

Connection Cables

for Operating Devices

Technical Manual

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Connection Cables for Operating Devices

This cable documentation serves the purely functional assignment of the devices. The safety conditions can limit the cable length.

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1 Compatible Device-Cable Combinations

1.1 Device

Description	Cable type	End connectors
BWH	12-246-001-Z1-010 (1 m)	Ethernet (Tyco Mini I/O) CAN (single wires) Supply (single wires)
	12-246-001-Z1 (5 m)	
	12-246-001-Z1-100 (10 m)	
	12-246-001-Z1-150 (15 m)	
	12-246-001-Z1-200 (20 m)	
	12-246-001-Z2-010 (1 m)	Ethernet (RJ45) CAN (single wires) Supply (single wires)
	12-246-001-Z2 (5 m)	
	12-246-001-Z2-100 (10 m)	
	12-246-001-Z2-150 (15 m)	
	12-246-001-Z2-200 (20 m)	
	12-246-001-Z3-010 (1 m)	Ethernet (RJ45)
	12-246-001-Z3 (5 m)	
	12-246-001-Z3-100 (10 m)	
	12-246-001-Z3-150 (15 m)	
	12-246-001-Z3-200 (20 m)	
ETT 7321	12-246-001-Z1-010 (1 m)	Ethernet (Tyco Mini I/O) CAN (single wires) Supply (single wires)
	12-246-001-Z1 (5 m)	
	12-246-001-Z1-100 (10 m)	
	12-246-001-Z1-150 (15 m)	
	12-246-001-Z1-200 (20 m)	
	12-246-001-Z2-010 (1 m)	Ethernet (RJ45) CAN (single wires) Supply (single wires)
	12-246-001-Z2 (5 m)	
	12-246-001-Z2-100 (10 m)	
	12-246-001-Z2-150 (15 m)	
	12-246-001-Z2-200 (20 m)	
HBG 0811	12-930-020 (2 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-930-090 (9 m)	
	12-930-200 (20 m)	
	12-930-300 (30 m)	
	12-930-030-H (3 m)	Binder 99-5851-15-14
	12-930-030-H1 (3 m)	Binder 99-5805-15-16

HBG 0811-K	12-930-020 (2 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-930-090 (9 m)	
	12-930-200 (20 m)	
	12-930-300 (30 m)	Binder 99-5851-15-14
	12-930-030-H (3 m)	
	12-930-030-H1 (3 m)	
HBG 1011	12-930-020 (2 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-930-090 (9 m)	
	12-930-200 (20 m)	
	12-930-300 (30 m)	Binder 99-5851-15-14
	12-930-030-H (3 m)	
	12-930-030-H1 (3 m)	
HBG 1011-1	12-930-020 (2 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-930-090 (9 m)	
	12-930-200 (20 m)	
	12-930-300 (30 m)	Binder 99-5851-15-14
	12-930-030-H (3 m)	
	12-930-030-H1 (3 m)	
HBG 1011-H	12-930-020 (2 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-930-090 (9 m)	
	12-930-200 (20 m)	
	12-930-300 (30 m)	Binder 99-5851-15-14
	12-930-030-H (3 m)	
	12-930-030-H1 (3 m)	
HBG 1011-K	12-930-020 (2 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-930-090 (9 m)	
	12-930-200 (20 m)	
	12-930-300 (30 m)	Binder 99-5851-15-14
	12-930-030-H (3 m)	
	12-930-030-H1 (3 m)	
HGT 835	12-935-040 (4 m)	Safety interface (Phoenix) Ethernet (RJ45) VARAN (Tyco Mini I/O) Supply (single wires)
	12-935-090 (9 m)	
	12-935-150 (15 m)	
	12-935-200 (20 m)	Supply (single wires)
HGT 835-2	01-245-835-Z2 (0.7 m)	Mini I/O plug on M12 socket

	01-245-835-Z3 (2 m)	RJ45 plug on M12 socket
	01-245-835-Z4 (2 m)	RJ45 plug on M12 plug
HGT 835-TF	12-935-040 (4 m) 12-935-090 (9 m) 12-935-150 (15 m) 12-935-200 (20 m)	Safety interface (Phoenix) Ethernet (RJ45) VARAN (Tyco Mini I/O) Supply (single wires)
HGT 1035	12-935-040 (4 m) 12-935-090 (9 m) 12-935-150 (15 m) 12-935-200 (20 m)	Safety interface (Phoenix) Ethernet (RJ45) VARAN (Tyco Mini I/O) Supply (single wires)
HGT 1035-K	12-935-040 (4 m) 12-935-090 (9 m) 12-935-150 (15 m) 12-935-200 (20 m)	Safety interface (Phoenix) Ethernet (RJ45) VARAN (Tyco Mini I/O) Supply (single wires)
HGT 1051	12-935-040 (4 m) 12-935-090 (9 m) 12-935-150 (15 m) 12-935-200 (20 m)	Safety interface (Phoenix) Ethernet 1 (RJ45) Ethernet 2 (Tyco Mini I/O) Supply (single wires)
HGT 1052-E	12-936-015 (1.5 m) 12-936-035 (3.5 m) 12-936-250 (25 m)	Supply (single wires) Ethernet (RJ45)
	12-937-100 (10 m)	FGG.1B.3D8.CLAD72
HGT 1052-E1	12-936-015 (1.5 m) 12-936-035 (3.5 m) 12-936-250 (25 m)	Supply (single wires) Ethernet (RJ45)
	12-937-100 (10 m)	FGG.1B.3D8.CLAD72
HGT 1053	12-930-020 (2 m) 12-930-090 (9 m) 12-930-200 (20 m) 12-930-300 (30 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-938-050 (5 m) 12-938-100 (10 m)	Binder 99 5652 75 14 to Hummel TWILOCK 7.816.500.000
	12-939-012 (1.2 m)	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)

	12-940-005 (0.5 m) 12-940-015 (1.5 m)	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)
HGT 1053-D	12-938-050 (5 m) 12-938-100 (10 m)	Binder 99 5652 75 14 to Hummel TWILOCK 7.816.500.000
	12-939-012 (1.2 m)	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)
HGT 1053-K	12-930-020 (2 m) 12-930-090 (9 m) 12-930-200 (20 m) 12-930-300 (30 m)	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
	12-938-050 (5 m) 12-938-100 (10 m)	Binder 99 5652 75 14 to Hummel TWILOCK 7.816.500.000
	12-939-012 (1.2 m)	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)
	12-940-005 (0.5 m) 12-940-015 (1.5 m)	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)
RBG 151	12-930-200 (20 m)	Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)

1.2 Cable

Cable type	Device	End connectors
01-245-835-Z2 (0,7 m)	HGT 835-2	Mini I/O plug on M12 socket
01-245-835-Z3 (2 m)	HGT 835-2	RJ45 plug on M12 socket
01-245-835-Z4 (2 m)	HGT 835-2	RJ45 plug on M12 plug
12-246-001-Z1-010 (1 m) 12-246-001-Z1 (5 m) 12-246-001-Z1-100 (10 m) 12-246-001-Z1-150 (15 m) 12-246-001-Z1-200 (20 m)	BWH ETT 7321	Ethernet (Tyco Mini I/O) CAN (single wires) Supply (single wires)
12-246-001-Z2-010 (1 m) 12-246-001-Z2 (5 m) 12-246-001-Z2-100 (10 m) 12-246-001-Z2-150 (15 m) 12-246-001-Z2-200 (20 m)	BWH ETT 7321	Ethernet (RJ45) CAN (single wires) Supply (single wires)
12-246-001-Z3-010 (1 m) 12-246-001-Z3 (5 m) 12-246-001-Z3-100 (10 m) 12-246-001-Z3-150 (15 m) 12-246-001-Z3-200 (20 m)	BWH	Ethernet (RJ45)
12-930-030-H (3 m)	HBG 0811 HBG 0811-K HBG 1011 HBG 1011-1 HBG 1011-H HBG 1011-K	Binder 99-5851-15-14
12-930-030-H1 (3 m)	HBG 0811 HBG 0811-K HBG 1011 HBG 1011-1 HBG 1011-H HBG 1011-K	Binder 99-5805-15-16

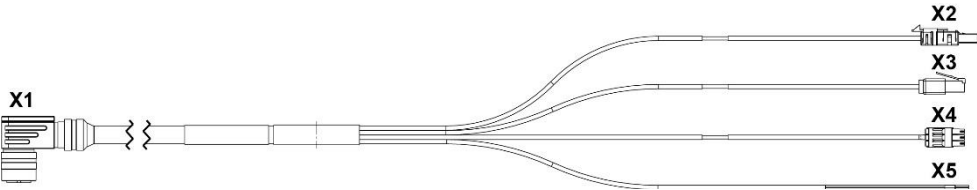
12-930-020 (2 m) 12-930-090 (9 m) 12-930-200 (20 m) 12-930-300 (30 m)	HBG 0811 HBG 0811-K HBG 1011 HBG 1011-1 HBG 1011-H HBG 1011-K HGT 1053 HGT 1053-K	Safety interface (Phoenix) HMI Link/GBit ETH (RJ45) Supply (single wires)
12-930-200 (20 m)	RBG 151	Safety interface (Phoenix) HMI Link (RJ45) Supply (single wires)
12-935-040 (4 m) 12-935-090 (9 m) 12-935-150 (15 m) 12-935-200 (20 m)	HGT 835 HGT 8335-H HGT1035 HGT 1035-TF HGT 1051	Safety interface (Phoenix) Ethernet (RJ45) VARAN (Tyco Mini I/O) Supply (single wires) Safety interface (Phoenix) Ethernet 1 (RJ45) Ethernet 2 (Tyco Mini I/O) Supply (single wires)
12-936-015 (1.5 m) 12-936-035 (3.5 m) 12-936-250 (25 m)	HGT 1052-E HGT 1052-E1	Supply (single wires)Ethernet (RJ45)
12-937-100 (10 m)	HGT 1052-E HGT 1052-E1	FGG.1B.3D8.CLAD72
12-938-050 (5 m) 12-938-100 (10 m)	HGT 1053 HGT 1053-D HGT 1053-K	Binder 99 5652 75 14 to Hummel TWILOCK 7.816.500.000
12-939-012 (1.2 m)	HGT 1053 HGT 1053-D HGT 1053-K	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)
12-940-005 (0.5 m) 12-940-015 (1.5 m)	HGT 1053 HGT 1053-K	Hummel TWILOCK 7.816.500.000 to: Safety interface (Phoenix) GBit ETH (RJ45) Supply (single wires)

3 Models

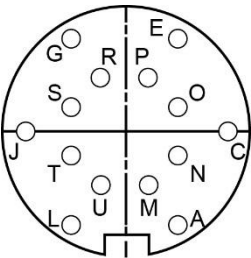
3.1 12-935-XXX HGT Connection Cable

HGT Connection Cable	
HGT 835, HGT 835-TF, HGT 1035, HGT 1035-H	
Length	Article number
4 m	12-935-040
9 m	12-935-090
15 m	12-935-150
20 m	12-935-200

3.1.1 Connector Layout

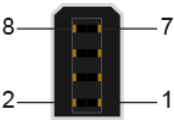


X1: Cable Connector M16



Pin	Wire Color	Function	
L	pink	Safety interface H	
J	gray	Safety interface L	
G	shield	Safety interface shield	
E	red	+24 V DC	
C	black	GND	
A	shield	ETH shield	
U	orange/white	Ethernet/VARAN	ETH Rx+
T	blue		VAR Rx-/ETH2 Rx-
S	blue/white		VAR Rx+/ETH2 Rx+
R	brown		VAR Tx-/ETH2 Tx-
P	brown/white		VAR Tx+/ETH2 Tx+
O	green		ETH Tx-
N	green/white		ETH Tx+
M	orange		ETH Rx-

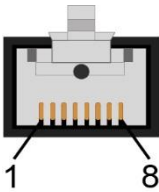
X2: VARAN/Ethernet (Tyco Mini I/O)



Pin	Function
1	Tx/Rx+
2	Tx/Rx-
3	Rx/Tx+
4-5	n.c.
6	Rx/Tx-
7-8	n.c.

n.c. = do not use

X3: Ethernet (RJ45 connector)

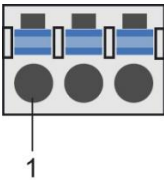


Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	n.c.
5	n.c.
6	Rx-
7	n.c.
8	n.c.



For use in local networks only, not in telecommunication circuits!

X4: Safety Interface (Phoenix plug)



Pin	Wire Color	Function
1	gray	Safety interface L
2	pink	Safety interface H
3	shield	Safety interface shield

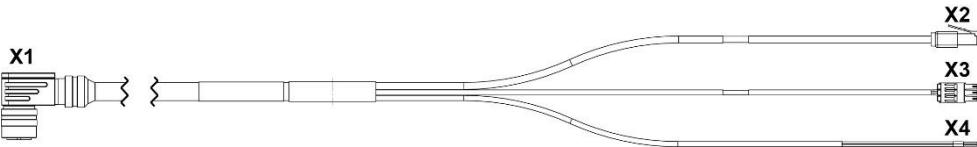
X5: Supply (single lines)

Wire Color	Function
red	+24 V
black	GND

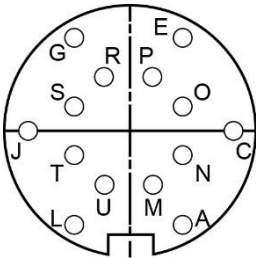
3.2 12-930-XXX HBG/HGT Connection Cable

HBG/HGT Connection Cable	
HBG 0811, HBG 0811-K, HBG 1011, HBG 1011-1, HBG 1011-H, HBG 1011-H, HGT 1053, HGT 1053-K, RBG 151	
Length	Article number
2 m	12-930-020
9 m	12-930-090
20 m	12-930-200
30 m	12-930-300

3.2.1 Connector Layout

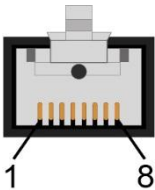


X1: Cable Connector M16



Pin	Wire Color	Function HMI		Function ETH	
L	pink	Safety interface H		Safety interface H	
J	gray	Safety interface L		Safety interface L	
G	shield	Safety interface shield		Safety interface shield	
E	red	+24 V DC		+24 V DC	
C	black	GND		GND	
A	shield	HMI-Link shield		ETH shield	
U	orange/white	HMI Link	DB+	Gigabit Ethernet	DA+/TX+
T	blue		DC+		DD+
S	blue/white		DC-		DD-
R	brown		DD-		DC-
P	brown/white		DD+		DC+
O	green		DA-		DB-/RX-
N	green/white		DA+		DB+/RX+
M	orange		DB-		DA-/TX-

X2: HMI Link/Gigabit Ethernet (RJ45 plug)

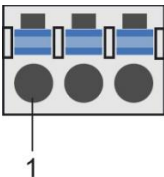


Pin	Function HMI	Function ETH
1	DA+	DB+/RX+
2	DA-	DB-/RX-
3	DB+	DA+/TX+
4	DC+	DD+
5	DC-	DD-
6	DB-	DA-/TX-
7	DD+	DC+
8	DD-	DC-



HMI Link: For use in local networks only, not in telecommunication circuits!

X3: Safety Interface (Phoenix plug)



Pin	Wire Color	Function
1	gray	Safety interface L
2	pink	Safety interface H
3	shield	Safety interface shield

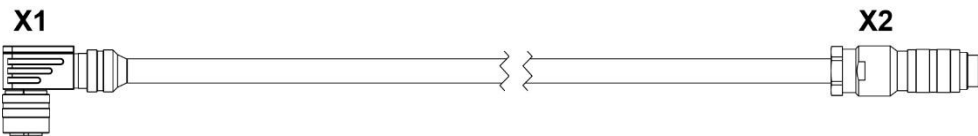
X4: Supply (single lines)

Wire Color	Function
red	+24 V
black	GND

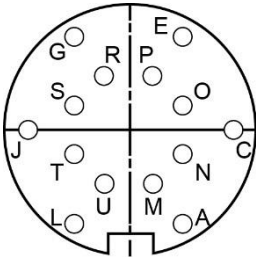
3.3 12-930-XXX-H HBG 3 m Connection Cable

HBG 3 m Connection Cable	
HBG 0811, HBG 0811-K, HBG 1011, HBG 1011-1, HBG 1011-H, HBG 1011-K	
Length	Article number
3 m	12-930-030-H

3.3.1 Connector Layout

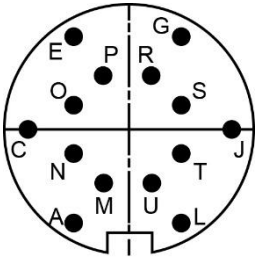


X1: M16 Cable Connector (Socket Contact)



Pin	Wire Color	Function	
L	pink	Safety interface H	
J	grey	Safety interface L	
G	shield	Safety interface shield	
E	red	+24 V DC	
C	black	GND	
A	shield	HMI-Link shield	
U	orange/white	HMI Link	DB+
T	blue		DC+
S	blue/white		DC-
R	brown		DD-
P	brown/white		DD+
O	green		DA-
N	green/white		DA+
M	orange		DB-

X2: M16 Cable Connector (Plug Contact)

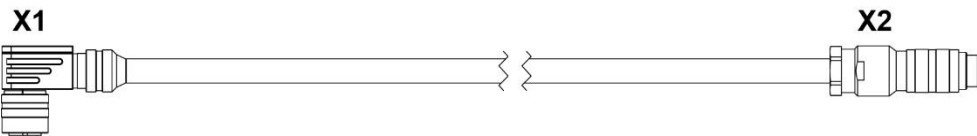


Pin	Wire Color	Function	
L	pink	Safety interface H	
J	grey	Safety interface L	
G	shield	Safety interface shield	
E	red	+24 V DC	
C	black	GND	
A	shield	HMI-Link shield	
U	orange/white	HMI Link	DB+
T	blue		DC+
S	blue/white		DC-
R	brown		DD-
P	brown/white		DD+
O	green		DA-
N	green/white		DA+
M	orange		DB-

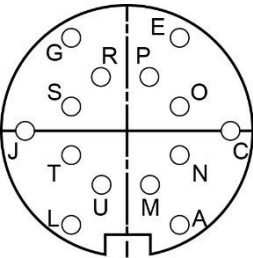
3.4 12-930-XXX-H1 HBG 3 m Connection Cable

HBG 3 m Connection Cable	
Length	Article number
3 m	12-930-030-H1

3.4.1 Connector Layout

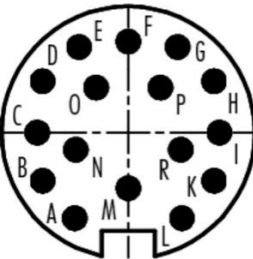


X1: M16 Cable Connector (Socket Contact)



Pin	Wire Color	Function
L	pink	Safety-Interface-H
J	grey	Safety-Interface-L
G	shield	Safety-Interface shield
E	red	+24 V DC
C	black	GND
A	shield	HMI-Link shield
U	orange/white	HMI-Link DB+
T	blue	
S	blue/white	
R	brown	
P	brown/white	
O	green	
N	green/white	
M	orange	

X2: M16 Cable Connector (Plug Contact)

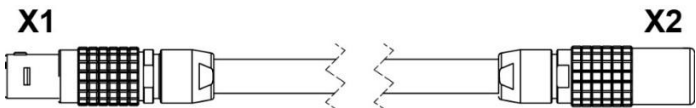


Pin	Wire Color	Function
P	pink	Safety-Interface-H
N	grey	Safety-Interface-L
O	shield	Safety-Interface shield
M	red	+24 V DC
R	black	GND
F	shield	HMI-Link shield
G	orange/white	HMI-Link DB+
E	blue	
D	blue/white	
L	brown	
K	brown/white	
B	green	
A	green/white	
H	orange	
C	none	n.c.
I	none	n.c.

3.5 12-937-100 HGT 1052 Extension Cable

HGT 1052 Extension Cable	
HGT 1052-E, HGT 1052-E1	
Length	Article number
10 m	12-937-100

3.5.1 Connector Layout



X1

FGG.1B



Pin	Wire Color	Function
1	red	+24 V DC
2	blue	RxD-
3	-	n.c.
4	pink	RxD+
5	black	0 V
6	yellow	TxD+
7	-	n.c.
8	green	TxD-

X2

PFG.1B

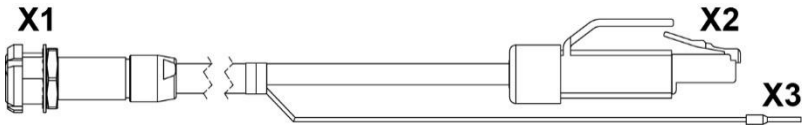


Pin	Wire Color	Function
1	red	+24 V DC
2	blue	RxD-
3	-	n.c.
4	pink	RxD+
5	black	0 V
6	yellow	TxD+
7	-	n.c.
8	green	TxD-

3.6 12-936-XXX HGT 1052 Connection Cable

HGT 1052 Connection Cable	
HGT 1052-E, HGT 1052-E1	
Length	Article number
1.5 m	12-936-015
3.5 m	12-936-035
25 m	12-936-250

3.6.1 Connector Layout



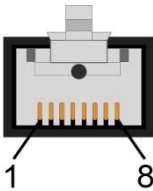
X1

PFG.1B



Pin	Wire Color	Function
1	red	+24 V DC
2	blue	RxD-
3	-	n.c.
4	pink	RxD+
5	black	0 V
6	yellow	TxD+
7	-	n.c.
8	green	TxD-

X2: HMI-Link (RJ45 plug)



Pin	Function
1	DA+
2	DA-
3	DB+
4	DC+
5	DC-
6	DB-
7	DD+
8	DD-



For use in local networks only, not in telecommunication circuits!

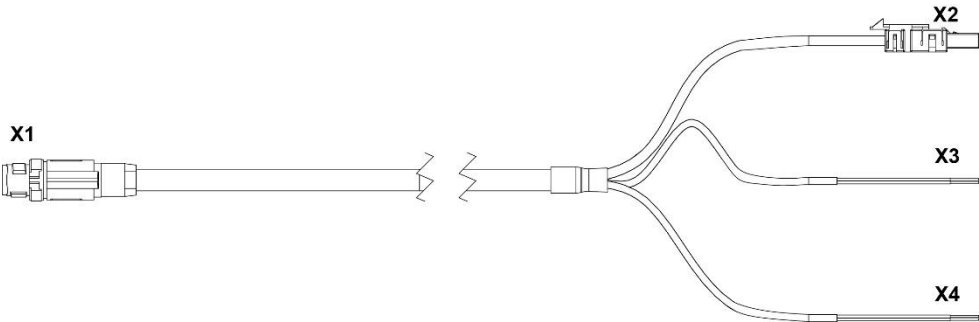
X3: Supply (single lines)

Wire Color	Function
red	+24 V
black	GND

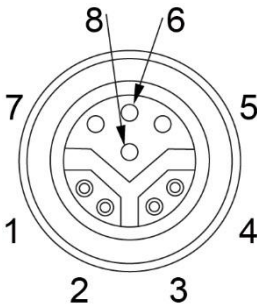
3.7 12-246-001-Z1-XXX Connector Cable BWH/ETT 7321

Connector Cable BWH	
Length	Article number
1 m	12-246-001-Z1-010
4 m	12-246-001-Z1-040
5 m	12-246-001-Z1
10 m	12-246-001-Z1-100
15 m	12-246-001-Z1-150
20 m	12-246-001-Z1-200

3.7.1 Connector Layout

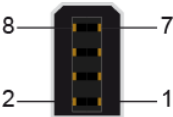


X1: Cable Connector M12 Y-coded



Pin	Wire color	Function
1	white/orange	Rx+
2	orange	Rx-
3	white/green	Tx+
4	green	Tx-
5	blue	VCC/+24 V
6	white	CAN_L
7	brown	CAN_H
8	black	GND

X2: Ethernet (Tyco Mini I/O)



Pin	Function
1	Tx/Rx+
2	Tx/Rx-
3	Rx/Tx+
4-5	n.c.
6	Rx/Tx-
7-8	n.c.

n.c. = do not use

X3: CAN Bus (single wires)

Wire color	Function
white	CAN_L
brown	CAN_H

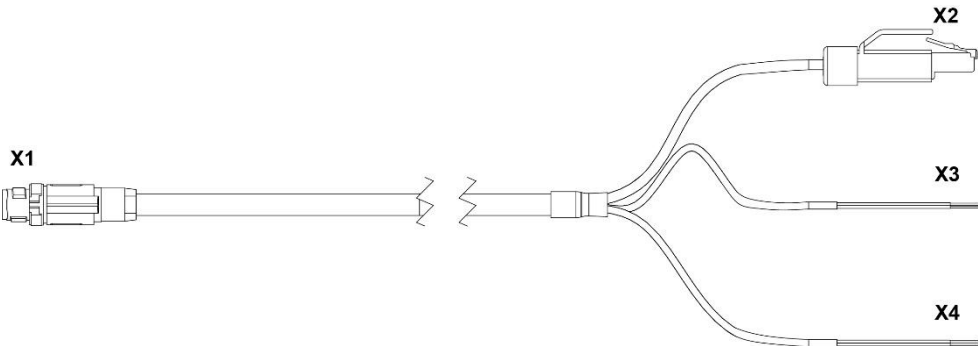
X4: Supply (single wires)

Wire color	Function
blue	VCC/+24 V
black	GND

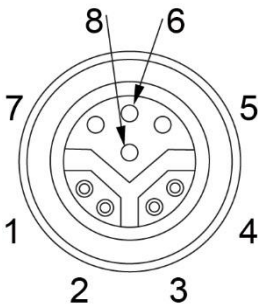
3.8 12-246-001-Z2-XXX Connector Cable BWH/ETT 7321

Connector Cable BWH	
Length	Article number
1 m	12-246-001-Z2-010
5 m	12-246-001-Z2
10 m	12-246-001-Z2-100
15 m	12-246-001-Z2-150
20 m	12-246-001-Z2-200

3.8.1 Connector Layout

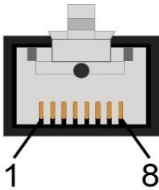


X1: Cable Connector M12 Y-coded



Pin	Wire color	Function
1	white/orange	Rx+
2	orange	Rx-
3	white/green	Tx+
4	green	Tx-
5	blue	VCC/+24 V
6	white	CAN_L
7	brown	CAN_H
8	black	GND

X2: Ethernet (RJ45 plug)



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	n.c.
5	n.c.
6	Rx-
7	n.c.
8	n.c.



For use in local networks only, not in telecommunication circuits!

X3: CAN Bus (single wires)

Wire color	Function
white	CAN_L
brown	CAN_H

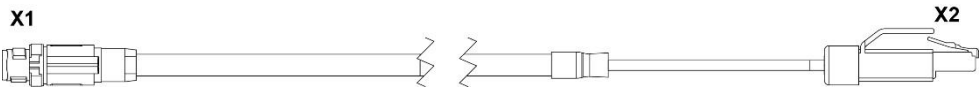
X4: Supply (single wires)

Wire color	Function
blue	VCC/+24 V
black	GND

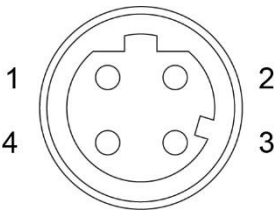
3.9 12-246-001-Z3-XXX Connector Cable BWH

Connector Cable BWH	
Length	Article number
1 m	12-246-001-Z3-010
4 m	12-246-001-Z3-040
5 m	12-246-001-Z3
10 m	12-246-001-Z3-100
15 m	12-246-001-Z3-150
20 m	12-246-001-Z3-200

3.9.1 Connector Layout

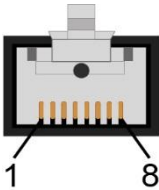


X1: Cable Connector M12 D-coded



Pin	Function
1	Tx+
2	Rx+
3	Tx-
4	Rx-
shield	GND

X2: Ethernet (RJ45 plug)



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	n.c.
5	n.c.
6	Rx-
7	n.c.
8	n.c.

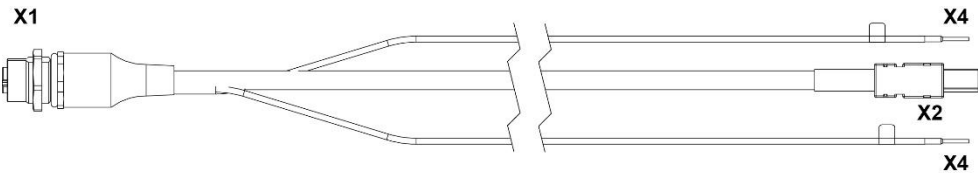


For use in local networks only, not in telecommunication circuits!

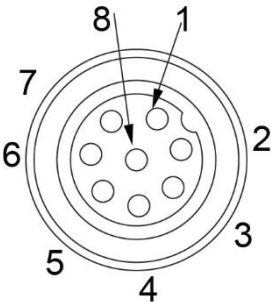
3.10 01-245-835-Z2 Connector Cable HGT 835-2

Connector cable HGT	
Length	Article number
0,7 m	01-245-835-Z2

3.10.1 Connector Layout

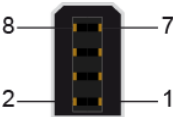


X1: Cable Connector



Pin	Wire color	Function
1	-	n.c.-
2	yellow	Tx+
3	orange	Tx-
4		n.c.
5	white	Rx+
6	dark blue (GND)	GND
7	dark blue (24 V DC)	24V
8	light blue (from cable)	Rx-
Housing	Shielding braid	Ground

X2: Ethernet (Tyco Mini I/O)



Pin	Function
1	Tx/Rx+
2	Tx/Rx-
3	Rx/Tx+
4-5	n.c.
6	Rx/Tx-
7-8	n.c.

n.c. = do not use

X4: Supply (single wires)

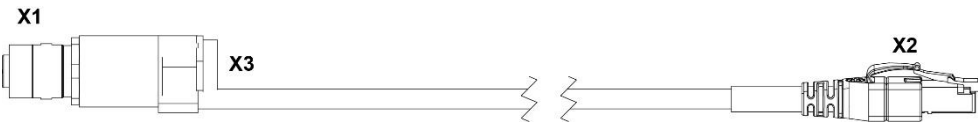
Wire color	Function
blue (marking 24 V DC)	+24 V DC
blue (marking GND)	GND

3.11 01-245-835-Z3 Connector Cable HGT 835-2

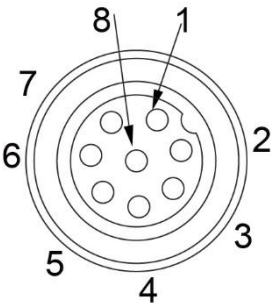
Connector cable HGT	
Length	Article number
2 m	01-245-835-Z3

The cable is supplied with: table power supply & power supply cable.

3.11.1 Connector Layout

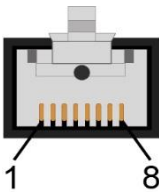


X1: Cable connector



Pin	Wire color	Function
1	-	n.c.-
2	orange-white	Tx+
3	orange	Tx-
4		n.c.
5	green-white	Rx+
6	black	GND
7	red	+24
8	green	Rx-

X2: Ethernet (RJ45 connector)



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	n.c.
5	n.c.
6	Rx-
7	n.c.
8	n.c.

X3: DC socket for hollow plug



Pin	Funktion
1	24 V DC
2	GND

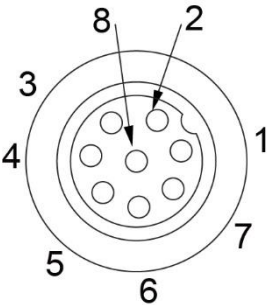
3.12 01-245-835-Z4 Connector Cable HGT 835-2

Connector cable HGT	
Length	Article number
2 m	01-245-835-Z4

3.12.1 Connector Layout

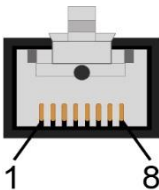


X1: Connector cable



Pin	Wire color	Function
1	-	n.c.
2	orange-white	Tx+
3	orange	Tx-
4		n.c.
5	green-white	Rx+
6	black	n.c.
7		n.c.
8	green	Rx-

X2: Ethernet (RJ45 connector)

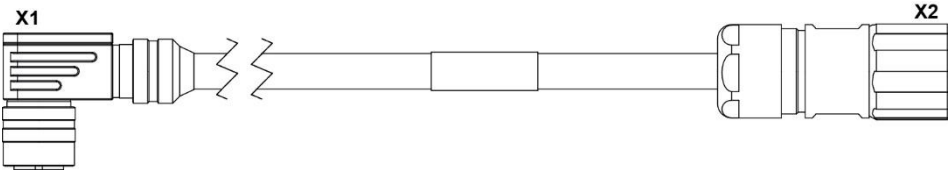


Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	n.c.
5	n.c.
6	Rx-
7	n.c.
8	n.c.

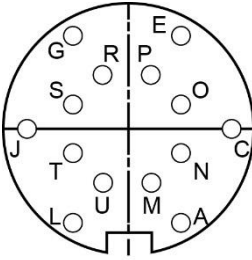
3.13 12-938-XXX Connector Cable HGT 1053

Connector cable HGT	
Length	Length
5 m	12-938-050

3.13.1 Connector Layout

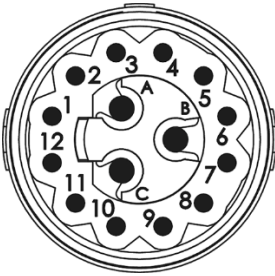


X1: M16 Cable Connector



Pin	Wire color	Function	
L	pink	Safety interface H	
J	gray	Safety interface L	
G	shield	Safety interface shield	
E	red	+24 V DC	
C	black	GND	
A	shield	ETH shield	
U	orange/white	Gigabit Ethernet	DA+/Tx+
T	blue		DD+
S	blue/white		DD-
R	brown		DC-
P	brown/white		DC+
O	green		DB-/Rx-
N	green/white		DB+/Rx+
M	orange		DA-/Tx-

X2: TWILOCK quick connector



Pin	Wire color	Function	
1	pink	Safety interface H	
2	gray	Safety interface L	
A	shield	Safety interface shield	
3	red	+24 V DC	
4	black	GND	
B	shield	ETH shield	
5	orange/white	Gigabit Ethernet	DA+/Tx+
6	blue		DD+
7	blue/white		DD-
8	brown		DC-
9	brown/white		DC+
10	green		DB-/Rx-
11	green/white		DB+/Rx+
12	orange		DA-/Tx-

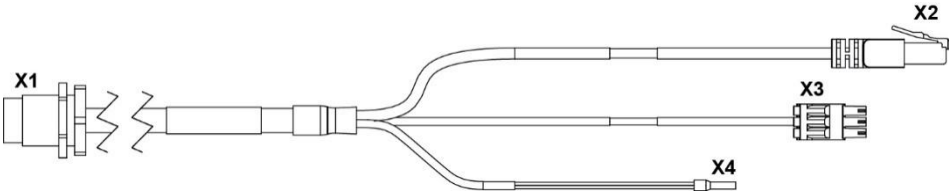
3.14 12-939-XXX Connection Cable Control Cabinet HGT 1053

Connecting cable HBG/HGT	
Length	Article number
1.2 m	12-939-012

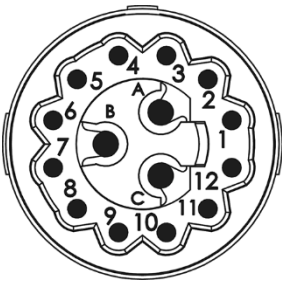


The cable on the TWILOCK connector (X1) is not strain-relieved and must therefore be handled with particular care. When installing the cable, the machine builder must ensure sufficient strain relief. Cable and pins can otherwise be damaged!

3.14.1 Connector Layout

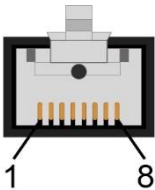


X1: Quick connector (female) TWILOCK



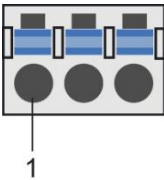
Pin	Wire color	Function ETH	
1	pink	Safety interface	H
2	gray		L
A	shield	Safety interface shield	
3	red	+24 V DC	
4	black	GND	
B	shield	ETH shield	
5	orange/white	Gigabit Ethernet	DA+/Tx+
6	blue		DD+
7	blue/white		DD-
8	brown		DC-
9	brown/white		DC+
10	green		DB-/Rx-
11	green/white		DB+/Rx+
12	orange		DA-/Tx-

X2: Gigabit Ethernet (RJ45 plug)



Pin	Function ETH
1	DB+/Rx+
2	DB-/Rx-
3	DA+/Tx+
4	DD+
5	DD-
6	DA-/Tx-
7	DC+
8	DC-

X3: Safety Interface (Phoenix plug)



Pin	Wire color	Function
1	gray	Safety interface L
2	pink	Safety interface H
3	shield	Safety interface shield

X4: Supply (single wires)



Wire color	Function
red	+24 V
black	GND

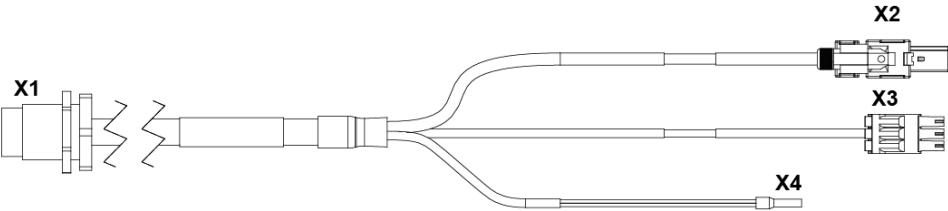
3.15 12-940-XXX Connection Cable Control Cabinet HGT 1053

Connecting cable HBG/HGT	
Length	Article number
0.5 m	12-940-005
1.5 m	12-940-015

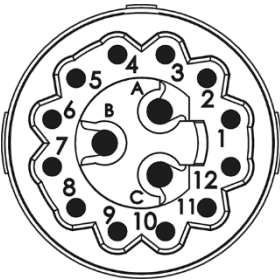


The cable on the TWILOCK connector (X1) is not strain-relieved and must therefore be handled with particular care. When installing the cable, the machine builder must ensure sufficient strain relief. Cable and pins can otherwise be damaged!

3.15.1 Connector Layout

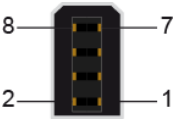


X1: Quick connector (female) TWILOCK



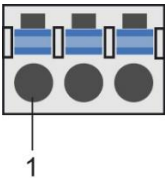
Pin	Wire color	Function ETH
1	pink	Safety interface H
2	gray	Safety interface L
A	shield	Safety interface shield
3	red	+24 V DC
4	black	GND
B	shield	ETH shield
5	orange/white	DA+/Tx+
6	blue	DD+
7	blue/white	DD-
8	brown	DC-
9	brown/white	DC+
10	green	DB-/Rx-
11	green/white	DB+/Rx+
12	orange	DA-/Tx-

X2: VARAN/Ethernet (Tyco Mini I/O)



Pin	Function
1	DB+/Rx+
2	DB-/Rx-
3	DA+/Tx+
4	DD+
5	DD-
6	DA-/Tx-
7	DC+
8	DC-

X3: Safety Interface (Phoenix plug)



Pin	Wire color	Function
1	gray	Safety interface L
2	pink	Safety interface H
3	shield	Safety interface shield

X4: Supply (single wires)



Wire color	Function
red	+24 V
black	GND

Documentation Changes

Change date	Affected page(s)	Chapter	Note
30.03.2018	3 4	1 Compatible Device-Cable Combinations 2.1 12-935-XXX HGT Connection Cable	12-935-040, 12-935-150 added
10.07.2018	4	2.1 12-935-XXX HGT Connection Cable	Pin description corrected
11.07.2018	12	2.6 and following	BWH Connection Cable added
24.10.2018	3 11	1 Compatible Device-Cable Combinations 2.5 12-936-XXX HGT Connection Cable	12-936-250 added
05.02.2019	3 7	1 Compatible Device-Cable Combinations 2.2 12-930-XXX Connection Cable HGB	12-930-020 added
11.06.2019	13	2.6 12-246-001-Z1 Connector Cable BWH	12-246-001-Z1-100 added
11.11.2019	3, 13 15 17	2.6 12-246_001-Z1 Connector Cable BWH 2.7 12-246_001-Z2 Connector Cable BWH 2.8 12-246_001-Z3 Connector Cable BWH	Length 1, 15 and 20 m added
17.12.2019	3 9 10	1 Compatible Device-Cable Combinations 2.3.1 2.4 12-930-030 Connector Cable HBG 3m	12-930-030 (3 m) Binder 99-5805-15-16 added X2: Connection Cable M16 (plug contact) added and colours repaired in table Entire point 2.4. added
10.08.2020	5 20 - 24	1 Compatible Device-Cable Combinations	01-245-835-Z2, 01-245-835-Z3 and 01-245-835-Z4 added Chapter 2.10 - 2.12 added
05.10.2020	10	2.3 12-930-XXX-H HBG 3 m Connection Cable	For X2: M16 Cable Connector (Plug Contact) Wire colors for pin assignment changed (L, J and G)

	11	2.4 12-930-XXX-H1 HBG 3 m Connection Cable	X2: M16 Cable Connector (Plug Contact) Wire colors for pin assignment changed (P, N and O) and Table completed with pin C and pin I
23.02.2021	4 8	2.2 12-930-XXX HBG/HGT	HGT ETH added
28.06.2021	15 22	2.7 Z1-XXX Connector Cable BWH 2.9 Z3-XXX Connector Cable BWH	4 m Variant added
24.09.2021	26	2.13 12-938-XXX Connector Cable HGT 1053	HGT 1053 added
	27	2.14 12-939-XXX Connector Cable Control Cabinet HGT 1053	HGT 1053 added
28.09.2021	Document	Safety Interface (Phoenix plug)	Graphic with pin 1 changed
	27	2.14 12-939-XXX Connector Cable Control Cabinet HGT 1053	Added strain relief note
31.01.2022	25	2.13 12-938-XXX Connector Cable HGT 1053	10 m added
	28	2.15 12-940-XXX Connector Cable Control Cabinet HGT 1053	Added
30.10.2024	4-5	1 Compatible Device-Cable Combinations	HGT 1053-K added
11.12.2024	Document		Tables updated and notes for cables added
18.02.2026	Document		ETT 7321 added