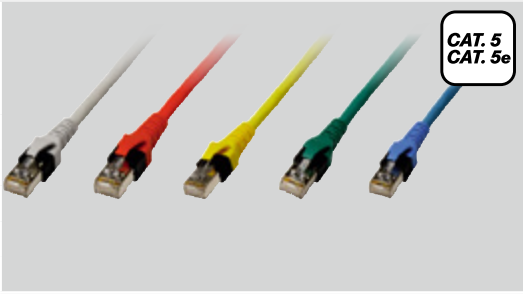

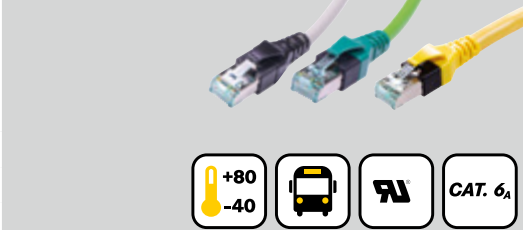



Ethernet is becoming the universal communication protocol in more and more fields. So the vision of a uniform protocol standard for communication from the cloud as far as each sensor is taking shape - and IIOT is increasingly becoming a reality. However, industrial transformation with Ethernet cannot be done without suitable infrastructure.

This guide gives you a clear view of the huge range of HARTING products on the large market of Ethernet connectivity.





DIGITALISATION IN INDUSTRIAL AUTOMATION IS PROGRESSING WITH SPEED.

DualBoot® RJ45 cables

 <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 5px;"> CAT. 5 CAT. 5e </div>	DualBoot® RJ45 Ethernet cables ■ FRNC cable - S/FTP ■ Halogen free, RoHS	
	Grey	09 48 868 6569 xxx
	Red	09 48 868 6570 xxx
	Yellow	09 48 868 6571 xxx
	Green	09 48 868 6572 xxx
	Blue	09 48 868 6573 xxx
 <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 5px;"> CAT. 6_A </div>	DualBoot® RJ45 Ethernet cable ■ FRNC cable - S/FTP ■ Halogen free, RoHS	
	White	09 48 878 7584 xxx
	Grey	09 48 878 7585 xxx
	Red	09 48 878 7586 xxx
	Yellow	09 48 878 7587 xxx
	Green	09 48 878 7588 xxx
	Blue	09 48 878 7589 xxx
	Black	09 48 878 7590 xxx
 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">  </div> <div style="border: 1px solid black; padding: 2px; text-align: center;">  </div> <div style="border: 1px solid black; padding: 2px; text-align: center;">  </div> <div style="border: 1px solid black; padding: 2px; text-align: center;"> CAT. 6_A </div> </div>	DualBoot® RJ45 Ethernet cable ■ PUR cable - S/FTP ■ Halogen free, RoHS ■ UN/ECE R118	
	Grey	09 48 474 7743 xxx
	Green	09 48 474 7744 xxx
	Yellow	09 48 474 7756 xxx

RJ Industrial® coupling box

 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">  </div> <div style="border: 1px solid black; padding: 2px; text-align: center;"> IP65 IP67 </div> <div style="border: 1px solid black; padding: 2px; text-align: center;"> CAT. 6_A </div> </div>	RJ Industrial® RJ45 coupling box ■ Waterproof IP65/IP67 ■ Polyamide (PA) ■ Core shielded 360°	09 45 805 1560
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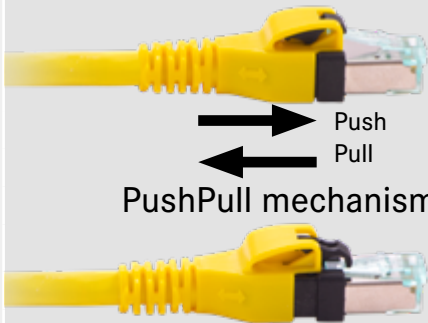
DualBoot® RJ45 PushPull cables



DualBoot® RJ45 PushPull Ethernet cable
 ■ FRNC cable - S/FTP
 ■ Halogen free, RoHS

CAT. 5
CAT. 5e

Grey	09 48 898 9595 xxx
Red	09 48 898 9596 xxx
Yellow	09 48 898 9597 xxx
Green	09 48 898 9594 xxx
Blue	09 48 898 9598 xxx
Orange	09 48 898 9593 xxx



DualBoot® RJ45 PushPull Ethernet cable
 ■ FRNC cable - S/FTP
 ■ Halogen free, RoHS

CAT. 6_A

White	09 48 888 8574 xxx
Black	09 48 888 8575 xxx
Grey	09 48 888 8576 xxx
Red	09 48 888 8577 xxx
Yellow	09 48 888 8578 xxx
Green	09 48 888 8579 xxx
Blue	09 48 888 8580 xxx
Orange	09 48 888 8592 xxx

■ Pull: To loosen the connection, simply pull on the housing or bend protection.

xxx = Length of cable

005 = 0.5 m	010 = 1.0 m	015 = 1.5 m	020 = 2.0 m	030 = 3.0 m	050 = 5.0 m	075 = 7.5 m	100 = 10 m	150 = 15 m	200 = 20 m
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Other lengths available on request (10cm)

DualBoot® RJ45 - Characteristics & advantages

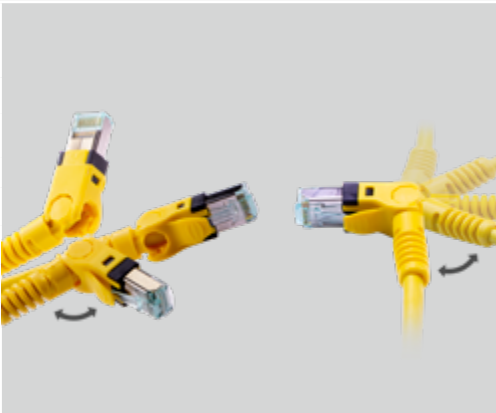


















The DualBoot® connector is overmoulded a durable material to make it strong and very rugged.



- Connector shielded 360°
- Compact
- Excellent resistance to vibrations and shocks
- Cables tested 100%



VarioBoot® RJ45 cables

	Connector 1	Connector 2			
	VarioBoot® RJ45 UaD ¹	DualBoot® RJ45	Yellow		09 48 844 7745 xxx
	VarioBoot® RJ45 UaD ¹	VarioBoot® RJ45 UaD ¹	Yellow		09 48 848 4745 xxx
	VarioBoot® RJ45 UaD ¹	VarioBoot® RJ45 LaR ²	Yellow		09 48 848 5745 xxx
	VarioBoot® RJ45 LaR ²	DualBoot® RJ45	Yellow		09 48 854 7745 xxx
	VarioBoot® RJ45 LaR ²	VarioBoot® RJ45 LaR ²	Yellow		09 48 858 5745 xxx
	VarioBoot® RJ45 LaR ²	RJ45 cores HIFF	Yellow		09 48 841 1745 xxx
					
	Connector 1	Connector 2			
	VarioBoot® RJ45 LaR ²	DualBoot® RJ45	Grey		09 48 858 7585 xxx
	VarioBoot® RJ45 LaR ²	DualBoot® RJ45	Red		09 48 858 7586 xxx
	VarioBoot® RJ45 LaR ²	DualBoot® RJ45	Yellow		09 48 858 7587 xxx
	VarioBoot® RJ45 LaR ²	DualBoot® RJ45	Green		09 48 858 7588 xxx
	VarioBoot® RJ45 LaR ²	DualBoot® RJ45	Blue		09 48 858 7589 xxx
	Connector 1	Connector 2			
	VarioBoot® RJ45 LaR ²	VarioBoot® RJ45 LaR ²	Grey		09 48 858 5585 xxx
	VarioBoot® RJ45 LaR ²	VarioBoot® RJ45 LaR ²	Red		09 48 858 5586 xxx
	VarioBoot® RJ45 LaR ²	VarioBoot® RJ45 LaR ²	Yellow		09 48 858 5587 xxx
VarioBoot® RJ45 LaR ²	VarioBoot® RJ45 LaR ²	Green		09 48 858 5588 xxx	
VarioBoot® RJ45 LaR ²	VarioBoot® RJ45 LaR ²	Blue		09 48 858 5589 xxx	

xxx = Length of cable

005 = 0.5 m	010 = 1.0 m	015 = 1.5 m	020 = 2.0 m	030 = 3.0 m	050 = 5.0 m	075 = 7.5 m	100 = 10 m	150 = 15 m	200 = 20 m
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Other lengths available on request (10cm)



1 = UaD: Up and Down

2 = LaR: Left and Right

RJ Industrial® RJ45 connectors

		<p>RJ Industrial® connector straight</p> <ul style="list-style-type: none"> ■ 4 IDC contacts without tools ■ Conductors AWG 27-22, solid/stranded 	<p>09 45 151 1120</p>	
		<p>RJ Industrial® connector angled 45° (4 possible directions)</p> <ul style="list-style-type: none"> ■ 4 IDC contacts without tools ■ Conductors AWG 27-22, solid/stranded 	<p>09 45 151 1121</p>	
			<p>RJ Industrial® connector EtherRail® straight</p> <ul style="list-style-type: none"> ■ 4 IDC contacts without tools ■ Conductors AWG 27-22, solid/stranded 	<p>09 45 151 1122</p>
		<p>RJ Industrial® connector straight</p> <ul style="list-style-type: none"> ■ 8 IDC contacts without tools ■ Conductors AWG 27-22, solid/stranded 	<p>09 45 151 1560</p>	
		<p>RJ Industrial® connector angled 45° (4 possible directions)</p> <ul style="list-style-type: none"> ■ 8 IDC contacts without tools ■ Conductors AWG 27-22, solid/stranded 	<p>09 45 151 1561</p>	
			<p>RJ Industrial® Multifeature</p> <ul style="list-style-type: none"> ■ 4 IDC contacts with integral blade without tools ■ Conductors AWG 26-22, solid/stranded 	<p>09 45 151 1140</p>
			<p>RJ Industrial® Multifeature angled 90° (4 possible directions)</p> <ul style="list-style-type: none"> ■ 4 IDC contacts with integral blade without tools ■ Conductors AWG 26-22, solid/stranded 	<p>09 45 151 1141</p>
			<p>RJ Industrial® Multifeature angled 35° (4 possible directions)</p> <ul style="list-style-type: none"> ■ 4 IDC contacts with integral blade without tools ■ Conductors AWG 26-22, solid/stranded 	<p>09 45 151 1142</p>
			<p>RJ Industrial® Multifeature</p> <ul style="list-style-type: none"> ■ 8 IDC contacts with integral blade without tools ■ Conductors AWG 26-22, solid/stranded 	<p>09 45 151 1570</p>
			<p>RJ Industrial® Multifeature angled 90° (4 possible directions)</p> <ul style="list-style-type: none"> ■ 8 IDC contacts with integral blade without tools ■ Conductors AWG 26-22, solid/stranded 	<p>09 45 151 1571</p>
			<p>RJ Industrial® Multifeature angled 35° (4 possible directions)</p> <ul style="list-style-type: none"> ■ 8 IDC contacts with integral blade without tools ■ Conductors AWG 26-22, solid/stranded 	<p>09 45 151 1572</p>








RJ Industrial® RJ45 cores

CAT. 6_A		RJ Industrial® core <ul style="list-style-type: none"> ■ HIFF format ■ 8 IDC contacts without tools ■ Shielded 	Conductors AWG 28-24, solid/stranded	09 45 545 156 1
			Conductors AWG 24-22, solid/stranded	09 45 545 156 2
CAT. 6_A		RJ Industrial® core <ul style="list-style-type: none"> ■ Keystone format ■ 8 IDC contacts without tools ■ Shielded 	Conductors AWG 28-24, solid/stranded	09 45 545 156 3
			Conductors AWG 24-22, solid/stranded	09 45 545 156 4

RJ Industrial® couplers

CAT. 6_A		RJ Industrial® coupler RJ45 <ul style="list-style-type: none"> ■ HIFF format ■ Shielded 	09 45 545 156 0
CAT. 6_A		RJ Industrial® coupler RJ45 <ul style="list-style-type: none"> ■ Keystone format ■ Shielded 	09 45 545 156 8
CAT. 6_A		RJ Industrial® coupler IDC <ul style="list-style-type: none"> ■ 8 IDC contacts without tools ■ Conductors AWG 24-22, solid/stranded ■ Shielded 	09 45 545 156 9
IP65 IP67		RJ Industrial® waterproof box <ul style="list-style-type: none"> ■ Polyamide (PA) ■ Compatible with 09 45 545 156 9 	09 45 805 000 0

Accessories - Mounting of RJ45 Keystone cores and couplers

		<p>Bracket for mounting on DIN rail</p> <ul style="list-style-type: none"> ■ For RJ45 core in Keystone format ■ Not compatible with RJ45 couplers ■ With ground connection 	<p>09 45 851 0000</p>
<p>Kit of 2 protection guards</p>			<p>09 45 851 0001</p>
		<p>Bracket for mounting on DIN rail</p> <ul style="list-style-type: none"> ■ For RJ45 core in Keystone format ■ Not compatible with RJ45 couplers ■ With ground connection 	<p>09 45 851 0002</p>
<p>Protection cover</p>			<p>09 45 851 0003</p>
		<p>19" panel, 24 RJ45 ports</p> <ul style="list-style-type: none"> ■ Compatible with RJ45 cores and couplers in Keystone format 	<p>20 82 400 0002</p>
		<p>Distribution box IP44</p> <ul style="list-style-type: none"> ■ For 2 RJ45 cores in Keystone format 	<p>09 45 851 0015</p>
		<p>Earthing cable</p> <ul style="list-style-type: none"> ■ Ensures ground connection of RJ45 core 	<p>09 45 500 0002</p>

ix Industrial® connectors

	<p>ix Industrial® connector Type A</p> <ul style="list-style-type: none"> ■ 8 conductors + 2 GND ■ 70% more compact than RJ45 ■ Stronger with its metal locking lugs ■ ≥ 5000 mating cycles ■ Shielded 360° 	
	<p>Soldered contact pins AWG 28-22</p>	<p>09 45 181 2560 XL</p>
	<p>IDC contacts AWG 28-26</p>	<p>09 45 181 2561 XL</p>
	<p>IDC contacts AWG 24</p>	<p>09 45 181 2562 XL</p>
	<p>ix Industrial® connector Type A angled 90°</p> <ul style="list-style-type: none"> ■ 8 conductors + 2 GND ■ ≥ 5000 mating cycles ■ Shielded 360° <p>Angled down version:</p>	
	<p>Soldered contact pins AWG 28-22</p>	<p>09 45 181 2580 XL</p>
	<p>IDC contacts AWG 28-26</p>	<p>09 45 181 2581 XL</p>
	<p>IDC contacts AWG 24</p>	<p>09 45 181 2582 XL</p>
	<p>Angled up version:</p>	
	<p>Soldered contact pins AWG 28-22</p>	<p>09 45 181 2585 XL</p>
	<p>IDC contacts AWG 28-26</p>	<p>09 45 181 2586 XL</p>
	<p>IDC contacts AWG 24</p>	<p>09 45 181 2587 XL</p>
	<p>ix Industrial® plug Type A</p> <ul style="list-style-type: none"> ■ Angled 90°, soldered contact pin on PCB 	<p>09 45 281 2560</p>
	<p>ix Industrial® plug Type A</p> <ul style="list-style-type: none"> ■ Flat mounting, soldered contact pins on PCB 	<p>09 45 281 2561</p>
	<p>ix Industrial® straight plug, Type A</p> <ul style="list-style-type: none"> ■ Straight, soldered contact pins on PCB 	<p>09 45 281 2562</p>
	<p>ix Industrial® tool</p> <ul style="list-style-type: none"> ■ Needed to assemble the cable connector ■ With ratchet mechanism 	<p>09 45 800 0181</p>

ix Industrial® Ethernet cables




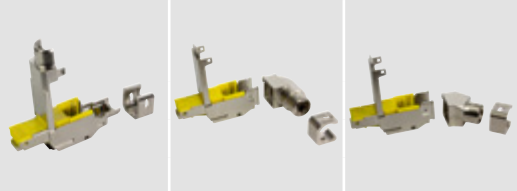



	ix Industrial® Ethernet cable ■ PVC cable - S/FTP yellow ■ Use with Ethernet switch eCon 2000 Advanced ix Industrial®			
	Connector 1	Connector 2		
	ix Industrial®	ix Industrial®	Yellow 	
	ix Industrial®	RJ45	Yellow 	33 48 065 3830 xxx
	ix Industrial® Ethernet cable ■ FRNC cable - S/FTP ■ Halogen free, RoHS			
	Connector 1	Connector 2		
	ix Industrial®	ix Industrial®	Blue 	33 48 010 1822 xxx
	ix Industrial®	ix Industrial®	White 	33 48 010 1823 xxx
	ix Industrial®	ix Industrial®	Grey 	33 48 010 1824 xxx
	ix Industrial®	ix Industrial®	Red 	33 48 010 1825 xxx
	ix Industrial®	ix Industrial®	Yellow 	33 48 010 1826 xxx
	ix Industrial®	ix Industrial®	Green 	33 48 010 1827 xxx
	ix Industrial®	ix Industrial®	Black 	33 48 010 1828 xxx
ix Industrial®	ix Industrial®	Orange 	33 48 010 1829 xxx	
	Connector 1	Connector 2		
	ix Industrial®	DualBoot® RJ45	Blue 	33 48 014 7822 xxx
	ix Industrial®	DualBoot® RJ45	White 	33 48 014 7823 xxx
	ix Industrial®	DualBoot® RJ45	Grey 	33 48 014 7824 xxx
	ix Industrial®	DualBoot® RJ45	Red 	33 48 014 7825 xxx
	ix Industrial®	DualBoot® RJ45	Yellow 	33 48 014 7826 xxx
	ix Industrial®	DualBoot® RJ45	Green 	33 48 014 7827 xxx
	ix Industrial®	DualBoot® RJ45	Black 	33 48 014 7828 xxx
	ix Industrial®	DualBoot® RJ45	Orange 	33 48 014 7829 xxx

xxx = Length of cable

005 = 0.5 m	010 = 1.0 m	020 = 2.0 m	030 = 3.0 m	050 = 5.0 m	075 = 7.5 m	100 = 10 m
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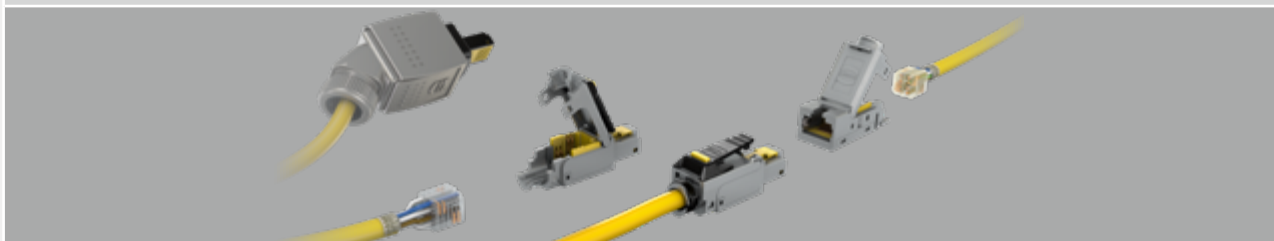
Other lengths available on request (10cm)

preLink®

		Termination of preLink® cable	CAT. 6_A
Cable 4 or 8 wires AWG 22-24	Yellow	20 82 000 0001	
Cable 4 or 8 wires AWG 26-27	White	20 82 000 0003	
		RJ45 preLink® connector	CAT. 6_A
	Straight	20 82 101 0020	
	Angled 90° (with 4 directions)	20 82 101 0021	
	Angled 35° (with 4 directions)	20 82 101 0022	
		RJ45 preLink® core in Keystone format	CAT. 6_A
	Straight version	20 82 500 0001	
	Angled 90° version	20 82 500 0002	
		RJ45 preLink® core in HIFF format	20 82 000 0002
		preLink® extender	20 82 101 0001
		RJ Industrial® waterproof box	09 45 805 0000
		<ul style="list-style-type: none"> ■ Polyamide (PA) ■ IP65/IP67 	
		preLink® tool	20 82 000 9901
		<ul style="list-style-type: none"> ■ Simultaneously cuts and connects all IDC contacts ■ Ratchet mechanism 	
		preLink® cables	
		■ PUR cable - S/FTP	
Connector 1	Connector 2		
preLink®	preLink®	Yellow	20 82 600 2xxx
DualBoot®	preLink®	Yellow	20 82 601 1xxx

preLink® - Characteristics & advantages

preLink® is a cabling concept providing flexibility and ease of use for Ethernet networks. It creates the detachable connection between cable and connector.



har-port panel feed-throughs

			har-port RJ45 coupler ■ Shielded 360°	CAT. 6A															
				<table border="1"> <tr> <td>Silver</td> <td></td> <td>09 45 452 1560</td> </tr> <tr> <td>Black</td> <td></td> <td>09 45 452 1561</td> </tr> <tr> <td>White</td> <td></td> <td>09 45 452 1562</td> </tr> </table>	Silver		09 45 452 1560	Black		09 45 452 1561	White		09 45 452 1562						
Silver		09 45 452 1560																	
Black		09 45 452 1561																	
White		09 45 452 1562																	
			har-port USB 2.0 A-A coupler																
				<table border="1"> <tr> <td>Silver</td> <td></td> <td>09 45 452 1901</td> </tr> <tr> <td>Black</td> <td></td> <td>09 45 452 1903</td> </tr> <tr> <td>White</td> <td></td> <td>09 45 452 1918</td> </tr> </table>	Silver		09 45 452 1901	Black		09 45 452 1903	White		09 45 452 1918						
Silver		09 45 452 1901																	
Black		09 45 452 1903																	
White		09 45 452 1918																	
			har-port USB 3.0 A-A coupler																
				<table border="1"> <tr> <td>Silver</td> <td></td> <td>09 45 452 1902</td> </tr> <tr> <td>Black</td> <td></td> <td>09 45 452 1904</td> </tr> <tr> <td>White</td> <td></td> <td>09 45 452 1919</td> </tr> </table>	Silver		09 45 452 1902	Black		09 45 452 1904	White		09 45 452 1919						
Silver		09 45 452 1902																	
Black		09 45 452 1904																	
White		09 45 452 1919																	
			har-port USB 3.0 A-A black																
				<table border="1"> <tr> <td>0.5 m</td> <td></td> <td>09 45 452 1970</td> </tr> <tr> <td>1.0 m</td> <td></td> <td>09 45 452 1971</td> </tr> <tr> <td>1.5 m</td> <td></td> <td>09 45 452 1972</td> </tr> <tr> <td>2.0 m</td> <td></td> <td>09 45 452 1973</td> </tr> <tr> <td>3.0 m</td> <td></td> <td>09 45 452 1974</td> </tr> </table>	0.5 m		09 45 452 1970	1.0 m		09 45 452 1971	1.5 m		09 45 452 1972	2.0 m		09 45 452 1973	3.0 m		09 45 452 1974
0.5 m		09 45 452 1970																	
1.0 m		09 45 452 1971																	
1.5 m		09 45 452 1972																	
2.0 m		09 45 452 1973																	
3.0 m		09 45 452 1974																	
			har-port USB 3.0 A-A silver																
				<table border="1"> <tr> <td>0.5 m</td> <td></td> <td>09 45 452 1930</td> </tr> <tr> <td>1.0 m</td> <td></td> <td>09 45 452 1931</td> </tr> <tr> <td>1.5 m</td> <td></td> <td>09 45 452 1932</td> </tr> <tr> <td>2.0 m</td> <td></td> <td>09 45 452 1933</td> </tr> <tr> <td>3.0 m</td> <td></td> <td>09 45 452 1934</td> </tr> </table>	0.5 m		09 45 452 1930	1.0 m		09 45 452 1931	1.5 m		09 45 452 1932	2.0 m		09 45 452 1933	3.0 m		09 45 452 1934
0.5 m		09 45 452 1930																	
1.0 m		09 45 452 1931																	
1.5 m		09 45 452 1932																	
2.0 m		09 45 452 1933																	
3.0 m		09 45 452 1934																	
				har-port HIFF ■ Compatible with inserts with HIFF format (RJ45 core, RJ45 coupler, USB coupler)															
				<table border="1"> <tr> <td>Silver</td> <td></td> <td>09 45 452 0000</td> </tr> <tr> <td>Black</td> <td></td> <td>09 45 452 0001</td> </tr> <tr> <td>White</td> <td></td> <td>09 45 452 0003</td> </tr> <tr> <td>Stainless steel</td> <td></td> <td>09 45 452 0002</td> </tr> </table>	Silver		09 45 452 0000	Black		09 45 452 0001	White		09 45 452 0003	Stainless steel		09 45 452 0002			
Silver		09 45 452 0000																	
Black		09 45 452 0001																	
White		09 45 452 0003																	
Stainless steel		09 45 452 0002																	
			Protection cover IP65/IP67																
				<table border="1"> <tr> <td>Black rubber</td> <td></td> <td>09 45 502 0000</td> </tr> <tr> <td>transparent plastic</td> <td></td> <td>09 45 502 0005</td> </tr> <tr> <td>black plastic</td> <td></td> <td>09 45 502 0008</td> </tr> </table>	Black rubber		09 45 502 0000	transparent plastic		09 45 502 0005	black plastic		09 45 502 0008						
Black rubber		09 45 502 0000																	
transparent plastic		09 45 502 0005																	
black plastic		09 45 502 0008																	
			Label holder	09 45 502 0002															
			Label	09 45 502 0003															
			Cover	09 45 502 0004															
			Aluminum protection cover ■ IP65/IP67/IPx9k ■ Screw type	09 45 502 0006															
																			

HIFF inserts (HARTING Industrial Form Factor)

	USB 2.0 type A coupler in HIFF format	09 45 545 1901
	USB 3.0 type A coupler in HIFF format	09 45 545 1902
	USB 2.0 type A insert in HIFF format pre-assembled	
	0.15 m 	09 45 545 1927
	0.4 m 	09 45 545 1928
	0.5 m 	09 45 545 1920
	1.0 m 	09 45 545 1921
	1.5 m 	09 45 545 1922
	2.0 m 	09 45 545 1923
	3.0 m 	09 45 545 1924
4.0 m 	09 45 545 1926	
5.0 m 	09 45 545 1925	
	USB 3.0 type A insert in HIFF format pre-assembled	
	0.25 m 	09 45 545 1936
	0.5 m 	09 45 545 1930
	1.0 m 	09 45 545 1931
	1.5 m 	09 45 545 1932
	2.0 m 	09 45 545 1933
	3.0 m 	09 45 545 1934
5.0 m 	09 45 545 1935	
 <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block; margin-top: 10px;"> CAT. 6_A </div>	RJ45 HIFF core pre-assembled with DualBoot® RJ45 cable	
	0.15 m 	09 45 545 1500
	0.2 m 	09 45 545 1501
	0.3 m 	09 45 545 1502
	0.4 m 	09 45 545 1503
	0.5 m 	09 45 545 1504
	1.0 m 	09 45 545 1509
	RJ45 HIFF core pre-assembled with VarioBoot® RJ45 cable	09 48 841 1745 xxx

xxx = Length of cable

005 = 0.5 m	010 = 1.0 m	015 = 1.5 m	020 = 2.0 m	030 = 3.0 m	050 = 5.0 m	075 = 7.5 m	100 = 10 m	150 = 15 m	200 = 20 m
-------------	-------------	-------------	-------------	-------------	-------------	-------------	------------	------------	------------

Other lengths available on request (10cm)

T1 Industrial - SPE connector (Single Pair Ethernet)

	T1 Industrial connector ■ Single Pair Ethernet ■ 2 crimp contacts ■ Shielded 360°	09 45 181 2810 XL
	Crimp contacts AWG 28-26	09 45 181 2810 XL
	Crimp contacts AWG 24-22	09 45 800 2812
	T1 Industrial plug Flat mounting, soldered contact pins on PCB	09 45 281 2810
	Crimping tool	
	T1 Industrial contacts AWG 28-26	09 45 800 2810
	T1 Industrial contacts AWG 24-22	09 45 800 2811
	SPE cables ■ SPE cable, PUR ■ Pre-assembled with overmoulded T1 connectors on two sides ■ 10/100 Mbit/s - 10 Gbit/s	
	2 x AWG 26/7	33 28 020 2001 xxx
	2 x AWG 22/7	33 28 020 2002 xxx

T1 M12/T1 Industrial connector - Characteristics & advantages

Single Pair Ethernet (SPE) is a new TCP/IP transmission standard for one twisted pair. Transmission standards prepared by IEEE 802.3 have already been published.

IEEE 802.3bw	100BASE-T1: 100 Mbit/s - 166 MHz	15.0 m non-shielded / 40.0 m shielded
IEEE 802.3bp	1000BASE-T1: 1 Gbit/s - 600 MHz	15.0 m non-shielded / 40.0 m shielded
IEEE 802.3bu	Power over Data Line (PoDL)	12 V / 24 V / 48 V / 5.0 ... 50.0 W
IEEE 802.3cg	10BASE-T1 - 10 Mbit/s - 20 MHz	25.0 m non-shielded / 1000 m shielded
IEEE 802.3ch	2.5 GBASE-T1 - 5 GBASE-T1 - 10 GBit/s - 4GHz	15.0 m shielded

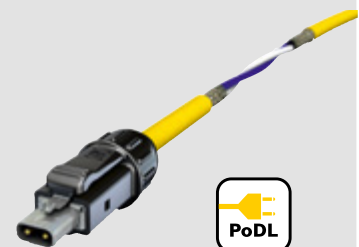
Capable of being used over distances up to 1 km, SPE has all the features to replace old field buses or analog networks as current loops 4...20 mA. It is also a good support for connecting actuators and sensors with Ethernet-based automation networks.

An SPE cable has many advantages:

- Thinner lighter cable
- Better performance to industrial requirements, especially in cyclic translation on a drag chain or in torsion (robotic).
- Lower cost cable (less than copper)
- Simpler cabling

As an IEC 63171-6 certified connector, the T1 Industrial is suitable for use in harsh industrial environments.

- Data rate: 10/100 Mbit/s, 10 Gbit/s
- Bandwidth: 4 GHz
- ≥ 1000 mating cycles
- Designed for industrial environments M313C3E3



M12 Circular connectors

T 1 Industrial coding (2 wires)	Cable side		<p>IP65 IP67</p> <p>M12 connector male slim code-T1 Industrial</p> <ul style="list-style-type: none"> 2 crimp contacts Conductors AWG 28-22 	21 03 339 1205	
			Crimp contacts AWG 28-26	09 45 500 2810	
			Crimp contacts AWG 24-22	09 45 500 2812	
	Plugs		<p>IP65 IP67</p> <p>T1 Industrial M12 plug straight 12.5 mm</p> <ul style="list-style-type: none"> THR soldering Shielded Straight, soldered contact pins on PCB 	21 03 339 2202	
				<p>IP65 IP67</p> <p>T1 Industrial M12 plug straight 8 mm</p> <ul style="list-style-type: none"> THR soldering Shielded Straight, soldered contact pins on PCB 	21 03 339 2201
				<p>IP65 IP67</p> <p>T1 Industrial M12 plug angled</p> <ul style="list-style-type: none"> THR soldering Shielded Flat mounting, soldered contact pins on PCB 	21 03 339 4201
			Housings		<p>IP65 IP67</p> <p>T1 Industrial M12 receptacle for rear mounting</p> <ul style="list-style-type: none"> Screw locking
		<p>IP65 IP67</p> <p>T1 Industrial M12 receptacle for front mounting</p> <ul style="list-style-type: none"> Screw locking & PushPull 		21 03 339 2000	
	Tools		Crimping tool (AWG 28-26)	09 45 800 2810	
			Crimp contacts AWG 28-26	09 45 500 2810	
			Crimping tool (AWG 24-22)	09 45 800 2811	
			Crimp contacts AWG 24-22	09 45 500 2812	

M12 Circular connectors

D-coded - Cat. 5 (4 wires)	Cable side		<p>IP65 IP67</p> <p>M12 connector male slim D-coded</p> <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded 		
			<p>Conductors AWG 26</p>	21 03 382 1410	
			<p>Conductors AWG 22</p>	21 03 382 1400	
			<p>IP65 IP67</p> <p>M12 connector male D-coded</p> <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded Conductors AWG 26-22 		21 03 281 1405
				<p>IP65 IP67</p> <p>M12 PushPull connector male D-coded</p> <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded 	
	<p>Conductors AWG 26</p>	21 03 382 1411			
	<p>Conductors AWG 22</p>	21 03 382 1401			
	Device side		<p>IP65 IP67</p> <p>M12 connector male D-coded</p> <ul style="list-style-type: none"> preLink® (AWG 27-22) Shielded 		20 82 005 0001
				<p>IP65 IP67</p> <p>M12 connector female slim D-coded</p> <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded 	
		<p>Conductors AWG 26</p>		21 03 382 2410	
<p>Conductors AWG 22</p>		21 03 382 2400			
		<p>IP65 IP67</p> <p>M12 connector female D-coded</p> <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded Conductors AWG 26-22 		21 03 281 2405	
		<p>IP65 IP67</p> <p>M12 connector female D-coded</p> <ul style="list-style-type: none"> PFT (panel feed-through) 4 HARAX® contacts (IDC) Shielded Conductors AWG 26-22 		21 03 381 2425	
		<p>IP65 IP67</p> <p>M12 PushPull connector female D-coded</p> <ul style="list-style-type: none"> PFT (panel feed-through) preLink® (AWG 27-22) Shielded 		20 82 005 2001	

xxx = Length of cable









003 = 0.3 m

005 = 0.5 m

010 = 1.0 m

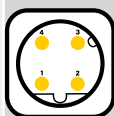
015 = 1.5 m

Other lengths available on request (10cm)

X-coded - Cat. 6A (8 wires)	Cable side		M12 connector male slim X-coded ■ 8 crimp contacts ■ Shielded	21 03 881 1805	
			<i>har-speed</i> crimp contacts AWG 28-24	21 01 100 9014	
			<i>har-speed</i> crimp contacts AWG 26-23	21 01 100 9019	
	Device side			M12 PushPull connector male X-coded ■ 8 crimp contacts ■ Shielded	21 03 881 1830
				<i>har-speed</i> crimp contacts AWG 28-24	21 01 100 9014
				<i>har-speed</i> crimp contacts AWG 26-23	21 01 100 9019
			M12 connector male D-coded ■ preLink® (AWG 27-22) ■ Shielded	20 82 005 0002	
			M12 connector female slim X-coded ■ 8 crimp contacts ■ Shielded	21 03 881 2805	
			<i>har-speed</i> crimp contacts AWG 28-24	21 01 100 9023	
		<i>har-speed</i> crimp contacts AWG 26-23	21 01 100 9021		
		M12 PushPull connector female X-coded ■ PFT (panel feed-through) ■ 8 crimp contacts ■ Shielded	21 03 881 2825		
		<i>har-speed</i> crimp contacts AWG 28-24	21 01 100 9023		
		<i>har-speed</i> crimp contacts AWG 26-23	21 01 100 9021		
		M12 PushPull connector female X-coded ■ PFT (panel feed-through) ■ preLink® (AWG 27-22) ■ Shielded	20 82 006 2001		
		M12 PushPull connector female X-coded pre-assembled ■ PFT (panel feed-through) ■ 8 crimp contacts on cable S/FTP PUR black ■ Shielded			
		Black cable 	21 33 080 0850 xxx		

M12 connector - Characteristics & advantages

With the M12 PushPull, screwing the connectors together is not necessary, this saves time in mating and un-mating and no torque wrench is needed.

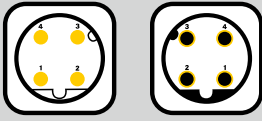


D-coded
Cat. 5 (10/100 Mbit/s - 100 MHz)




X-coded
Cat. 6_A (1/10 Gbit/s - 500 MHz)

M12 cables D-coded - Definition of references



CAT. 5



2	1	3	4	X	X	X	X	X	X	X	x	x	x
---	---	---	---	---	---	---	---	---	---	---	---	---	---

9	2		M12 connector male straight	Connector 1
9	3		M12 connector female straight	
9	4		M12 connector male angled	
9	5		M12 connector female angled	


0	0		No connector	Connector 2
9	2		M12 connector male straight	
9	3		M12 connector female straight	
9	4		M12 connector male angled	
9	5		M12 connector female angled	

4		4 poles	No. of Contacts
---	--	---------	------------------------

0	5		PVC	Cable jacket
7	7		PUR	

0	0	5		0.5 m	Length of cable
0	1	0		1.0 m	
0	1	5		1.5 m	
0	2	0		2.0 m	
0	5	0		5.0 m	
0	7	5		7.5 m	
1	0	0		10.0 m	

CAT. 6A



M12 Ethernet cable X-coded

- Cable S/FTP yellow
- Connector male Slim Press & Go


Jacket	Connector 1	Connector 2		
PVC	M12 X-coded	No		21 33 050 0855 xxx
PUR	M12 X-coded	No		21 33 050 0850 xxx
PVC	M12 X-coded	M12 X-coded		21 33 050 5855 xxx
PUR	M12 X-coded	M12 X-coded		21 33 050 5850 xxx

xxx = Length of cable

005 = 0.5 m	010 = 1.0 m	020 = 2.0 m	030 = 3.0 m	050 = 5.0 m	100 = 10 m
-------------	-------------	-------------	-------------	-------------	------------

Other lengths available on request (10cm)

M8 cables D-coded - Definition of references



CAT. 5

2	1	3	4	X	X	X	X	X	X	X	x	x	x
C	7												
D	7												
0	0												
C	7												
D	7												
4													
0	5												
7	7												
0	0	5									0.5 m		
0	1	0									1.0 m		
0	1	5									1.5 m		
0	2	0									2.0 m		
0	5	0									5.0 m		
0	7	5									7.5 m		
1	0	0									10.0 m		

Connector 1

- M8 connector male straight
- M8 connector female straight

Connector 2

- No connector
- M8 connector male straight
- M8 connector female straight


No. of contacts

- 4 poles

Cable jacket

- PVC
- PUR

Length of cable

	RJ45/ M12 Ethernet cables D-coded			
	<ul style="list-style-type: none"> Cable 2 x 2 x AWG22 green Overmoulded connectors 			
	Jacket	Connector 1	Connector 2	
PUR	DualBoot® RJ45	M12 male straight	09 48 689 6018 xxx	
PUR	DualBoot® RJ45	M12 male angled	09 48 688 3018 xxx	

xxx = Length of cable

005 = 0.5 m	010 = 1.0 m	020 = 2.0 m	030 = 3.0 m	050 = 5.0 m	100 = 10 m
-------------	-------------	-------------	-------------	-------------	------------

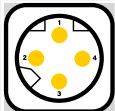
Other lengths available on request (10cm)

M8 Circular connectors

D-coded - Cat. 5 (4 wires)			M8 connector D-coded <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded Conductors AWG 22 	IP65 IP67	
					Male 21 02 185 1405
			M8 PushPull connector male D-coded <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded Conductors AWG 22 	IP65 IP67	21 02 185 1430
P-coded - Cat. 5 (4 wires)			M8 connector P-coded <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded Conductors AWG 22 	IP65 IP67	
					Male 21 02 145 1405
			M8 PushPull connector male P-coded <ul style="list-style-type: none"> 4 HARAX® contacts (IDC) Shielded Conductors AWG 22 	IP65 IP67	21 02 145 1430

M8 connector - Characteristics & advantages

The M8 connector is 30% more compact than the M12, which is significant for small sensors or actuators. Like the M12, the M8 PushPull version does not need to be connected using the screw thread saving time.












D-coded
Cat. 5 (10/100 Mbit/s - 100 MHz)









P-coded
Cat. 5 (10/100 Mbit/s - 100 MHz)

PushPull (V4) RJ45 Ethernet cables

 	Overmoulded cables				
	Cable S/FTP				
	Jacket	Connector 1	Connector 2		
	PUR	PushPull RJ45	PushPull RJ45		09 48 282 8756 xxx
	PVC	PushPull RJ45	PushPull RJ45		09 48 282 8757 xxx
	PUR	PushPull RJ45	DualBoot® RJ45		09 48 284 7744 xxx
	PUR	PushPull RJ45	DualBoot® RJ45		09 48 284 7756 xxx
	PVC	PushPull RJ45	DualBoot® RJ45		09 48 284 7757 xxx
	PVC Outdoor	PushPull RJ45	PushPull RJ45		09 48 282 2758 xxx
	PVC Outdoor	PushPull RJ45	DualBoot® RJ45		09 48 284 7758 xxx

PushPull (V4) connectors

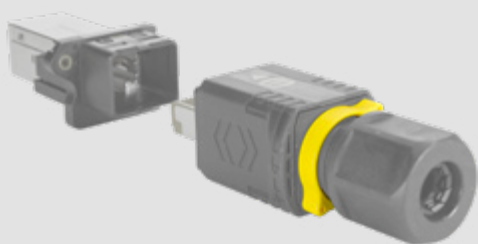
Cable side		PushPull (V4) RJ45 connector ■ 4 IDC contacts ■ Shielded ■ Conductors AWG 24-22	CAT. 5 IP65 IP67	09 45 145 1106
		PushPull (V4) RJ45 connector ■ 8 IDC contacts ■ Shielded ■ Conductors AWG 27-22	CAT. 6A IP65 IP67	09 45 145 1561
		PushPull RJ45 coupler ■ Shielded	CAT. 6A IP65 IP67	09 45 345 1560
Device side		PushPull RJ45 housing ■ BULKHEAD mounting ■ Shielded	CAT. 6A IP65 IP67	09 45 245 1561
		PushPull HIFF housing ■ Compatible with inserts with HIFF format (RJ45 core, RJ45 coupler, USB coupler)	IP65 IP67	09 45 545 0041
Accessories		2-port outlet housing with protection caps ■ PushPull RJ45 two-port ■ IDC contacts ■ Conductors AWG 24-22	IP65 IP67	09 45 845 1562
		Empty 2-port outlet housing with protection caps ■ PushPull RJ45 two-way ■ Mounting of 2 RJ45 cores with HIFF format for cabling	IP65 IP67	09 45 845 1560

PushPull connector - Characteristics & advantages

The PushPull connector has all the advantages for intensive use:

- Speedy connection and disconnection
- Easy to use with audible click on connection
- Little force for insertion and removal







- Once connected, a locking ring can prevent accidental disconnections.









- Visual marking for easy connection



HARTING RJ Industrial® Han® 3A RJ45

		Cable side		
		Image	Part Number	
Cable side		CAT. 5 Han® 3A RJ45 Male insert ■ 4 IDC contacts ■ Shielded	Conductors AWG 26	09 45 100 1110
			Conductors AWG 24-22	09 45 100 1100
		CAT. 6 Han® 3A RJ45 Male insert ■ 8 IDC contacts ■ Shielded ■ Conductors AWG 27-22		09 45 100 1560
		CAT. 6_A Han® 3A RJ45 preLink® Male insert ■ preLink® (AWG 27-22) ■ Shielded		20 82 002 0001
		IP65 IP67 Han® 3A Housing ■ With glued seal ■ M20 output	Metal, grey	19 20 003 1443
			Metal, black	19 37 003 1443
			Plastic, grey	19 20 003 0423
			Plastic, black	19 20 003 0423
EMC			19 62 003 1443	
Stainless steel			19 44 003 1443	
Device side		CAT. 6 Han® 3A RJ45 coupler ■ Shielded		09 45 200 1560
		Han® 3A HIFF adapter ■ Compatible with inserts with HIFF format (RJ45 core, RJ45 coupler, USB coupler)		09 45 515 0024
		IP65 IP67 Han® 3A bulkhead housing	Metal, grey	09 20 003 0301
			Metal, black	09 37 003 0301
			Plastic, grey	09 20 003 0320
			Plastic, black	09 20 003 0327
			EMC	09 62 003 0301
			Stainless steel	19 44 003 0301
	IP65 IP67 Han® 3A bulkhead housing ■ With self-closing cover	Metal, grey	09 20 003 0306	
		Metal, black	09 37 003 0306	
		EMC	09 62 003 0306	

Cable to cable junction			IP65 IP67	Han® 3A cable-to-cable housing ■ M20 output			
					Metal, grey	19 20 003 1750	
					Metal, black	19 37 003 1750	
					Plastic, grey	19 20 003 0720	
					Plastic, black	19 20 003 0727	
					EMC	19 62 003 1750	
			CAT. 5 CAT. 5e IP65 IP67	Han® 3A RJ45 coupler ■ 8 poles			
					Metal, grey	09 45 215 1107	
					Metal, black	09 45 215 1110	
					Plastic, black	09 45 225 1107	
USB	Cable side			Han-Brid® USB insert ■ Compatible with USB cables		09 12 001 3091	
	Equipment			Han-Brid® USB insert USB extender			
					USB 3.0	09 12 001 2793	
Han® 3A RJ45 kit	Cable side			Han® 3A RJ45 connector ■ 8 IDC contacts ■ AWG 27-22	CAT. 6		
						Plastic version, black	09 45 125 1560
						Metal version, grey	09 45 115 1560
	Equipment			Han® 3A RJ45 housing ■ RJ45 coupler	CAT. 6		
						Plastic version, black	09 45 225 1560
						Metal version, grey	09 45 215 1560
				Metal version, grey, with self-closing cover	09 45 215 1562		

Han® 3A Connector - Characteristics & advantages

For strength and versatility, the Han® industrial connector is used and recognized in the fields of machinery, robotics, transport and energy. You will find a version to suit whatever your needs for use in harsh industrial environments.






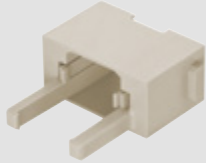








Han® 3A is a compact version available with several finishes:

- Standard (zinc with epoxy finish)
- Gray or black plastic (polycarbonate)
- Han® EMC for environments subject to electromagnetic disturbances
- Han-INOX® for increased resistance to saline environments
- Han® HPR for harsh external environments (IP69k)
- Han® Ex for zones exposed to explosion hazard

More than 100 inserts to Han® 3A size are available for connecting power, signals, data (copper, coaxial, optical fiber).



Han-Modular®

Han® RJ45			Han® RJ45 male module ■ Mounting of RJ45 male inserts	09 14 001 4623			
		CAT. 5	RJ45 insert - 4 IDC contacts				
				Conductors AWG 26	09 45 400 1109		
				Conductors AWG 24-22	09 45 400 1100		
		CAT. 6_A	RJ45 insert - 8 IDC contacts				
				Conductors AWG 27-22	09 45 400 1560		
			RJ45 insert ■ Compatible with DualBoot® RJ45 cables	09 14 000 9966			
			Han® RJ45 female module ■ Compatible with RJ45 cores with HIFF format	09 14 001 4722			
			Han® RJ45 coupler module ■ Shielded	09 14 001 4721			
	Han® Gigabit				CAT. 7	Han® Gigabit male module ■ Mounting of Han® Gigabit male insert	09 14 001 3011
					Han® Gigabit male insert ■ 8 crimp contacts ■ Shielded	09 14 008 3011	
					Crimp contacts, male ■ AWG 26-22	09 93 000 5576	
				CAT. 7	Han® Gigabit female module ■ Mounting of Han® Gigabit female insert	09 14 001 3111	
						Han® Gigabit female insert ■ 8 crimp contacts ■ Shielded	09 14 008 3111
						Crimp contact, female ■ AWG 26-22	09 93 000 5476
		Cable clamp					
				Ø 5 - 7 mm	61 03 000 0141		
				Ø 7 - 10 mm	61 03 000 0044		
				Ø 9 - 12 mm	61 03 000 0143		

Han® M12		Han® M12 male module	09 14 002 3061
		<ul style="list-style-type: none"> ■ Mounting of 2 Han® M12 male inserts 	
		Han® M12 D-coded male insert	09 14 881 1405
		<ul style="list-style-type: none"> ■ 4 crimp contacts AWG 26-18 	
		Crimp contacts, male M12 D-coded AWG 18-22	09 67 000 3576
		Crimp contacts, male M12 D-coded AWG 24-20	09 67 000 8576
		Crimp contacts, male M12 D-coded AWG 26-22	09 67 000 5576
		Han® M12 X-coded male insert	09 14 881 1805
		<ul style="list-style-type: none"> ■ 8 crimp contacts AWG 28-23 	
		<ul style="list-style-type: none"> har-speed crimp contact AWG 28-24 har-speed crimp contact AWG 26-23 	<ul style="list-style-type: none"> 21 01 100 9014 21 01 100 9019
	Han® M12 female module	09 14 002 3161	
	<ul style="list-style-type: none"> ■ Mounting of 2 Han® M12 female inserts 		
	Han® M12 D-coded female insert	09 14 881 2405	
	<ul style="list-style-type: none"> ■ 4 crimp contacts AWG 26-18 		
	Crimp contacts, female M12 D-coded AWG 18-22	09 67 000 3476	
	Crimp contacts, female M12 D-coded AWG 24-20	09 67 000 8476	
	Crimp contacts, female M12 D-coded AWG 26-22	09 67 000 5476	
	Han® M12 X-coded female insert	09 14 881 2805	
	<ul style="list-style-type: none"> ■ 8 crimp contacts AWG 28-23 		
	<ul style="list-style-type: none"> har-speed crimp contact AWG 28-24 har-speed crimp contact AWG 26-23 	<ul style="list-style-type: none"> 21 01 100 9023 21 01 100 9021 	

Han-Modular® - Characteristics & advantages

Han-Modular® is the reference range for industrial modular connectors. More than 100 modules make up the range, which is the most versatile and complete on the market.

- Many combinations of different connections in one connector
- Power, Signals, and Data in one connector
- By connector size, from 1 to 12 slots

With the different finishes available, Han-Modular® is suitable for all types of industrial environment.

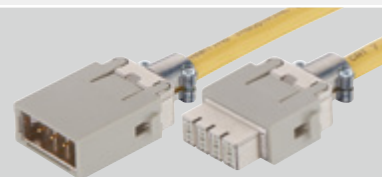
- Standard (moulded aluminum with epoxy treatment)
- Han-Eco® (fiberglass reinforced polyamide)
- Han® EMC for environments subject to electromagnetic disturbances
- Han-INOX® for increased resistance to saline environments
- Han® HPR for harsh external environments (IP69k)
- Han® Ex for zones exposed to explosion hazard














Han® Gigabit - Characteristics & advantages

Choose Han® Gigabit for high performance and robust Ethernet connections.

For high numbers of mating cycles, the Han® Gigabit HMC version (High Mating Cycle) is available (≥ 10,000 mating cycles). HMC contacts, with reinforced gold treatment, are also offered.



Han® 1A

	<p>Han® 1A, M12 D-coded inserts</p> <ul style="list-style-type: none"> ■ With locking catch ■ 4 crimp contacts AWG 26-18 ■ Shielded 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 5px; font-weight: bold;">CAT. 5</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 5px; font-weight: bold;">IP65</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 5px; text-align: center;">  </div> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Male insert</td> <td>09 10 004 3001</td> </tr> <tr> <td style="text-align: right;">Female insert</td> <td>09 10 004 3101</td> </tr> </table>	Male insert	09 10 004 3001	Female insert	09 10 004 3101			
Male insert	09 10 004 3001								
Female insert	09 10 004 3101								
	<p>Han® 1A, M12 D-coded inserts</p> <ul style="list-style-type: none"> ■ With locking lever ■ 4 crimp contacts AWG 26-18 ■ Shielded 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 5px; font-weight: bold;">CAT. 5</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 5px; font-weight: bold;">IP65</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 5px; text-align: center;">  </div> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Male insert</td> <td>09 10 004 3006</td> </tr> <tr> <td style="text-align: right;">Female insert</td> <td>09 10 004 3106</td> </tr> </table>	Male insert	09 10 004 3006	Female insert	09 10 004 3106			
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Female insert	09 10 004 3106								
	<p>Crimp contacts, male M12 D-coded</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">AWG 18-22</td> <td>09 67 000 3576</td> </tr> <tr> <td style="text-align: right;">AWG 24-20</td> <td>09 67 000 8576</td> </tr> <tr> <td style="text-align: right;">AWG 26-22</td> <td>09 67 000 5576</td> </tr> <tr> <td style="text-align: right;">AWG 28-24</td> <td>09 67 000 7576</td> </tr> </table>	AWG 18-22	09 67 000 3576	AWG 24-20	09 67 000 8576	AWG 26-22	09 67 000 5576	AWG 28-24	09 67 000 7576
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	<p>Crimp contacts, female M12 D-coded</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">AWG 18-22</td> <td>09 67 000 3476</td> </tr> <tr> <td style="text-align: right;">AWG 24-20</td> <td>09 67 000 8476</td> </tr> <tr> <td style="text-align: right;">AWG 26-22</td> <td>09 67 000 5476</td> </tr> <tr> <td style="text-align: right;">AWG 28-24</td> <td>09 67 000 7476</td> </tr> </table>	AWG 18-22	09 67 000 3476	AWG 24-20	09 67 000 8476	AWG 26-22	09 67 000 5476	AWG 28-24	09 67 000 7476
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	Bulkhead mounting ■ With seals	
	Straight	09 10 000 0300
	Angled	09 10 000 0800
	Cable junction	
	With strain-relief clamp	09 10 000 5300
	With Cable gland/Seals included	09 10 000 0400
	Han® 1A metal locking lever	09 10 000 5200
	Grip frame ■ Wall mounting	09 10 000 9908
	Grip frame ■ Mounting on DIN rail	09 10 000 9912




































Han® 1A - Characteristics & advantages

Han® 1A is the most compact of Han® industrial connectors.

- 30% smaller than Han® 3A.
- Its pluggable modular assembly saves mounting time
- Light, strong, waterproof
- Suited to use conditions in rough industrial environments
- Cable-to-cable or panel mounting
- Fast and easy to use for intensive use



Ethernet switches

	<p>eCon 2000 Ethernet switches</p> <ul style="list-style-type: none"> Flat Fast Ethernet MTBF ≥ 2,500,000 h <table border="1"> <tbody> <tr> <td rowspan="2">  </td> <td>5 RJ45 ports</td> <td>24 02 005 0010</td> </tr> <tr> <td>8 RJ45 ports</td> <td>24 02 008 0010</td> </tr> <tr> <td rowspan="2">  </td> <td>5 RJ45 ports</td> <td>24 02 005 0000</td> </tr> <tr> <td>8 RJ45 ports</td> <td>24 02 008 0000</td> </tr> </tbody> </table>		5 RJ45 ports	24 02 005 0010	8 RJ45 ports	24 02 008 0010		5 RJ45 ports	24 02 005 0000	8 RJ45 ports	24 02 008 0000				
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eCon Ethernet switches - Characteristics & advantages

Plug & Play, HARTING Ethernet switches will facilitate the installation and extension of your Ethernet networks.

- Non-managed switches
- Compatible with IEEE 802.3 Ethernet architectures
- Wide power supply range: AC 24 V / DC 9 ... 60 V
- Strong and light with aluminum enclosure
- Minimal consumption
- Available in PoE / PoE+ version
- Available with Optical Fiber ports (SC Duplex connector)
- ECE-R10 (E1) approved for use in vehicles










































































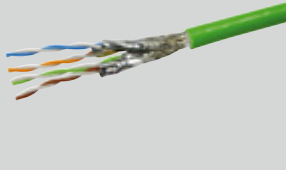
















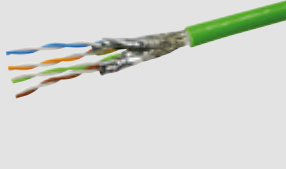



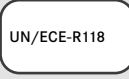












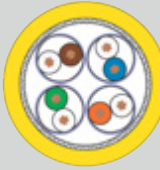
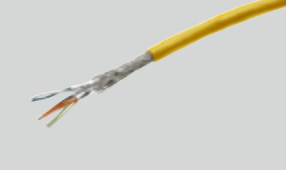


































Industry 4.0 and efficient connected devices mean increasingly high data flows. This is why Ethernet switches have to simultaneously transfer images and high data flows without altering network performance.

















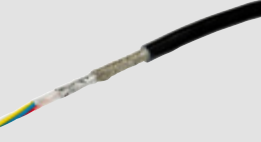











New generation HARTING Ethernet switches easily manage all Full Gigabit Ethernet ports, even when the devices are very data consuming cameras.



24 13 416 0000

Industrial Ethernet cables

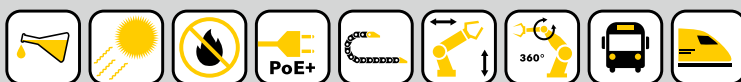
		<p>Cable, Profinet type A - PVC - Star quad - 4 x AWG 22/1</p> <p>     </p>	<table border="1"> <tr><td>20 m</td><td></td><td>09 45 600 0130</td></tr> <tr><td>50 m</td><td></td><td>09 45 600 0140</td></tr> <tr><td>100 m</td><td></td><td>09 45 600 0100</td></tr> <tr><td>500 m</td><td></td><td>09 45 600 0110</td></tr> </table>	20 m		09 45 600 0130	50 m		09 45 600 0140	100 m		09 45 600 0100	500 m		09 45 600 0110
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50 m		09 45 600 0140													
100 m		09 45 600 0100													
500 m		09 45 600 0110													
		<p>Cable, Profinet type B - PVC - Star quad - 4 x AWG 22/7</p> <p>     </p>	<table border="1"> <tr><td>20 m</td><td></td><td>09 45 600 0132</td></tr> <tr><td>50 m</td><td></td><td>09 45 600 0142</td></tr> <tr><td>100 m</td><td></td><td>09 45 600 0102</td></tr> <tr><td>500 m</td><td></td><td>09 45 600 0112</td></tr> </table>	20 m		09 45 600 0132	50 m		09 45 600 0142	100 m		09 45 600 0102	500 m		09 45 600 0112
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50 m		09 45 600 0142													
100 m		09 45 600 0102													
500 m		09 45 600 0112													
		<p>Cable, Profinet type C - PUR - Star quad - 4 x AWG 22/7</p> <ul style="list-style-type: none"> 3,000,000 cycles of bending in translation Ø of bending 200 mm speed 4 m/s - acceleration 4 m/s² 30,000 cycles of torsion to +/- 180° on 1.0 m <p>     </p>	<table border="1"> <tr><td>20 m</td><td></td><td>09 45 600 0131</td></tr> <tr><td>50 m</td><td></td><td>09 45 600 0141</td></tr> <tr><td>100 m</td><td></td><td>09 45 600 0101</td></tr> <tr><td>500 m</td><td></td><td>09 45 600 0111</td></tr> </table>	20 m		09 45 600 0131	50 m		09 45 600 0141	100 m		09 45 600 0101	500 m		09 45 600 0111
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		<p>Cable, Profinet type A - PVC - S/FTP - 4 x 2 x AWG 23/1</p> <p>    </p>	<table border="1"> <tr><td>20 m</td><td></td><td>09 45 600 1200</td></tr> <tr><td>50 m</td><td></td><td>09 45 600 1210</td></tr> <tr><td>100 m</td><td></td><td>09 45 600 1220</td></tr> <tr><td>500 m</td><td></td><td>09 45 600 1230</td></tr> </table>	20 m		09 45 600 1200	50 m		09 45 600 1210	100 m		09 45 600 1220	500 m		09 45 600 1230
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		<p>Cable, PVC Outdoor - S/FTP - 4 x 2 x AWG 26/7</p> <p>     </p>	<table border="1"> <tr><td>20 m</td><td></td><td>09 45 600 0531</td></tr> <tr><td>50 m</td><td></td><td>09 45 600 0541</td></tr> <tr><td>100 m</td><td></td><td>09 45 600 0501</td></tr> <tr><td>500 m</td><td></td><td>09 45 600 0521</td></tr> </table>	20 m		09 45 600 0531	50 m		09 45 600 0541	100 m		09 45 600 0501	500 m		09 45 600 0521
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100 m		09 45 600 0501													
500 m		09 45 600 0521													

 	Cable, PUR - S/FTP - 4 x 2 x AWG 26/7		   	<table border="1"> <tr><td>20 m</td><td>09 45 600 630</td></tr> <tr><td>50 m</td><td>09 45 600 640</td></tr> <tr><td>100 m</td><td>09 45 600 600</td></tr> <tr><td>500 m</td><td>09 45 600 620</td></tr> <tr><td>100 m</td><td>09 45 600 711</td></tr> <tr><td>500 m</td><td>09 45 600 721</td></tr> <tr><td>1000 m</td><td>09 45 600 751</td></tr> </table>	20 m	09 45 600 630	50 m	09 45 600 640	100 m	09 45 600 600	500 m	09 45 600 620	100 m	09 45 600 711	500 m	09 45 600 721	1000 m	09 45 600 751
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 	Cable, EtherRail® - Star quad - 4 x AWG 22/7		  	<table border="1"> <tr><td>10 m</td><td>09 45 600 0168</td></tr> <tr><td>50 m</td><td>09 45 600 0178</td></tr> <tr><td>100 m</td><td>09 45 600 0108</td></tr> <tr><td>500 m</td><td>09 45 600 0118</td></tr> <tr><td>1000 m</td><td>09 45 600 0128</td></tr> </table>	10 m	09 45 600 0168	50 m	09 45 600 0178	100 m	09 45 600 0108	500 m	09 45 600 0118	1000 m	09 45 600 0128				
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1000 m	09 45 600 0128																	
 	Cable, EtherRail® - Star quad - 4 x AWG 22/19 Ultra flexible		  	<table border="1"> <tr><td>10 m</td><td>09 45 600 0188</td></tr> <tr><td>50 m</td><td>09 45 600 0189</td></tr> <tr><td>100 m</td><td>09 45 600 0138</td></tr> <tr><td>500 m</td><td>09 45 600 0148</td></tr> <tr><td>1000 m</td><td>09 45 600 0158</td></tr> </table>	10 m	09 45 600 0188	50 m	09 45 600 0189	100 m	09 45 600 0138	500 m	09 45 600 0148	1000 m	09 45 600 0158				
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500 m	09 45 600 0148																	
1000 m	09 45 600 0158																	
 	Cable, EtherRail® - S/FTP 4 x 2 x AWG 24/7		  	<table border="1"> <tr><td>10 m</td><td>09 45 600 0694</td></tr> <tr><td>50 m</td><td>09 45 600 0693</td></tr> <tr><td>100 m</td><td>09 45 600 0692</td></tr> <tr><td>500 m</td><td>09 45 600 0691</td></tr> <tr><td>1000 m</td><td>09 45 600 0690</td></tr> </table>	10 m	09 45 600 0694	50 m	09 45 600 0693	100 m	09 45 600 0692	500 m	09 45 600 0691	1000 m	09 45 600 0690				
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4 x 2 x AWG 24/7		  	<table border="1"> <tr><td>10 m</td><td>09 45 600 0704</td></tr> <tr><td>50 m</td><td>09 45 600 0703</td></tr> <tr><td>100 m</td><td>09 45 600 0702</td></tr> <tr><td>500 m</td><td>09 45 600 0701</td></tr> <tr><td>1000 m</td><td>09 45 600 0700</td></tr> </table>	10 m	09 45 600 0704	50 m	09 45 600 0703	100 m	09 45 600 0702	500 m	09 45 600 0701	1000 m	09 45 600 0700					
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1000 m	09 45 600 0700																	
Cable, SPE (Single Pair Ethernet) - PUR - SF/TP 1 x 2 x AWG 26/7			<table border="1"> <tr><td>10 m</td><td>09 45 600 2004</td></tr> <tr><td>50 m</td><td>09 45 600 2003</td></tr> <tr><td>100 m</td><td>09 45 600 2002</td></tr> <tr><td>500 m</td><td>09 45 600 2001</td></tr> </table>	10 m	09 45 600 2004	50 m	09 45 600 2003	100 m	09 45 600 2002	500 m	09 45 600 2001							
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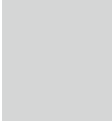
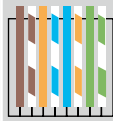
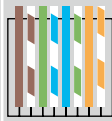

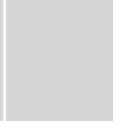

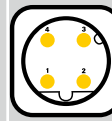


Ethernet cables - Characteristics & advantages

HARTING Ethernet cables are designed for use in industrial environments.

- High quality PVC, PUR or EtherRail® jackets
- Shielding braid covering at least 80% for excellent performance in environments exposed to electromagnetic pollution
- High mechanical resistance to bending or torsion according to cable
- UN/ECE-R 118 (Automobile Directive) certification according to cable
- EtherRail cables® approved to EN 45545-2, railway standard for fire safety



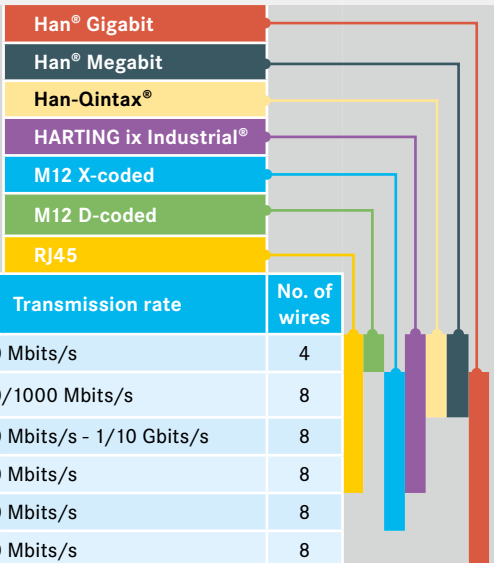
Contact allocation

																					
		RJ45	M12 X-coded	Ethernet standard 8 wires	ETA / ITA T568A	EIA/TIA T568 B	IP Ethernet 2 pairs	Profinet	Ethernet standard 4 wires	M12/M8 D-coded	RJ45										
1	1	1	BI_DA+	White/Green	White/Orange	White/Orange	Yellow	TX+	1	1											
2	2	2	BI_DA-	Green	Orange	Orange	Orange	TX-	3	2											
6	3	3	BI_DB+	White/Orange	White/Green	White/Green	White	RX+	2	3											
4	4	4	BI_DC+	Blue	Blue																
5	5	5	BI_DC-	White/Blue	White/Blue																
7	6	6	BI_DB-	Orange	Green	Green	Blue	RX-	4	6											
9	7	7	BI_DD+	White/Brown	White/Brown																
10	8	8	BI_DD-	Brown	Brown																
3.8 GND																					

Performance categories according to connectors

Categories	Characteristics	Band-width	Ethernet	Transmission rate	No. of wires
Cat. 5 Class D	100 BASE-TX	100 MHz	Fast Ethernet	10/100 Mbits/s	4
Cat. 5e Class D	100 BASE-TX / 1000 BASE-T	100 MHz	Ethernet Gigabit	10/100/1000 Mbits/s	8
Cat. 6 Class E	1G BASE-T, 2.5 / 5G BASE-T	250 MHz	Ethernet Gigabit	10/100 Mbits/s - 1/10 Gbits/s	8
Cat. 6 _A Class E _A	10G BASE-T	500 MHz	Ethernet 10 GB	10/100 Mbits/s	8
Cat. 7 Class F	10G BASE-T	600 MHz	Ethernet 10 GB	10/100 Mbits/s	8
Cat. 7 _A Class 7 _A	10G BASE-T	1000 MHz	Ethernet 10 GB	10/100 Mbits/s	8

HARTING connector



Crimping tool - Characteristics & advantages

Crimp contacts are recommended in certain cases, especially in extreme use conditions with high mechanical stresses (large and cyclical vibrations and shocks). The HARTING crimping tool, dedicated and calibrated for HARTING contacts, ensures excellent crimping quality for you.

- Repeatability of quality and crimping operations
- Constant contact resistance
- Corrosion-free connection resulting from cold welding
- The Go/No-Go gauge lets you check tool calibration.



Tools

Stripping		RJ Industrial® stripping tool <ul style="list-style-type: none"> ■ Ethernet cable ■ With blade cassette 	09 45 800 0000
		Blade cassette	09 45 800 0001
		RJ Industrial® stripping tool <ul style="list-style-type: none"> ■ Ethernet cable 	09 45 800 0002
Shear		Cable shear	09 45 800 0004
		Cable shear for conductors	09 45 800 0005
Crimping		Crimping tool <ul style="list-style-type: none"> ■ Crimping to MIL 22 520/2-01 	09 99 000 0501
		Locator for contacts <ul style="list-style-type: none"> ■ AWG 26-22 - Han® Gigabit 	09 99 000 0897
		Locator for <i>har</i> -speed male contacts <ul style="list-style-type: none"> ■ AWG 28-23 - M12 X-coded 	09 99 000 0525
		Locator for <i>har</i> -speed female contacts <ul style="list-style-type: none"> ■ AWG 28-23 - M12 X-coded 	09 99 000 0635
		Locator for Sub-D contacts <ul style="list-style-type: none"> ■ AWG 28-18 - M12 D-coded 	09 99 000 0531
		Go/No-Go check gauge	09 99 000 0617
Mounting		<i>har</i> -port mounting tool <ul style="list-style-type: none"> ■ Torque tightening of fixing nut 	09 45 502 0007



Pushing Performance

HARTING.com
the gateway to your country's website.
