

System cables



Technical data

Overview of system cables

Mains cables

Drive connection		Laying system
Mains cable		Fixed installation
Han Q4/2 (straight)	Han Q4/2 (angled)	
		
M15 (straight)	M15 (angled)	fixed installation
		

Motor cables

Motor connection		Laying system
Standard M23 / M40	OCT M23 / M40	Fixed installation
		
		

Feedback cables

Feedback connection			Laying system
Resolver M23	Encoder M23	Endat M23	Fixed installation
			
			

Blower cables

Fan connection	Laying system
Blower cable	Fixed installation
M17	
	

Communication cables

Drive connection	Laying system
Digital frequency	Fixed installation
Sub-D	
	

Laying system	Mains connection	Extension connection	
Drag chain	Open	Extension of mains cable	
		Han Q4/2 (straight)	Han Q4/2 (angled)
			
-	Open	M15 (straight)	
-			

Laying system	Drive connection	Extension connection	
Drag chain	Open	Extension	OCT-extension
		M23 / M40	M23 / M40
			

Laying system	Drive connection	Extension connection		
Drag chain	Drive	Resolver extension	Encoder extension	Endat extension
	Sub-D	M23	M23	M23
				

Laying system	Mains connection	Extension connection	
Drag chain	Open	Extension	
		M17	
			

Laying system	Drive connection	
Drag chain	Digital frequency	
	Sub-D	
-		-

Type code

System cables

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	Y	B	0	1	0	5	A	0	0	0	2	H	2	3	A	0	0

3

Product series	
B	Mains cable
D	Digital frequency cable
F	Feedback
L	Blower cable
P	Motor cable

4 ... 7

Cable type	
0001	Blower cable
0002	Blower cable, drag chain
0003	Motor cable, 6-pole, 1 mm²
0004	Motor cable, 6-pole, 1.5 mm²
0005	Motor cable, 6-pole, 2.5 mm²
0006	Motor cable, 6-pole, 4 mm²
0007	Motor cable, 6-pole, 6 mm²
0008	Motor cable, 6-pole, 10 mm²
0009	Motor cable, 6-pole, 16 mm²
0010	Motor cable, 6-pole, 1 mm², drag chain
0011	Motor cable, 6-pole, 1.5 mm², drag chain
0012	Motor cable, 6-pole, 2.5 mm², drag chain
0016	Motor cable, 6-pole, 16 mm², drag chain
0017	Resolver cable / digital frequency cable
0018	Encoder cable
0019	Encoder cable, drag chain
0020	Resolver cable, drag chain
0021	Endat cable
0024	Endat cable, drag chain
0037	Motor cable, 8-pole, 1.5 mm²
0038	Motor cable, 8-pole, 2.5 mm²
0053	Motor cable, 6-pole, 4 mm², drag chain
0054	Motor cable, 6-pole, 6 mm², drag chain
0055	Motor cable, 6-pole, 10 mm², drag chain
0080	OCT motor cable, 10-pole, 1.5 mm², drag chain
0081	OCT motor cable, 10-pole, 2.5 mm², drag chain
0085	OCT motor cable, 10-pole, 4 mm², drag chain
0086	OCT motor cable, 10-pole, 6 mm², drag chain
0087	OCT motor cable, 10-pole, 4 mm²
0088	OCT motor cable, 10-pole, 6 mm²
0096	Mains cable 4 x 2.5 mm²
0097	Mains cable 4 x 2.5 mm² + 2 x 2.5 mm²
0098	Mains cable 4 x 4 mm²
0099	Mains cable 4 x 4 mm² + 2 x 2.5 mm²
0100	Mains cable 4 x 6 mm²
0101	Mains cable 4 x 6 mm² + 2 x 2.5 mm²
0102	OCT motor cable, 10-pole, 1.5 mm²
0103	OCT motor cable, 10-pole, 2.5 mm²
0105	Mains cable 4 x 2.5 mm², drag chain
0106	Mains cable 4 x 4 mm², drag chain
0107	Mains cable 4 x 6 mm², drag chain
0108	Mains cable 4 x 2.5 mm² + 2 x 2.5 mm², drag chain
0109	Mains cable 4 x 4 mm² + 2 x 2.5 mm², drag chain
0110	Mains cable 4 x 6 mm² + 2 x 2.5 mm², drag chain

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Connection type	
A	Connection cable
V	Extension
Y	Cable without connector

9 12

Cable length	
0000	Specified in increments of 10 cm

Cable length	
0002	0.02 m = 20 cm
1000	100 m

13 ... 15

Cable end input (A side)	
A00	Open, cable without connector
D03	M15 connector
D04	M15 connector, angled to the left
D05	M15 connector, angled to the right
F01	M23 connector, 9-pole, resolver, screw lock
F02	M23 connector, 15-pole, encoder, screw lock
F03	M23 connector, 15-pole, Endat, screw lock
F05	M23 connector, 9-pole, resolver, bayonet
F06	M23 connector, 15-pole, encoder, bayonet
F07	M23 connector, 15-pole, Endat, bayonet
H23	Han Q4/2 connector
H24	Han Q4/2 connector, angled
L02	M17 connector, 1 x 230 V, screw lock
L04	M17 connector, 1 x 230 V, bayonet
L05	M17 connector, 3 x 400 V, screw lock
L06	M17 connector, 3 x 400 V, bayonet
M01	M23 connector, 6-pole, motor, screw lock
M02	M40 connector, 6-pole, motor, screw lock
M04	M23 connector, 6-pole, motor, bayonet
M05	M40 connector, 6-pole, motor, bayonet
M07	M23 connector, 8-pole, motor, screw lock
M08	M23 connector, 8-pole, motor, bayonet
M12	M40 connector, OCT, motor, bayonet
M13	M23 connector, OCT, motor, bayonet
W03	Sub-D connector, 9-pole, digital frequency

16 ... 18

Cable end output (B side)	
A00	Open, cable without connector
B05	M15 connector
B06	M15 connector, angled to the left
B07	M15 connector, angled to the right
G01	M23 connector, 9-pole, resolver, screw lock
G02	M23 connector, 15-pole, encoder, screw lock
G03	M23 connector, 15-pole, Endat, screw lock
G06	M23 connector, 9-pole, resolver, bayonet
G07	M23 connector, 15-pole, encoder, bayonet
G08	M23 connector, 15-pole, Endat, bayonet
J02	M17 connector, 1 x 230 V, screw lock
J04	M17 connector, 1 x 230 V, bayonet
J05	M17 connector, 3 x 400 V, screw lock
J06	M17 connector, 3 x 400 V, bayonet
P01	M23 connector, 6-pole, motor, screw lock
P02	M40 connector, 6-pole, motor, screw lock
P04	M23 connector, 6-pole, motor, bayonet
P05	M40 connector, 6-pole, motor, bayonet
P07	M23 connector, 8-pole, motor, screw lock
P12	M40 connector, OCT, motor, bayonet
P13	M23 connector, OCT, motor, bayonet
Q10	Han Q8 connector
Q14	Han Q4/2 connector
Q15	Han Q4/2 connector, angled
S01	Sub-D connector, 9-pole, resolver
S02	Sub-D connector, 9-pole, resolver, with locking tab
S03	Sub-D connector, 15-pole, encoder/Endat, with locking tab
S11	Sub-D connector, 15-pole, encoder/Endat

Standards and operating conditions

Degree of protection		
EN (EN IEC 60529)	IP65	Information applies to the mounted and ready-for-use state.
Market approvals/environment		
CE	✓	
UKCA	✓	
Wiring Harness	✓	
UL758	Only cables	
RoHS	✓	
Ambient conditions		
Operation (EN 60721-3-3)	3K3 (-30 ... +80 °C)	Above +40°C: reduce rated output current by 2.5 %/°C
Storage (EN 60721-3-1)	3K3 (-30 ... +80 °C)	Above +40°C: reduce rated output current by 2.5 %/°C
Transport (EN 60721-3-2)	3K3 (-30 ... +80 °C)	Above +40°C: reduce rated output current by 2.5 %/°C

For further information and approval certificates, see [UL Guideline](#)

Overview data

	Mains cables	OCT motor cables	Motor cables	Feedback cables	Blower cables
					
Cross-section	2.5 ... 6 mm ²	1.5 ... 6 mm ²	1 ... 16 mm ²	-	1 mm ²
Protection class (EN 60529)	IP65	IP69	IP69	IP69	IP66
Rated voltage	600 V	600 V	600 V	300 V	-
Bend radius Ø	5 x	7.5 x	7.5 x	7.5 x	5 x
Drag chain cycles	5 x 10 ⁶	5 x 10 ⁶	2.5 / 5 x 10 ⁶	2.5 x 10 ⁶	5 x 10 ⁶

Information

Please read this documentation carefully before installing the drive and observe the safety instructions!

This document only includes the most frequently asked questions and presents them in a simplified form for a better overview. Detailed technical and functional explanations can be found in the comprehensive product documentation. The complete documentation, further information and tools regarding Lenze products can be found on the Internet:

www.lenze.com

Application as directed

- The product is a piece of professional equipment intended for use by trades, specific professions or industry, and not for sale to the general public. IEC 60050 [IEV161-05-05]
- To prevent personal injury and damage to property, higher-level safety and protection systems must be used!
- All transport locks must be removed.
- The product may only be operated under the specified operating conditions and in the specified mounting positions.
- The product is exclusively suitable for installation in control cabinets and, depending on the protection class and version, for wall and motor mounting.
- The product must only be actuated with motors that are suitable for the operation with drives.
- The product must not be operated in private areas, in potentially explosive atmospheres and in areas with harmful gases, oils, acids or radiation.

Device-specific standards and directives

- The product meets the protection requirements of the Low-Voltage Directive 2014/35/EU.
- The harmonized standard EN IEC 61800-5-1 is used for the drives (Europe).
- UL 61800-5-1 and CAN/CSA C22.2 No.274 are the North American electrical safety standards.

Relevant standards and directives for the operator

- If the product is used in accordance with the technical data, the drive systems comply with the EN IEC 61800-3 categories (Category C2 is similar to FCC Class A).
- The test voltage measurement for insulation resistance tests between control potential and PE must be performed in accordance with EN IEC 61800-5-1.
- The cables must be installed in accordance with EN IEC 60204-1 or US National Electrical Code NFPA 70/Canadian Electrical Code C22.1.

Commissioning

- Commissioning or starting the operation as directed of a machine with the product is prohibited until it has been ensured that the machine meets the regulations of the Machinery Directive 2006/42/EG and the standard EN IEC 60204-1.
- Commissioning or starting the operation as directed is only permissible if the EMC Directive 2014/30/EU is complied with.
- In residential areas, the product may cause EMC interference. The operator is responsible for executing the interference suppression measures.

Conventions

Safety instructions

By safety instructions, we mean information for the use of products that serves to warn the user of hazards and to instruct behavior that will not result in harm to people. In this document, these are distinguished as follows according to ANSI Z535.6:



DANGER!

Indicates an extremely hazardous situation. Failure to comply with this notice will result in severe irreparable injury and even death.



CAUTION!

Indicates an extremely hazardous situation. Failure to comply with this notice may result in severe irreparable injury and even death.



WARNING!

Indicates a hazardous situation. Failure to comply with this notice may result in slight to medium injury.

NOTICE

Indicates a material hazard. Failure to comply with this notice may result in material damage.

Numeric notation

As a rule, a decimal point is used as a decimal separator in this documentation.

Example: 1234.56

Basic safety instructions



DANGER!

Disregarding the following basic safety instructions and safety information may lead to severe personal injury and damage to property!

- Only use the product as directed.
- Never commission the product in the event of visible damage.
- Never modify the product technically.
- Never commission the product before mounting has been completed.
- Never operate the product without the required covers.
- Connect/disconnect all pluggable connections only in a deenergized state.
- Only remove the product from the installation in a deenergized state.
- The product can - depending on their degree of protection - have live, movable or rotating parts during or after operation. Surfaces can be hot. Surfaces can be hot.
- Observe all specifications of the corresponding documentation supplied. This is the prerequisite for safe and trouble-free operation and the achievement of the specified product features.
- The procedural notices and circuit details given in the associated documentation are suggestions and their transferability to the respective application must be checked. The manufacturer of the product does not take responsibility for the suitability of the process and circuit proposals.
- All work with and on the product may only be carried out by qualified personnel. IEC 60364 and CENELEC HD 384 define the qualifications of these persons:
 - They are familiar with installing, mounting, commissioning, and operating the product.
 - They have the corresponding qualifications for their work.
 - They know and can apply all regulations for the prevention of accidents, directives, and laws applicable at the place of use.

NOTICE

Device protection

Perform insulation resistance tests between control potential and PE. The maximum test voltage must not exceed 110 V DC.

NOTICE

Foreseeable misuse

Drives must not be operated with DC motors.

Residual hazards

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system. If the above is disregarded, this may result in injuries to persons and material damage!



DANGER!

Dangerous electrical voltage

During operation and up to 20 minutes after power-off, hazardous electrical voltages may be present at the connections of the product.

The leakage current to earth (PE) is > 3.5 mA AC or > 10 mA DC.

Possible consequences

- Death or serious injuries from electric shock

Protective measures

- Any work on the product must only be carried out in a deenergized state.
- Check that no voltage is present!
- After switching off the mains voltage, observe the signs on the product.
- After switching off, wait until the drive is at a standstill.
- Implement the measures required by EN IEC 61800-5-1 or EN IEC 60204-1, i.e. fixed installation and standards-compliant PE connection.

Degree of protection - Protection of persons and device protection

Information applies to the mounted and ready-for-use state.

Motor protection

With some settings of the drives, the connected motor can be overheated.

- E.g. via the operation of self-ventilated motors at low speeds over a long period.
- E.g. by operating DC-injection braking over a long period.

Product

Observe the warning signs on the product!

Dangerous electrical voltage



Before working on the product, check whether all power connections are deenergized!
After mains disconnection, the power terminals carry the hazardous electrical voltage for the time specified next to the symbol!



Electrostatic sensitive devices

Before working on the product, the staff must ensure to be free of electrostatic charge.



High leakage current

Carry out fixed installation and PE connection in compliance with the following standard:
EN IEC 61800-5-1/EN IEC 60204-1



Hot surface

Use personal protective equipment or wait until the device has cooled down!

Protection of the machine/system

- Drives can reach dangerous overspeeds, e.g. from setting high output frequencies for motors and machines which are not suitable. The drives do not provide any protection against such operating conditions. Use additional external components for this purpose.
- Only switch the contactor in the motor cable when the drive is inhibited. Switching them when the drive is enabled is only permissible when no monitoring components respond.

Motor

In the event of a short circuit of two power transistors, a residual movement of up to $180^\circ/\text{number of pole pairs}$ on the motor may occur (e.g. 4-pole motor: Residual movement max. $180^\circ/2 = 90^\circ$).

Mains cables



Mains cables with Han Q4/2 connectors (2.5 ... 4 mm²)

Rated data

	2.5 mm ²				4 mm ²			
Laying system	Fixed installation	Drag chain	Fixed installation	Drag chain	Fixed installation	Drag chain	Fixed installation	Drag chain
Cable structure	4 x 2.5	4 x 2.5	4 x 2.5 +2 x 2.5	4 x 2.5 +2 x 2.5	4 x 4	4 x 4	4 x 4 +2 x 2.5	4 x 4 +2 x 2.5
Name	EYB0096	EYB0105	EYB0097	EYB0108	EYB0098	EYB0106	EYB0099	EYB0109
Rated voltage	600 V	600 V	600 V	600 V	600 V	600 V	600 V	600 V
Degree of protection	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Surge impedance	-	-	-	-	-	-	-	-
Number of motion cycles	-	5 x 10 ⁶	-	5 x 10 ⁶	-	5 x 10 ⁶	-	5 x 10 ⁶
Maximum traversing velocity	-	300 m/min	-	300 m/min	-	300 m/min	-	300 m/min
Max. acceleration	-	5 m/s ²	-	5 m/s ²	-	5 m/s ²	-	5 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±180°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±180°/m
Capacity core/core	-	-	-	-	-	-	-	-
Capacity core/shield	-	-	-	-	-	-	-	-
Shield attenuation	-	-	-	-	-	-	-	-
Core colors	Black 1-3, green/yel- low	Black 1-3, green/yel- low	Black 1-3, green/yel- low red, blue	Black 1-3, green/yel- low red, blue	Black 1-3, green/yel- low	Black 1-3, green/yel- low	Black 1-3, green/yel- low red, blue	Black 1-3, green/yel- low red, blue
Sheath color	Gray, sim- ilar to RAL 7001	Gray, sim- ilar to RAL 7001	Gray, sim- ilar to RAL 7031	Black, sim- ilar to RAL 9005	Gray, sim- ilar to RAL 7001	Gray, sim- ilar to RAL 7001	Gray, sim- ilar to RAL 7031	Black, sim- ilar to RAL 9005

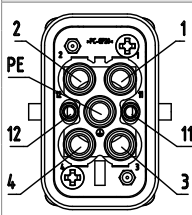
Test data

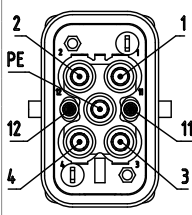
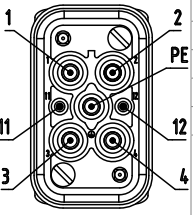
	2.5 mm ²				4 mm ²			
Test voltage Power	3 kV	3 kV	3 kV	3 kV	3 kV	3 kV	3 kV	3 kV
Test voltage Signal	-	-	3 kV	3 kV	-	-	3 kV	3 kV
Test voltage Brake	-	-	-	-	-	-	-	-
Conductor resistance Power	≤ 7.98 Ω/km	≤ 7.98 Ω/km	≤ 7.98 Ω/km	≤ 7.98 Ω/km	≤ 4.95 Ω/km	≤ 4.95 Ω/km	≤ 4.95 Ω/km	≤ 4.95 Ω/km
Conductor resistance Signal	-	-	≤ 7.98 Ω/km	≤ 7.98 Ω/km	-	-	≤ 7.98 Ω/km	≤ 7.98 Ω/km
Conductor resistance Brake	-	-	-	-	-	-	-	-

Mechanical data

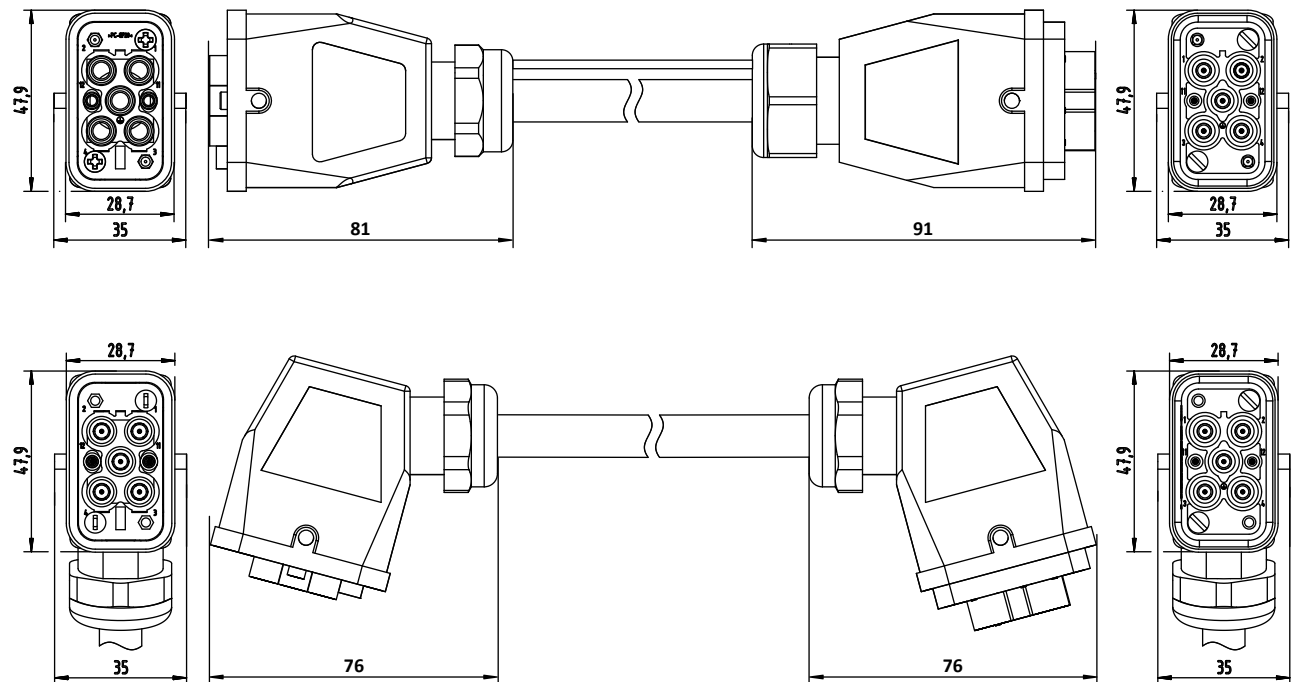
	2.5 mm ²				4 mm ²			
Weight/m	0.185 kg	0.196 kg	0.250 kg	0.248 kg	0.298 kg	0.283 kg	0.360 kg	0.317 kg
Cable diameter	9 mm	10 mm	11.7 mm	12.5 mm	10.6 mm	11.4 mm	12.7 mm	13.4 mm
Bend radius x outer diameter	4 x	5 x	5 x	7.5 x	4 x	5 x	5 x	7.5 x
Locking type	Plug-in lock	Plug-in lock	Plug-in lock	Plug-in lock	Plug-in lock	Plug-in lock	Plug-in lock	Plug-in lock
Connector material	Polycarbon- ate	Polycarbon- ate	Polycarbon- ate	Polycarbon- ate	Polycarbon- ate	Polycarbon- ate	Polycarbon- ate	Polycarbon- ate
Mating cycles	50	50	50	50	50	50	50	50
Flame retardancy	IEC60332- 1-2	IEC60332- 1-2	IEC60332- 1-2	IEC60332- 1-2	IEC60332- 1-2	IEC60332- 1-2	IEC60332- 1-2	IEC60332- 1-2
Dust resistance	-	-	-	-	-	-	-	-
Silicone-free	✓	✓	✓	✓	✓	✓	✓	✓
Halogen-free	-	✓	-	✓	-	✓	-	✓
Oil resistance	✓	✓	✓	✓	✓	✓	✓	✓
UV and weather resistance	✓	✓	✓	✓	✓	✓	✓	✓
Fuel resistance	✓	✓	✓	✓	✓	✓	✓	✓

Pin assignment, cable cross-section 2.5 ... 6 mm²

Connection cable with Han Q4/2 connector					
A side Han Q4/2 (H23/H24)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	Vcc	11 (RD)		Vcc	11 (RD)
	GnD	12 (BU)		GnD	12 (BU)

Extension with Han Q4/2 connector					
A side Han Q4/2 (H23/H24)			B side Han Q4/2 (Q14/Q15)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	Vcc	11 (RD)		Vcc	11 (RD)
	GnD	12 (BU)		GnD	12 (BU)

Dimension drawing of the connectors:



Mains cables



Mains cables with Han Q4/2 connector (6 mm²)

Rated data

	6 mm ²			
Laying system	Fixed installation	Drag chain	Fixed installation	Drag chain
Cable structure	4 x 6	4 x 6	4 x 6 +2 x 2.5	4 x 6 +2 x 2.5
Name	EYB0100	EYB0107	EYB0101	EYB0110
Rated voltage	600 V	600 V	600 V	600 V
Degree of protection	IP65	IP65	IP65	IP65
Surge impedance	-	-	-	-
Number of motion cycles	-	5 x 10 ⁶	-	5 x 10 ⁶
Maximum traversing velocity	-	300 m/min	-	300 m/min
Max. acceleration	-	5 m/s ²	-	5 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±180°/m
Capacity core/core	-	-	-	-
Capacity core/shield	-	-	-	-
Shield attenuation	-	-	-	-
Core colors	Black 1-3, green/yellow	Black 1-3, green/yellow	Black 1-3, green/yellow red, blue	Black 1-3, green-yellow, red, blue
Sheath color	Gray, similar to RAL 7001	Gray, similar to RAL 7001	Gray, similar to RAL 7031	Black, similar to RAL 9005

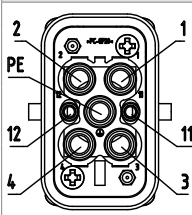
Test data

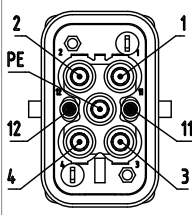
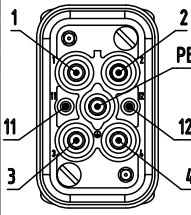
	6 mm ²			
Test voltage Power	3 kV	3 kV	3 kV	3 kV
Test voltage Signal	-	-	3 kV	3 kV
Test voltage Brake	-	-	-	-
Conductor resistance Power	≤ 3.30 Ω/km	≤ 2.83 Ω/km	≤ 3.30 Ω/km	≤ 2.83 Ω/km
Conductor resistance Signal	-	-	≤ 7.98 Ω/km	≤ 7.98 Ω/km
Conductor resistance Brake	-	-	-	-

Mechanical data

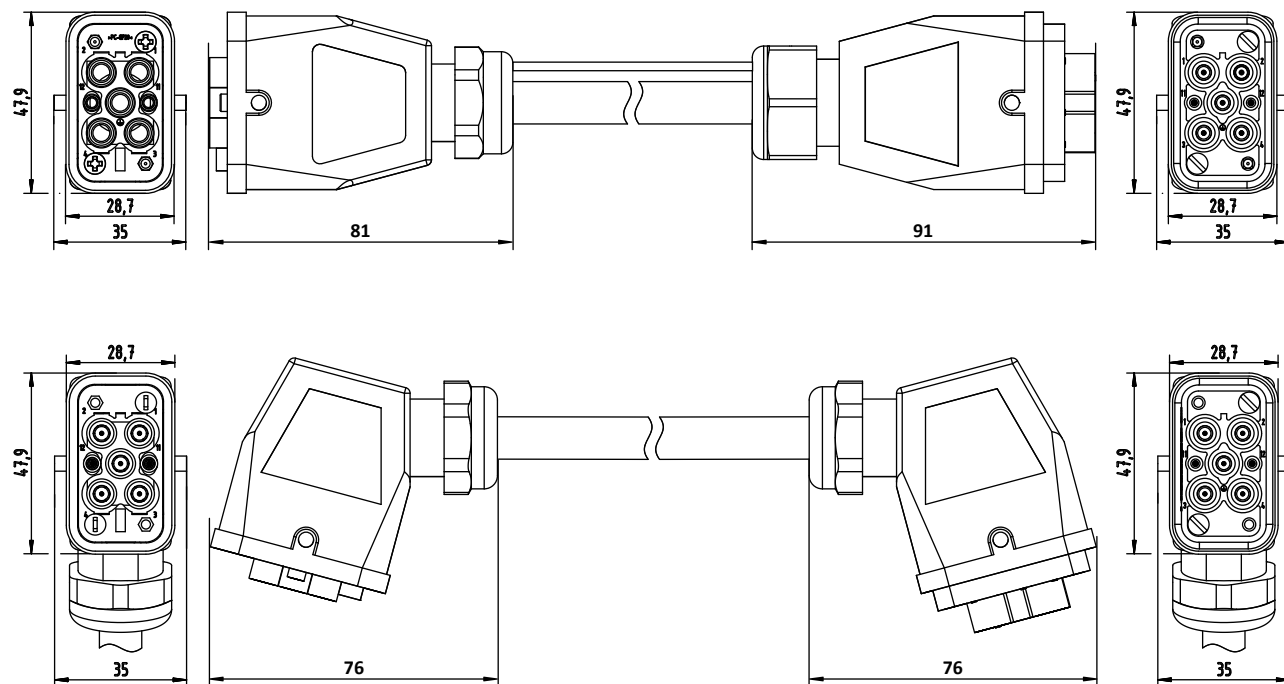
	6 mm ²			
Weight/m	0.402 kg	0.432 kg	0.450 kg	0.413 kg
Cable diameter	13 mm	12.9 mm	15.7 mm	15 mm
Bend radius x outer diameter	5 x	5 x	4 x	7.5 x
Locking type	Plug-in lock	Plug-in lock	Plug-in lock	Plug-in lock
Connector material	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
Mating cycles	50	50	50	50
Flame retardancy	IEC60332-1-2	IEC60332-1-2	IEC60332-1-2	IEC60332-1-2
Dust resistance	-	-	-	-
Silicone-free	✓	✓	✓	✓
Halogen-free	-	✓	-	✓
Oil resistance	✓	✓	✓	✓
UV and weather resistance	✓	✓	✓	✓
Fuel resistance	✓	✓	✓	✓

Pin assignment, cable cross-section 2.5 ... 6 mm²

Connection cable with Han Q4/2 connector					
A side Han Q4/2 (H23/H24)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	Vcc	11 (RD)		Vcc	11 (RD)
	GnD	12 (BU)		GnD	12 (BU)

Extension with Han Q4/2 connector					
A side Han Q4/2 (H23/H24)			B side Han Q4/2 (Q14/Q15)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	Vcc	11 (RD)		Vcc	11 (RD)
	GnD	12 (BU)		GnD	12 (BU)

Dimension drawing of the connectors:



Mains cables



Mains cables with M15 connector

Rated data

	2.5 mm ²	
Laying system	Fixed installation	Fixed installation
Cable structure	4 x 2.5	4 x 2.5 +2 x 2.5
Name	EYB0096	EYB0097
Rated voltage	600 V	600 V
Degree of protection	IP67	IP67
Surge impedance	-	-
Number of motion cycles	-	-
Maximum traversing velocity	-	-
Max. acceleration	-	-
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	-	-
Capacity core/shield	-	-
Shield attenuation	-	-
Core colors	Black 1-3, green/yellow	Black 1-3, green/yellow black 4, black 5
Sheath color	Black, similar to RAL 9005	Black, similar to RAL 9005

Test data

	2.5 mm ²	
Test voltage Power	3 kV	3 kV
Test voltage Signal	-	4 kV
Test voltage Brake	-	-
Conductor resistance Power	≤ 7.98 Ω/km	≤ 7.98 Ω/km
Conductor resistance Signal	-	≤ 7.98 Ω/km
Conductor resistance Brake	-	-

Mechanical data

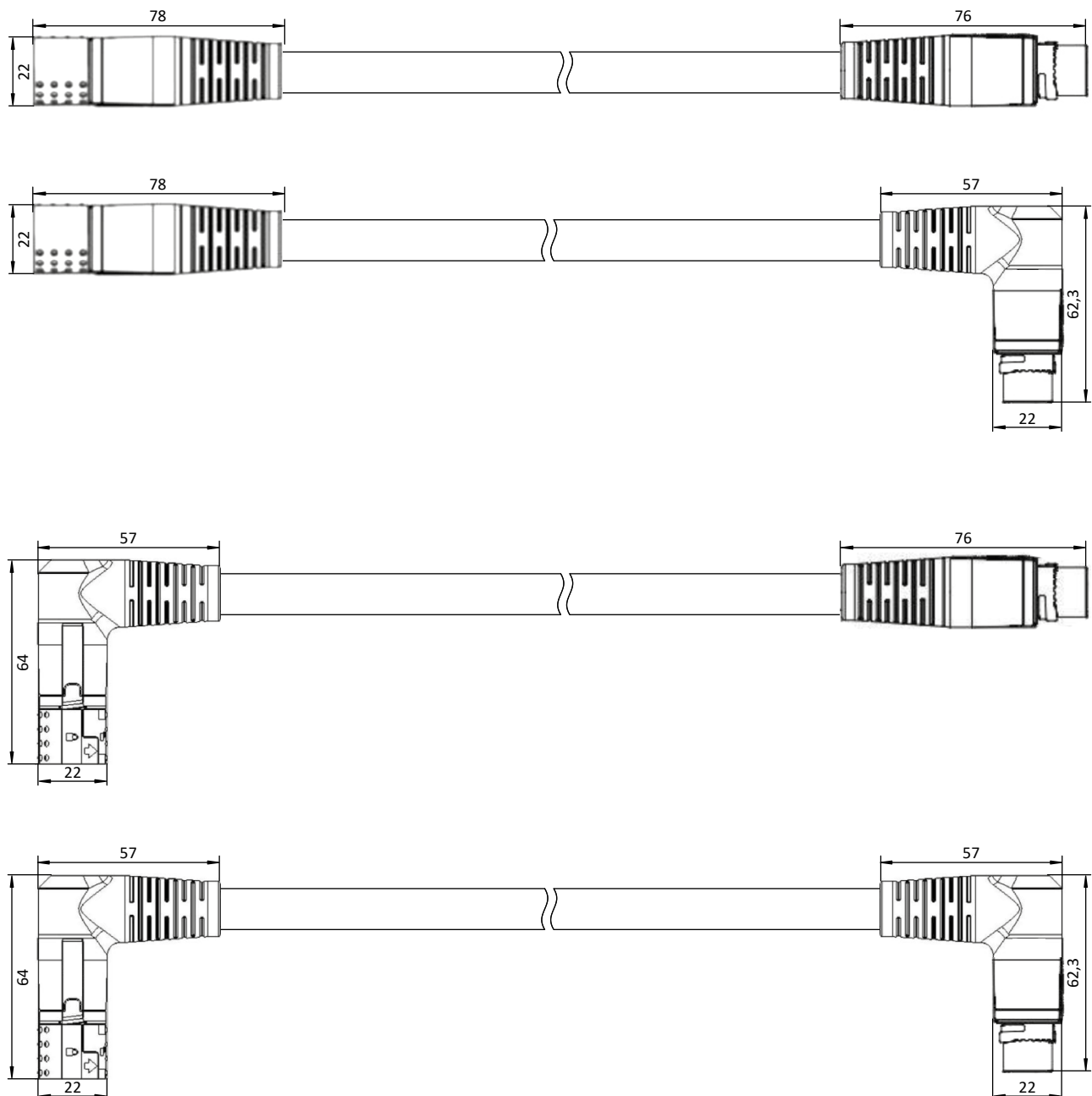
	2.5 mm ²	
Weight/m	0.185 kg	0.250 kg
Cable diameter	9 mm	11.7 mm
Bend radius x outer diameter	4x	5 x
Locking type	Plug-in lock	Plug-in lock
Connector material	Polycarbonate	Polycarbonate
Mating cycles	50	50
Flame retardancy	IEC60332-1-2	IEC60332-1-2
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	-
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment, wire cross-section 2.5 mm²

Connection cable with M15 connector					
A side M15 (D03/D04/D05)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	Vcc	A (BK4)		Vcc	A (BK4)
	GnD	B (BK5)		GnD	B (BK5)

Extension with M15 connector					
A side M15 (D03/D04/D05)			B side M15 (B05, B06, B07)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	Vcc	A (BK4)		Vcc	A (BK4)
	GnD	B (BK5)		GnD	B (BK5)

Dimension drawing of the connectors:



Motor cables



OCT motor cables with M23 connector

Rated data

	1.5 mm ²		2.5 mm ²	
Laying system	Fixed installation	Drag chain	Fixed installation	Drag chain
Cable structure	4 x 1.5 + (2 x 0.75) + (2 x 0.32)	4 x 1.5 + (2 x 0.75) + (2 x 0.32)	4 x 2.5 + (2 x 1) + (2 x 0.32)	4 x 2.5 + (2 x 1) + (2 x 0.32)
Name	EYP0102	EYP0080	EYP103	EYP0081
Rated voltage	600 V	600 V	600 V	600 V
Degree of protection	IP69	IP69	IP69	IP69
Surge impedance	110 ± 10 Ω	110 ± 10 Ω	110 ± 10 Ω	110 ± 10 Ω
Number of motion cycles	-	5 x 10 ⁶	-	5 x 10 ⁶
Maximum traversing velocity	-	4 m/s	-	4 m/s
Max. acceleration	-	30 m/s ² to 5 m	-	30 m/s ² to 5 m
Torsion	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m
Capacity core/core	1.5 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m	1.5 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m	2.5 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m	2.5 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m
Capacity core/shield	≤ 150 pF/m	≤ 150 pF/m	≤ 150 pF/m	≤ 150 pF/m
Shield attenuation	1 MHz ≤ 20 mΩ/m	1 MHz ≤ 20 mΩ/m	1 MHz ≤ 20 mΩ/m	1 MHz ≤ 20 mΩ/m
Core colors	Black 1-3, green/yellow black 5+6, blue and white	Black 1-3, green/yellow black 5+6, blue and white	Black 1-3, green/yellow black 5+6, blue and white	Black 1-3, green/yellow black 5+6, blue and white
Sheath color	Orange, similar to RAL 2003	Orange, similar to RAL 2003	Orange, similar to RAL 2003	Orange, similar to RAL 2003

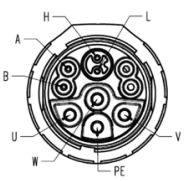
Test data

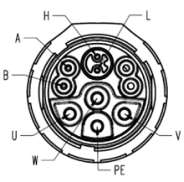
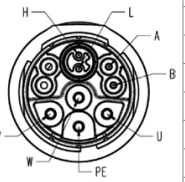
	1.5 mm ²		2.5 mm ²	
Test voltage Power	4 kV	4 kV	4 kV	4 kV
Test voltage Signal	3 kV	3 kV	3 kV	3 kV
Test voltage Brake	3 kV	3 kV	3 kV	3 kV
Conductor resistance Power	≤ 13.3 Ω/km	≤ 13.3 Ω/km	≤ 7.98 Ω/km	≤ 7.98 Ω/km
Conductor resistance Signal	≤ 55.0 Ω/km	≤ 55.0 Ω/km	≤ 55.0 Ω/km	≤ 55.0 Ω/km
Conductor resistance Brake	≤ 26.0 Ω/km	≤ 26.0 Ω/km	≤ 20.0 Ω/km	≤ 20.0 Ω/km

Mechanical data

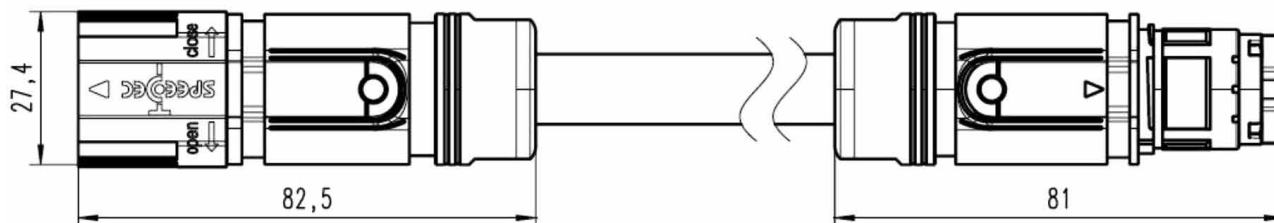
	1.5 mm ²		2.5 mm ²	
Weight/m	0.25 kg	0.25 kg	0.31 kg	0.31 kg
Cable diameter	12.7 mm	12.7 mm	13.8 mm	13.9 mm
Bend radius x outer diameter	5x	7x	7x	7x
Locking type	Bayonet	Bayonet	Bayonet	Bayonet
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	-	-	-	-
Flame retardancy	IEC 60332-1-2, UL758 Cable Flame Test	IEC 60332-1-2, UL758 Cable Flame Test	IEC 60332-1-2, UL758 Cable Flame Test	IEC 60332-1-2, UL758 Cable Flame Test
Dust resistance	-	-	-	-
Silicone-free	✓	✓	✓	✓
Halogen-free	✓	✓	✓	✓
Oil resistance	✓	✓	✓	✓
UV and weather resistance	✓	✓	✓	✓
Fuel resistance	✓	✓	✓	✓

Pin assignment, cable cross-section 1.5 ... 2.5 mm²

Connection cable with M23 connector					
A side M23 (M13)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	A (BK4)		BD1	A (BK4)
	BD2	B (BK5)		BD2	B (BK5)
	U	U (BK1)		U	U (BK1)
	V	V (BK2)		V	V (BK2)
	W	W (BK3)		W	W (BK3)
	Data+	H (WH)		Data+	H (WH)
	Data-	L (BU)		Data-	L (BU)

Extension with M23 connector					
A side M23 (M13)			B side Han M23 (P13)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	A (BK4)		BD1	A (BK4)
	BD2	B (BK5)		BD2	B (BK5)
	U	U (BK1)		U	U (BK1)
	V	V (BK2)		V	V (BK2)
	W	W (BK3)		W	W (BK3)
	Data+	H (WH)		Data+	H (WH)
	Data-	L (BU)		Data-	L (BU)

Dimension drawing of the connectors:



Motor cables



OCT motor cables with M40 connector

Rated data

	4 mm ²		6 mm ²	
Laying system	Fixed installation	Drag chain	Fixed installation	Drag chain
Cable structure	4 x 4 + (2 x 1) + (2 x 0.32)	4 x 4 + (2 x 1) + (2 x 0.32)	4 x 6 + (2 x 1) + (2 x 0.32)	4 x 6 + (2 x 1) + (2 x 0.32)
Name	EYP0087	EYP0085	EYP0088	EYP0086
Rated voltage	600 V	600 V	600 V	600 V
Degree of protection	IP69	IP69	IP69	IP69
Surge impedance	110 ± 10 Ω	110 ± 10 Ω	110 ± 10 Ω	110 ± 10 Ω
Number of motion cycles	-	5 x 10 ⁶	-	5 x 10 ⁶
Maximum traversing velocity	-	4 m/s	-	4 m/s
Max. acceleration	-	30 m/s ² to 5 m	-	30 m/s ² to 5 m
Torsion	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m
Capacity core/core	4 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m	4 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m	6 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m	6 mm ² : ≤ 90 pF/m 0.75 mm ² : ≤ 80 pF/m AWG 22: ≤ 15 pF/m
Capacity core/shield	≤ 150 pF/m	≤ 150 pF/m	≤ 150 pF/m	≤ 150 pF/m
Shield attenuation	1 MHz ≤ 20 mΩ/m	1 MHz ≤ 20 mΩ/m	1 MHz ≤ 20 mΩ/m	1 MHz ≤ 20 mΩ/m
Core colors	Black 1-3, green/yellow black 5+6, blue and white	Black 1-3, green/yellow black 5+6, blue and white	Black 1-3, green/yellow black 5+6, blue and white	Black 1-3, green/yellow black 5+6, blue and white
Sheath color	Orange, similar to RAL 2003	Orange, similar to RAL 2003	Orange, similar to RAL 2003	Orange, similar to RAL 2003

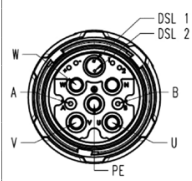
Test data

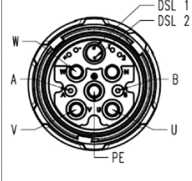
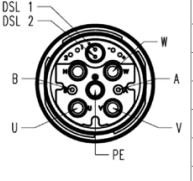
	4 mm ²		6 mm ²	
Test voltage Power	4 kV	4 kV	4 kV	4 kV
Test voltage Signal	3 kV	3 kV	3 kV	3 kV
Test voltage Brake	3 kV	3 kV	3 kV	3 kV
Conductor resistance Power	≤ 4.95 Ω/km	≤ 4.95 Ω/km	≤ 3.30 Ω/km	≤ 3.30 Ω/km
Conductor resistance Signal	≤ 55.0 Ω/km	≤ 55.0 Ω/km	≤ 55.0 Ω/km	≤ 55.0 Ω/km
Conductor resistance Brake	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km

Mechanical data

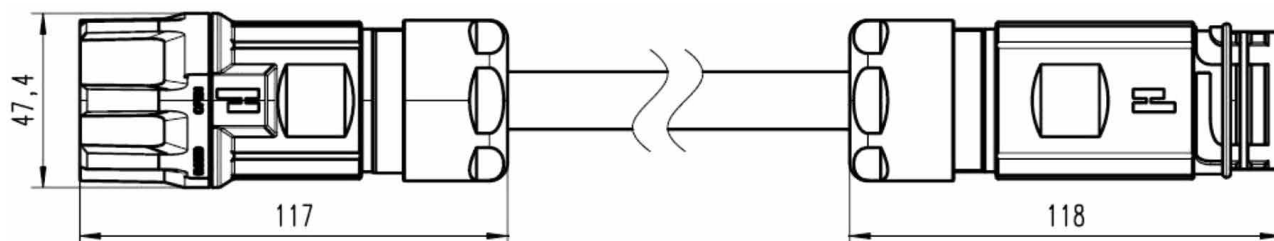
	4 mm ²		6 mm ²	
Weight/m	0.42 kg	0.42 kg	0.54 kg	0.54 kg
Cable diameter	15.4 mm	15.9 mm	17.4 mm	18 mm
Bend radius x outer diameter	7x	7x	7x	7x
Locking type	Bayonet	Bayonet	Bayonet	Bayonet
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	-	-	-	-
Flame retardancy	IEC 60332-1-2, UL758 Cable Flame Test	IEC 60332-1-2, UL758 Cable Flame Test	IEC 60332-1-2, UL758 Cable Flame Test	IEC 60332-1-2, UL758 Cable Flame Test
Dust resistance	-	-	-	-
Silicone-free	✓	✓	✓	✓
Halogen-free	✓	✓	✓	✓
Oil resistance	✓	✓	✓	✓
UV and weather resistance	✓	✓	✓	✓
Fuel resistance	✓	✓	✓	✓

Pin assignment, cable cross-section 4.0 ... 6 mm²

Connection cable with M40 connector					
A side M40 (M12)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	A (BK5)		BD1	A (BK5)
	BD2	B (BK6)		BD2	B (BK6)
	U	U (BK1)		U	U (BK1)
	V	V (BK2)		V	V (BK2)
	W	W (BK3)		W	W (BK3)
	Data+	DSL1 (WH)		Data+	DSL1 (WH)
	Data-	DSL2 (BU)		Data-	DSL2 (BU)

Extension with M40 connector					
A side M40 (M12)			B side M40 (P12)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	A (BK5)		BD1	A (BK5)
	BD2	B (BK6)		BD2	B (BK6)
	U	U (BK1)		U	U (BK1)
	V	V (BK2)		V	V (BK2)
	W	W (BK3)		W	W (BK3)
	Data+	DSL1 (WH)		Data+	DSL1 (WH)
	Data-	DSL2 (BU)		Data-	DSL2 (BU)

Dimension drawing of the connectors:



Motor cables



6-pole motor cables with M23 connector

Rated data

	1 mm ²		1.5 mm ²		2.5 mm ²	
Laying system	Fixed installation	Drag chain	Fixed installation	Drag chain	Fixed installation	Drag chain
Cable structure	4 x 1 + (2 x 0.5)	4 x 1 + (2 x 0.5)	4 x 1.5 + (2 x 0.5)	4 x 1.5 + (2 x 0.5)	4 x 2.5 + (2 x 0.5)	4 x 2.5 + (2 x 0.5)
Name	EYP0003	EYP0010	EYP0004	EYP0011	EYP0005	EYP0012
Rated voltage	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Degree of protection	IP69	IP69	IP69	IP69	IP69	IP69
Surge impedance	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω
Number of motion cycles	-	5 x 10 ⁶	-	5 x 10 ⁶	-	5 x 10 ⁶
Maximum traversing velocity	-	10 m/s	-	10 m/s	-	10 m/s
Max. acceleration	-	50 m/s ²	-	50 m/s ²	-	50 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m
Capacity core/core	1 mm ² : ≤ 125 pF/m 0.5 mm ² : ≤ 125 pF/m	1 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m	1.5 mm ² : ≤ 125 pF/m 0.5 mm ² : ≤ 125 pF/m	1 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m	2.5 mm ² : ≤ 125 pF/m 0.5 mm ² : ≤ 125 pF/m	2.5 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m
Capacity core/shield	1 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m	1 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m	1.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m	1.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m	2.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m	2.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m
Shield attenuation	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz
Core colors	Black 1-3, green/yellow, brown white	Black 1-3, green/yellow, brown white	Black 1-3, green/yellow, brown white	Black 1-3, green/yellow, brown white	Black 1-3, green/yellow, brown white	Black 1-3, green/yellow, brown white
Sheath color	Gray, similar to RAL 7031	Orange, similar to RAL 2003	Gray, similar to RAL 7031	Orange, similar to RAL 2003	Gray, similar to RAL 7031	Orange, similar to RAL 2003

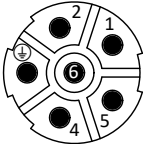
Test data

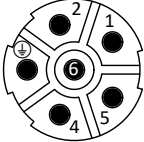
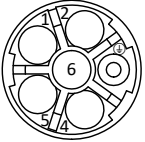
	1 mm ²		1.5 mm ²		2.5 mm ²	
Test voltage Power	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Test voltage Signal	-	-	-	-	-	-
Test voltage Brake	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Conductor resistance Power	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 13.3 Ω/km	≤ 13.3 Ω/km	≤ 7.98 Ω/km	≤ 7.98 Ω/km
Conductor resistance Signal	-	-	-	-	-	-
Conductor resistance Brake	≤ 39.0 Ω/km	≤ 39.0 Ω/km	≤ 39.0 Ω/km	≤ 39.0 Ω/km	≤ 39.0 Ω/km	≤ 39.0 Ω/km

Mechanical data

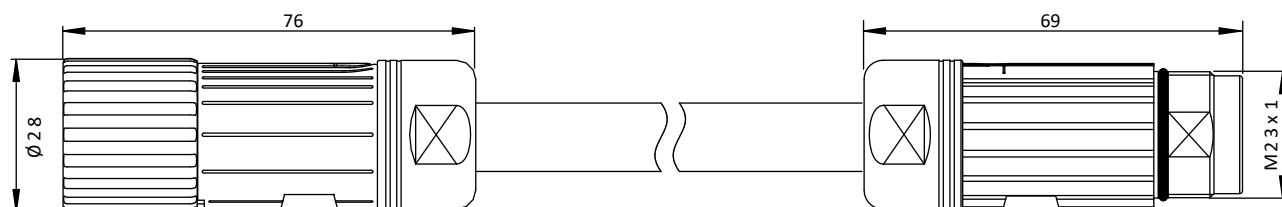
	1 mm ²		1.5 mm ²		2.5 mm ²	
Weight/m	0.15 kg	0.157 kg	0.191 kg	0.193 kg	0.26 kg	0.269 kg
Cable diameter	10.3 mm	10.2 mm	11.6 mm	11.3 mm	13.2 mm	13.4 mm
Bend radius x outer diameter	7.5x	7.5x	7.5x	7.5x	7.5x	7.5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50	50	50	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test					
Dust resistance	-	-	-	-	-	-
Silicone-free	✓	-	✓	-	✓	-
Halogen-free	-	✓	-	✓	-	✓
Oil resistance	✓	✓	✓	✓	✓	✓
UV and weather resistance	✓	✓	✓	✓	✓	✓
Fuel resistance	✓	✓	✓	✓	✓	✓

Pin assignment, cable cross-section 1 ... 2.5 mm²

Connection cable with M23 connector					
A side M23 (M01/M04)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	1 (WH)		BD1	1 (WH)
	BD2	2 (BN)		BD2	2 (BN)
	U	4 (BK1)		U	4 (BK1)
	V	5 (BK2)		V	5 (BK2)
	W	6 (BK3)		W	6 (BK3)

Extension with M23 connector					
A side M23 (M01/M04)			B side M23 (P01/P04)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	1 (WH)		BD1	1 (WH)
	BD2	2 (BN)		BD2	2 (BN)
	U	4 (BK1)		U	4 (BK1)
	V	5 (BK2)		V	5 (BK2)
	W	6 (BK3)		W	6 (BK3)

Dimension drawing of the connectors:



Motor cables



6-pole motor cables with M40 connector

Rated data

	4 mm ²		6 mm ²		10 mm ²		16 mm ²	
Laying system	Fixed installation	Drag chain	Fixed installation	Drag chain	Fixed installation	Drag chain	Fixed installation	Drag chain
Cable structure	4 x 4 + (2 x 1)	4 x 4 + (2 x 0.24) + (2 x 1)	4 x 6 + (2 x 1)	4 x 6 + (2 x 0.24) + (2 x 1)	4 x 10 + (2 x 1)	4 x 10 + (2 x 1) + (4 x 1)	4 x 16 + (2 x 1)	4 x 16 + (2 x 1.5)
Name	EYP0006	EYP0053	EYP0007	EYP0054	EYP0008	EYP0055	EYP0009	EYP0016
Rated voltage	600 V	600 V	600 V	600 V	600 V	600 V	600 V	600 V
Degree of protection	IP69	IP69	IP69	IP69	IP69	IP69	IP69	IP69
Surge impedance	50 ± 10 Ω	110 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω	50 ± 10 Ω
Number of motion cycles	-	2.5 x 10 ⁶	-	2.5 x 10 ⁶	-	2.5 x 10 ⁶	-	2.5 x 10 ⁶
Maximum traversing velocity	-	10 m/s	-	10 m/s	-	10 m/s	-	10 m/s
Max. acceleration	-	40 m/s ²	-	40 m/s ²	-	40 m/s ²	-	40 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m	Max. ±30°/m
Capacity core/core	4 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 125 pF/m	4 mm ² : ≤ 150 pF/m 1 mm ² : ≤ 125 pF/m 0.24 mm ² : ≤ 50 pF/m	6.0 mm ² : ≤ 150 pF/m 1 mm ² : ≤ 125 pF/m	6 mm ² : ≤ 150 pF/m 1 mm ² : ≤ 125 pF/m 0.24 mm ² : ≤ 50 pF/m	10 mm ² : ≤ 150 pF/m 1 mm ² : ≤ 125 pF/m	10 mm ² : ≤ 150 pF/m 1 mm ² : ≤ 125 pF/m	16 mm ² : ≤ 150 pF/m 1 mm ² : ≤ 125 pF/m	16 mm ² : ≤ 150 pF/m 1.5 mm ² : ≤ 125 pF/m
Capacity core/shield	4 mm ² : ≤ 300 pF/m 0.5 mm ² : ≤ 250 pF/m	4 mm ² : ≤ 300 pF/m 1 mm ² : ≤ 250 pF/m 0.24 mm ² : ≤ 100 pF/m	6.0 mm ² : ≤ 300 pF/m 1 mm ² : ≤ 250 pF/m	6 mm ² : ≤ 300 pF/m 1 mm ² : ≤ 250 pF/m 0.24 mm ² : ≤ 100 pF/m	10 mm ² : ≤ 300 pF/m 1 mm ² : ≤ 250 pF/m	10 mm ² : ≤ 300 pF/m 1 mm ² : ≤ 250 pF/m	16 mm ² : ≤ 300 pF/m 1 mm ² : ≤ 250 pF/m	16 mm ² : ≤ 300 pF/m 1.5 mm ² : ≤ 250 pF/m
Shield attenuation	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz	61 dB at 10 MHz
Core colors	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white	Black 1-3, green/yellow, brown, white
Sheath color	Gray, similar to RAL 7031	Orange, similar to RAL 2003	Gray, similar to RAL 7031	Orange, similar to RAL 2003	Gray, similar to RAL 7031	Orange, similar to RAL 2003	Gray, similar to RAL 7031	Orange, similar to RAL 2003

Test data

	4 mm ²		6 mm ²		10 mm ²		16 mm ²	
Test voltage Power	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Test voltage Signal	-	4 kV	-	4 kV	-	4 kV	-	-
Test voltage Brake	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Conductor resistance Power	≤ 4.95 Ω/km	≤ 4.95 Ω/km	≤ 3.3 Ω/km	≤ 3.3 Ω/km	≤ 1.91 Ω/km	≤ 1.91 Ω/km	≤ 1.21 Ω/km	≤ 1.21 Ω/km
Conductor resistance Signal	-	≤ 83.7 Ω/km	-	≤ 83.7 Ω/km	-	≤ 19.5 Ω/km	-	-
Conductor resistance Brake	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 19.5 Ω/km	≤ 13.3 Ω/km

Mechanical data

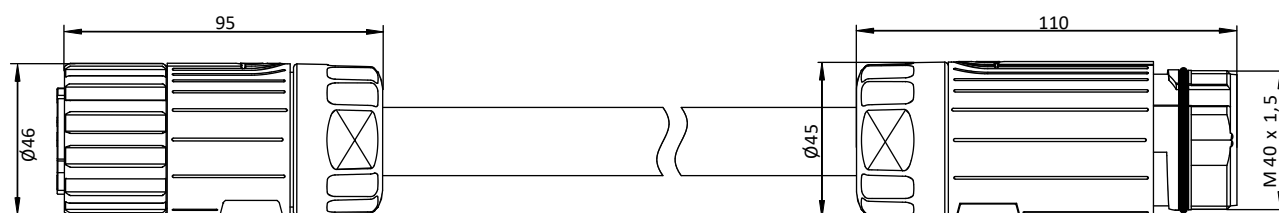
	4 mm ²		6 mm ²		10 mm ²		16 mm ²	
Weight/m	0.31 kg	0.404 kg	0.428 kg	0.542 kg	0.65 kg	0.85 kg	0.964 kg	1.032 kg
Cable diameter	13.3 mm	15.8 mm	15.3 mm	17.9 mm	18.2 mm	22 mm	22 mm	23.1 mm
Bend radius x outer diameter	7.5x	10x	7.5x	10x	7.5x	10x	7.5x	7.5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated	Zinc die- cast, nick- el-plated
Mating cycles	50	50	50	50	50	50	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Flame Test							
Dust resistance	-	-	-	-	-	-	-	-
Silicone-free	Yes	-	Yes	-	Yes	-	Yes	-
Halogen-free	-	Yes	-	Yes	-	Yes	-	Yes
Oil resistance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UV and weather resistance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fuel resistance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Pin assignment, cable cross-section 4.0 ... 16 mm²

Connection cable with M40 connector					
A side M40 (M02/M05)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	+ (WH)		BD1	+ (WH)
	BD2	- (BN)		BD2	- (BN)
	U	U (BK1)		U	U (BK1)
	V	V (BK2)		V	V (BK2)
	W	W (BK3)		W	W (BK3)

Extension with M40 connector					
A side M40 (M02/M05)			B side M40 (P02/P05)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	+ (WH)		BD1	+ (WH)
	BD2	- (BN)		BD2	- (BN)
	U	U (BK1)		U	U (BK1)
	V	V (BK2)		V	V (BK2)
	W	W (BK3)		W	W (BK3)

Dimension drawing of the connectors:



Motor cables



8-pole motor cables with M23 connector

Rated data

	1.5 mm ²	2.5 mm ²
Laying system	Fixed installation	Fixed installation
Cable structure	4 x 1.5 + (2 x 0.22) + (2 x 0.5)	4 x 2.5 + (2 x 0.22) + (2 x 0.5)
Name	EYP0037	EYP0038
Rated voltage	600 V	600 V
Degree of protection	IP69	IP69
Surge impedance	110 ± 10 Ω	110 ± 10 Ω
Number of motion cycles	-	-
Maximum traversing velocity	-	-
Max. acceleration	-	-
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	1.5 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m 0.22 mm ² : ≤ 50 pF/m	2.5 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m 0.22 mm ² : ≤ 50 pF/m
Capacity core/shield	1.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m 0.22 mm ² : ≤ 100 pF/m	2.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m 0.22 mm ² : ≤ 100 pF/m
Shield attenuation	61 dB at 10 MHz	61 dB at 10 MHz
Core colors	Black 1-3, green/yellow black, white, brown, white	Black 1-3, green/yellow black, white, brown, white
Sheath color	Gray, similar to RAL 7031	Gray, similar to RAL 7031

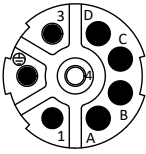
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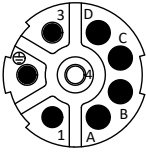
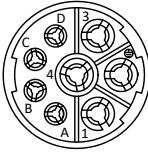
	1.5 mm ²	2.5 mm ²
Test voltage Power	4 kV	4 kV
Test voltage Signal	4 kV	4 kV
Test voltage Brake	4 kV	4 kV
Conductor resistance Power	≤ 13.3 Ω/km	≤ 7.89 Ω/km
Conductor resistance Signal	≤ 86.51 Ω/km	≤ 86.51 Ω/km
Conductor resistance Brake	≤ 39.0 Ω/km	≤ 39.0 Ω/km

Mechanical data

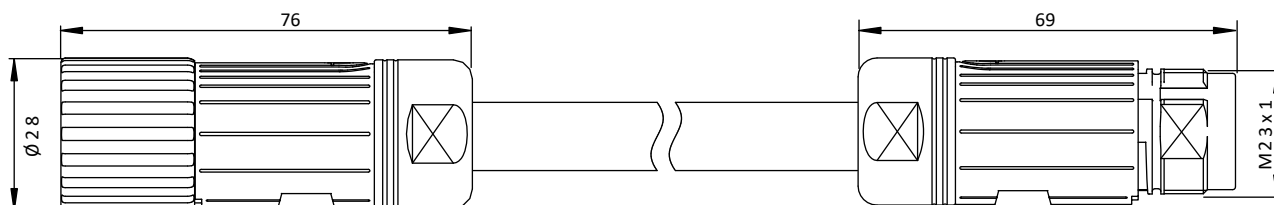
	1.5 mm ²	2.5 mm ²
Weight/m	0.227 kg	0.295 kg
Cable diameter	12.6 mm	14.2 mm
Bend radius x outer diameter	7.5x	7.5x
Locking type	Screw lock	Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	-
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment, cable cross-section 1.5 ... 2.5 mm²

Connection cable with M23 connector					
A side M23 (M07/M08)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	C (WH)		BD1	C (WH)
	BD2	D (BN)		BD2	D (BN)
	U	1 (BK1)		U	1 (BK1)
	V	4 (BK2)		V	4 (BK2)
	W	3 (BK3)		W	3 (BK3)
	TB1	A (WH)		TB1	A (WH)
	TB2	B (BK)		TB2	B (BK)

Extension with M23 connector					
A side M23 (M07/M08)			B side Han M23 (P07)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	C (WH)		BD1	C (WH)
	BD2	D (BN)		BD2	D (BN)
	U	1 (BK1)		U	1 (BK1)
	V	4 (BK2)		V	4 (BK2)
	W	3 (BK3)		W	3 (BK3)
	TB1	A (WH)		TB1	A (WH)
	TB2	B (BK)		TB2	B (BK)

Dimension drawing of the connectors:



Motor cables



8-pole motor cables with M23 and Q8 connectors

Rated data

	1.5 mm ²	2.5 mm ²
Laying system	Fixed installation	Fixed installation
Cable structure	4 x 1.5 + (2 x 0.22) + (2 x 0.5)	4 x 2.5 + (2 x 0.22) + (2 x 0.5)
Name	EYP0037	EYP0038
Rated voltage	600 V	600 V
Degree of protection	IP69	IP69
Surge impedance	110 ± 10 Ω	110 ± 10 Ω
Number of motion cycles	-	-
Maximum traversing velocity	-	-
Max. acceleration	-	-
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	1.5 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m 0.22 mm ² : ≤ 50 pF/m	2.5 mm ² : ≤ 75 pF/m 0.5 mm ² : ≤ 125 pF/m 0.22 mm ² : ≤ 50 pF/m
Capacity core/shield	1.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m 0.22 mm ² : ≤ 100 pF/m	2.5 mm ² : ≤ 150 pF/m 0.5 mm ² : ≤ 250 pF/m 0.22 mm ² : ≤ 100 pF/m
Shield attenuation	61 dB at 10 MHz	61 dB at 10 MHz
Core colors	Black 1-3, green/yellow black, white, brown, white	Black 1-3, green/yellow black, white, brown, white
Sheath color	Gray, similar to RAL 7031	Gray, similar to RAL 7031

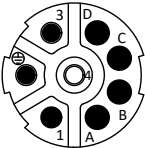
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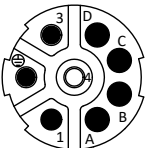
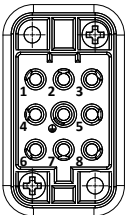
	1.5 mm ²	2.5 mm ²
Test voltage Power	4 kV	4 kV
Test voltage Signal	4 kV	4 kV
Test voltage Brake	4 kV	4 kV
Conductor resistance Power	≤ 13.3 Ω/km	≤ 7.89 Ω/km
Conductor resistance Signal	≤ 86.51 Ω/km	≤ 86.51 Ω/km
Conductor resistance Brake	≤ 39.0 Ω/km	≤ 39.0 Ω/km

Mechanical data

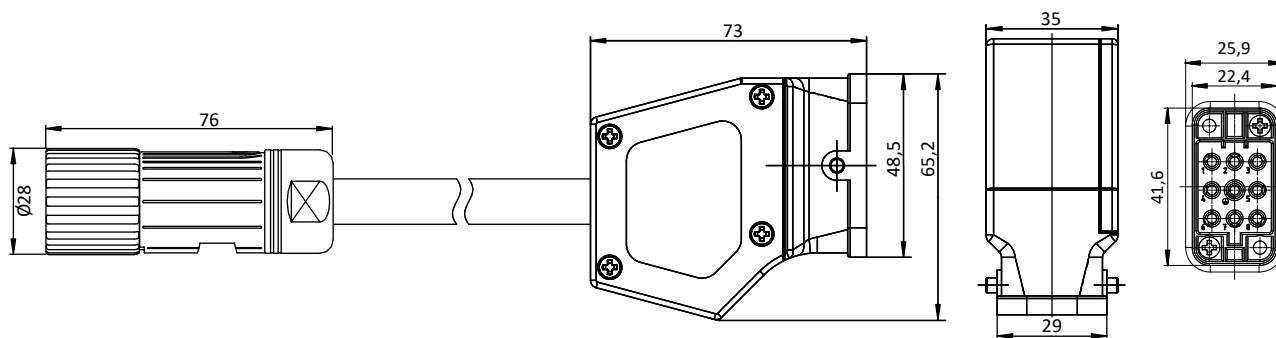
	1.5 mm ²	2.5 mm ²
Weight/m	0.227 kg	0.295 kg
Cable diameter	12.6 mm	14.2 mm
Bend radius x outer diameter	7.5x	7.5x
Locking type	Screw lock	Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	-
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment, cable cross-section 1.5 ... 2.5 mm²

Connection cable with M23 connector					
A side Han M23 (M07/M08)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	C (WH)		BD1	C (WH)
	BD2	D (BN)		BD2	D (BN)
	U	1 (BK1)		U	1 (BK1)
	V	4 (BK2)		V	4 (BK2)
	W	3 (BK3)		W	3 (BK3)
	TB1	A (WH)		TB1	A (WH)
	TB2	B (BK)		TB2	B (BK)

Extension with M23 and Han Q8 connectors					
A side M23 (M07/M08)			B side Han Q8 (Q10)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	BD1	C (WH)		BD1	4 (WH)
	BD2	D (BN)		BD2	6 (BN)
	U	1 (BK1)		U	1 (BK1)
	V	4 (BK2)		V	7 (BK2)
	W	3 (BK3)		W	3 (BK3)
	TB1	A (WH)		TB1	5 (WH)
	TB2	B (BK)		TB2	8 (BK)
				Not assigned	2

Dimension drawing of the connectors:



Feedback cables



Resolver cables with M23 and Sub-D connectors

Rated data

	Resolver	
Laying system	Fixed installation	Drag chain
Cable structure	3 (2 x 0.14) + (3 x 0.14)	3 (2 x 0.14) + (3 x 0.14)
Name	EYF0017	EYF0020
Rated voltage	300 V	300 V
Degree of protection	IP20	IP20
Surge impedance	100 Ω	100 Ω
Number of motion cycles	-	2.5 x 10 ⁶
Maximum traversing velocity	-	10 m/s
Max. acceleration	-	40 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	0.14 mm ² : ≤ 50 pF/m	0.14 mm ² : ≤ 50 pF/m
Capacity core/shield	0.14 mm ² : ≤ 90 pF/m	0.14 mm ² : ≤ 90 pF/m
Shield attenuation	3 dB at 1 MHz	2.3 dB at 1 MHz
Core colors	Yellow, yellow/black, red, red/black, green, green/black, black, gray, pink	Yellow, yellow/black, red, red/black, green, green/black, black, gray, pink
Sheath color	Black, similar to RAL 9005	Green, similar to RAL 6018

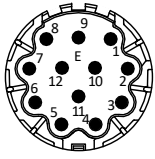
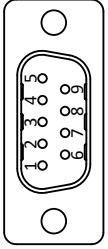
Test data

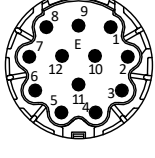
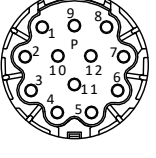
	Resolver	
Test voltage Power	-	-
Test voltage Signal	1.5 kV	1.5 kV
Test voltage Brake	-	-
Conductor resistance Power	-	-
Conductor resistance Signal	≤ 130 Ω/km	≤ 130 Ω/km
Conductor resistance Brake	-	-

Mechanical data

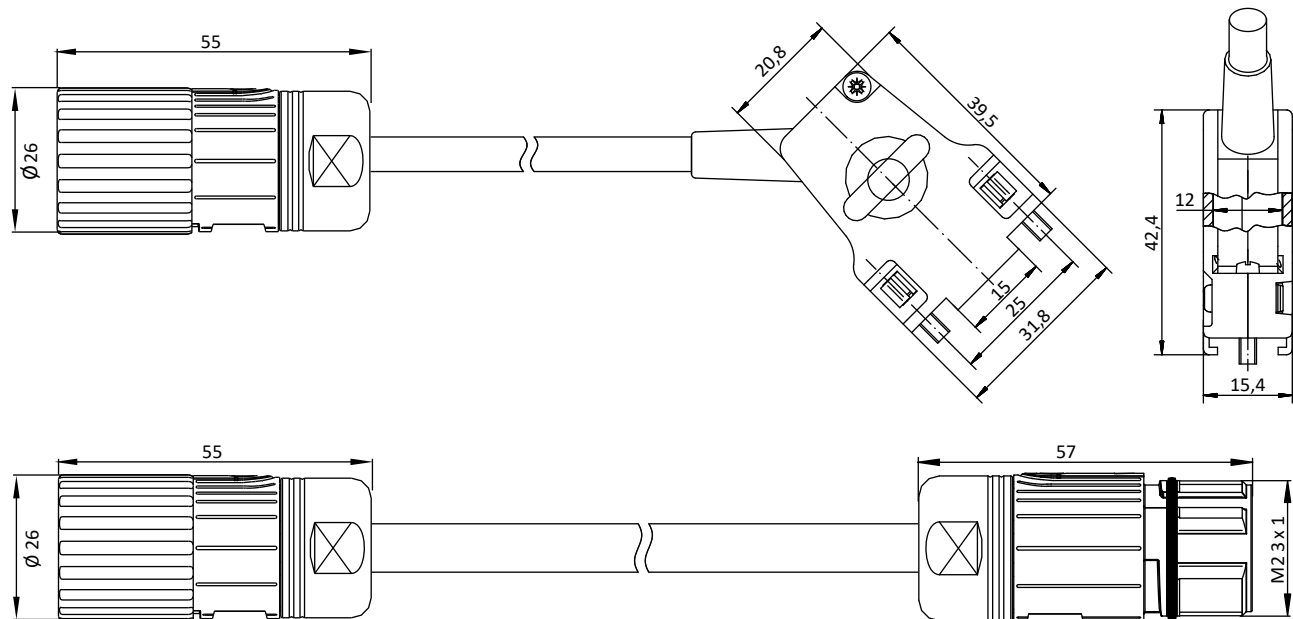
	Resolver	
Weight/m	0.099 kg	0.104 kg
Cable diameter	9.4 mm	9.3 mm
Bend radius x outer diameter	7.5x	7.5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	✓
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment

Connection cable with M23 connector					
A side M23 (F01/F05)			B side Sub-D (S01/S02)		
	Pin	Assignment		Pin	Assignment
	+Ref	1 (GN)		+Ref	1 (GN)
	-Ref	2 (GN/BK)		-Ref	2 (GN/BK)
	Vcc	3 (PK)		Vcc	3 (PK)
	+COS	4 (RD)		+COS	4 (RD)
	-COS	5 (RD/BK)		-COS	5 (RD/BK)
	+SIN	6 (YE)		+SIN	6 (YE)
	-SIN	7 (YE/BK)		-SIN	7 (YE/BK)
	Not assigned	8		TEMP+	8 (GY)
	Not assigned	9		TEMP-	9 (BK)
	Shield	10			
	TEMP+	11 (GY)			
	TEMP-	12 (BK)			

Extension with M23 connector					
A side M23 (F01/F05)			B side M23 (G01/G06)		
	Pin	Assignment		Pin	Assignment
	+Ref	1 (GN)		+Ref	1 (GN)
	-Ref	2 (GN/BK)		-Ref	2 (GN/BK)
	Vcc	3 (PK)		Vcc	3 (PK)
	+COS	4 (RD)		+COS	4 (RD)
	-COS	5 (RD/BK)		-COS	5 (RD/BK)
	+SIN	6 (YE)		+SIN	6 (YE)
	-SIN	7 (YE/BK)		-SIN	7 (YE/BK)
	Not assigned	8		Not assigned	8
	Not assigned	9		Not assigned	9
	Shield	10		Shield	10
	TEMP+	11 (GY)		TEMP+	11 (GY)
	TEMP-	12 (BK)		TEMP-	12 (BK)

Dimension drawing of the connectors:



Feedback cables



Encoder cables with M23 and Sub-D connectors

Rated data

	Encoder	
Laying system	Fixed installation	Drag chain
Cable structure	4 (2 x 0.14) + (2 x 1)	4 (2 x 0.14) + (2 x 1)
Name	EYF0018	EYF0019
Rated voltage	300 V	300 V
Degree of protection	IP20	IP20
Surge impedance	100 Ω	100 Ω
Number of motion cycles	-	2.5 x 10 ⁶
Maximum traversing velocity	-	10 m/s
Max. acceleration	-	40 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	1 mm ² : ≤ 100 pF/m 0.14 mm ² : ≤ 50 pF/m	1 mm ² : ≤ 110 pF/m 0.14 mm ² : ≤ 55 pF/m
Capacity core/shield	1 mm ² : ≤ 180 pF/m 0.14 mm ² : ≤ 90 pF/m	1 mm ² : ≤ 190 pF/m 0.14 mm ² : ≤ 100 pF/m
Shield attenuation	3 dB at 1 MHz	3.5 dB at 1 MHz
Core colors	Yellow, yellow/black, red, red/black, green, green/black, blue, blue/black, white, brown	Yellow, yellow/black, red, red/black, green, green/black, blue, blue/black, white, brown
Sheath color	Black, similar to RAL 9005	Green, similar to RAL 6018

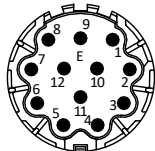
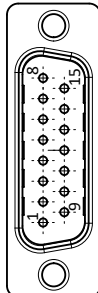
Test data

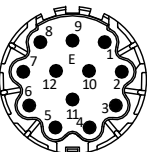
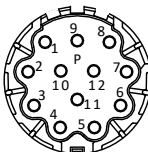
	Encoder	
Test voltage	-	-
Power	-	-
Test voltage	1.5 kV	1.5 kV
Signal	-	-
Test voltage	-	-
Brake	-	-
Conductor resistance	≤ 19.5 Ω/km	≤ 19.5 Ω/km
Power	-	-
Conductor resistance	≤ 130 Ω/km	≤ 130 Ω/km
Signal	-	-
Conductor resistance	-	-
Brake	-	-

Mechanical data

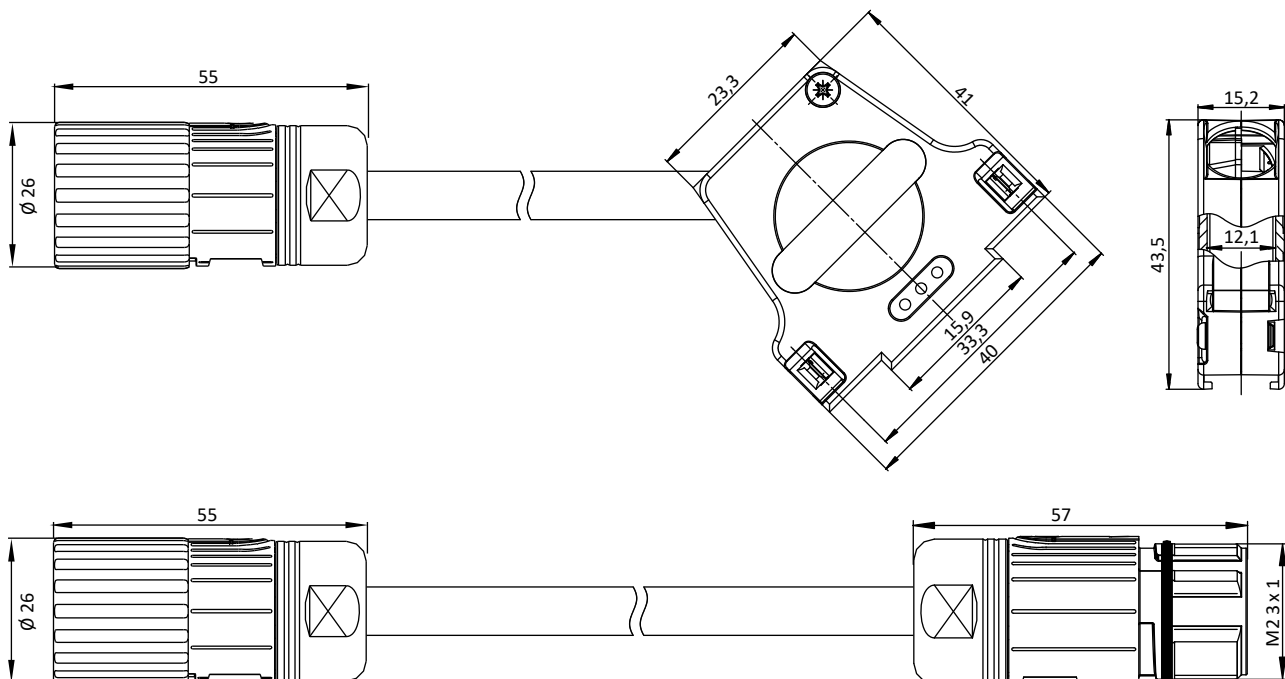
	Encoder	
Weight/m	0.134 kg	0.134 kg
Cable diameter	10.7 mm	10.8 mm
Bend radius x outer diameter	7.5x	7.5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	✓
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment

Connection cable with M23 connector									
A side M23 (F02/F06)					B side Sub-D (S11/S03)				
	Pin			Assign- ment		Pin			Assign- ment
	TTL	SinCos	SinCos- HIPERFACE			TTL	SinCos	SinCos- HIPERFACE	
	B	SIN	B	1 (YE)		A	COS	A	1 (RD)
	/A	REFCOS	/A	2 (RD/BK)		GND	GND	GND	2 (BN)
	A	COS	A	3 (RD)		B	SIN	B	3 (YE)
	Vcc	Vcc	Vcc	4 (WH)		Vcc	Vcc	Vcc	4 (WH)
	GND	GND	GND	5 (BN)		Z	Z	Data+	5 (BU)
	/Z	/Z	Data-	6 (BU/BK)		not assigned	not assigned	not assigned	6
	Z	Z	Data+	7 (BU)		TEMP-	TEMP-	TEMP-	7 (GN/BK)
	not assigned	not assigned	not assigned	8		not assigned	not assigned	not assigned	8
	/B	REFSIN	/B	9 (YE/BK)		/A	REFCOS	/A	9 (RD/BK)
	Shield	Shield	Shield	10		not assigned	not assigned	not assigned	10
	TEMP+	TEMP+	TEMP+	11 (GN)		/B	REFSIN	/B	11 (YE/BK)
	TEMP-	TEMP-	TEMP-	12 (GN/BK)		not assigned	not assigned	not assigned	12
						/Z	/Z	Data-	13 (BU/BK)
						TEMP+	TEMP+	TEMP+	14 (GN)
						not assigned	not assigned	not assigned	15

Extension with M23 connector									
A side M23 (F02/F06)					B side M23 (G02/G07)				
	Pin			Assign- ment		Pin			Assign- ment
	TTL	SinCos	SinCos- HIPERFACE			TTL	SinCos	SinCos- HIPERFACE	
	B	SIN	B	1 (YE)		B	SIN	B	1 (YE)
	/A	REFCOS	/A	2 (RD/BK)		/A	REFCOS	/A	2 (RD/BK)
	A	COS	A	3 (RD)		A	COS	A	3 (RD)
	Vcc	Vcc	Vcc	4 (WH)		Vcc	Vcc	Vcc	4 (WH)
	GND	GND	GND	5 (BN)		GND	GND	GND	5 (BN)
	/Z	/Z	Data-	6 (BU/BK)		/Z	/Z	Data-	6 (BU/BK)
	Z	Z	Data+	7 (BU)		Z	Z	Data+	7 (BU)
	not assigned	not assigned	not assigned	8		not assigned	not assigned	not assigned	8
	/B	REFSIN	/B	9 (YE/BK)		/B	REFSIN	/B	9 (YE/BK)
	Shield	Shield	Shield	10		Shield	Shield	Shield	10
	TEMP+	TEMP+	TEMP+	11 (GN)		TEMP+	TEMP+	TEMP+	11 (GN)
	TEMP-	TEMP-	TEMP-	12 (GN/BK)		TEMP-	TEMP-	TEMP-	12 (GN/BK)

Dimension drawing of the connectors:



Feedback cables



Endat cables with M23 and Sub-D connectors

Rated data

	Endat	
Laying system	Fixed installation	Drag chain
Cable structure	3 (2 x 0.14) + (2 x 0.5) + (4 x 0.14)	3 (2 x 0.14) + (2 x 0.5) + (4 x 0.14)
Name	EYF0021	EYF0024
Rated voltage	300 V	300 V
Degree of protection	IP20	IP20
Surge impedance	120 Ω	100 Ω
Number of motion cycles	-	2.5 x 10 ⁶
Maximum traversing velocity	-	10 m/s
Max. acceleration	-	40 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	0.5 mm ² : ≤ 90 pF/m 0.14 mm ² : ≤ 45 pF/m	0.5 mm ² : ≤ 90 pF/m 0.14 mm ² : ≤ 45 pF/m
Capacity core/shield	0.5 mm ² : ≤ 150 pF/m 0.14 mm ² : ≤ 85 pF/m	0.5 mm ² : ≤ 150 pF/m 0.14 mm ² : ≤ 85 pF/m
Shield attenuation	3 dB at 1 MHz	2.2 dB at 1 MHz
Core colors	Yellow, yellow/black, red, red/black, green, green/black, blue, blue/black, purple, purple/black, brown, brown/black, black, white	Yellow, yellow/black, red, red/black, green, green/black, blue, blue/black, purple, purple/black, brown, brown/black, orange, orange/black, black, white
Sheath color	Black, similar to RAL 9005	Green, similar to RAL 6018

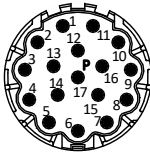
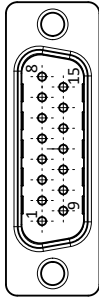
Test data

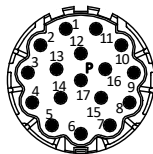
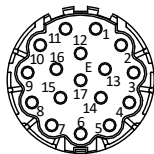
	Endat	
Test voltage Power	-	-
Test voltage Signal	1.5 kV	1.5 kV
Test voltage Brake	-	-
Conductor resistance Power	≤ 39.0 Ω/km	≤ 39.0 Ω/km
Conductor resistance Signal	≤ 120 Ω/km	≤ 130 Ω/km
Conductor resistance Brake	-	-

Mechanical data

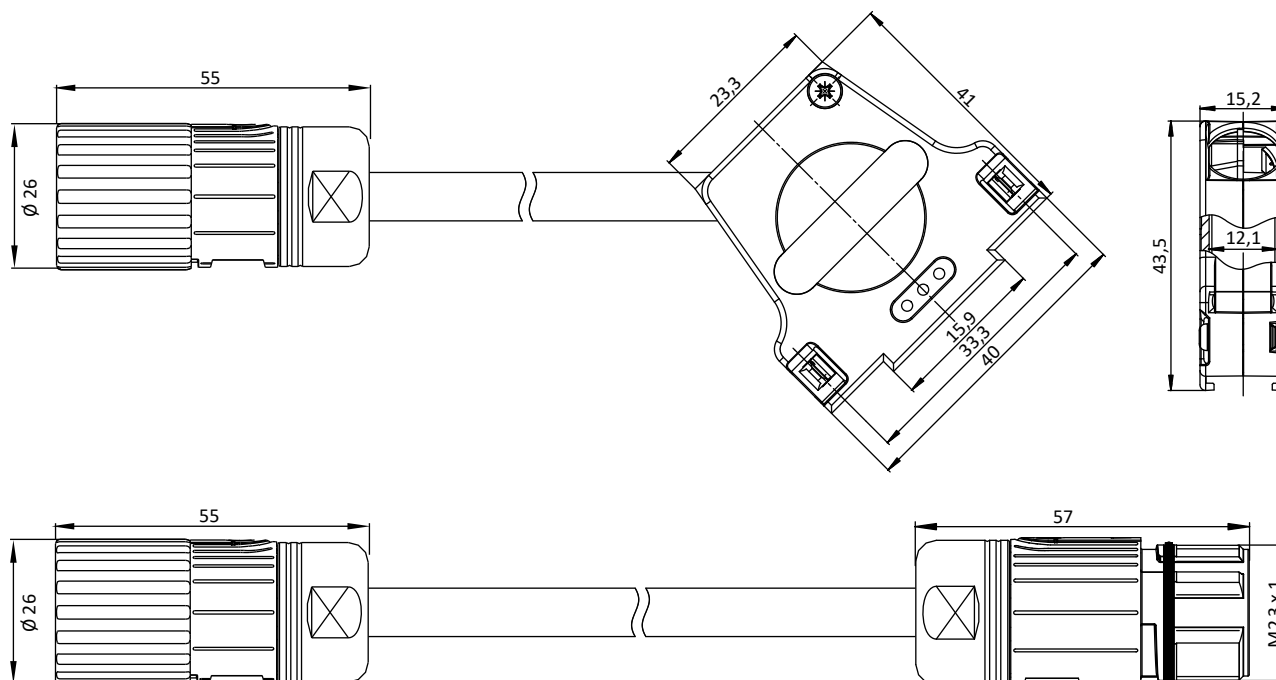
	Endat	
Weight/m	0.166 kg	0.178 kg
Cable diameter	12 mm	12.6 mm
Bend radius x outer diameter	7.5x	7.5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	✓
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment

Connection cable with M23 connector									
A side M23 (F03/F07)				B side Sub-D (S11/S03)					
	Pin			Assign-ment		Pin			Assign-ment
	SSI	SinCos/SSI	EnDat			SSI	SinCos/SSI	EnDat	
	-	-	Sensor+	1 (BN)		-	COS	A+	1 (RD)
	not assigned	not assigned	not assigned	2		GND	GND	GND	2 (BK)
	not assigned	not assigned	not assigned	3		-	SIN	B+	3 (YE)
	-	-	Sensor-	4 (BN/BK)		Vcc	Vcc	Vcc	4 (WH)
	TEMP+	TEMP+	TEMP+	5 (GN)		Data+	Data+	Data+	5 (BU)
	TEMP-	TEMP-	TEMP-	6 (GN/BK)		not assigned	not assigned	not assigned	6
	Vcc	Vcc	Vcc	7 (WH)		TEMP-	TEMP-	TEMP-	7 (GN/BK)
	Clock+	Clock+	Clock+	8 (VT)		Clock+	Clock+	Clock+	8 (VT)
	Clock-	Clock-	Clock-	9 (VT/BK)		-	REFCOS	A-	9 (RD/BK)
	GND	GND	GND	10 (BK)		-	-	Sensor-	10 (BN/BK)
	not assigned	not assigned	not assigned	11		-	REFSIN	B-	11 (YE/BK)
	-	SIN	B+	12 (YE)		-	-	Sensor+	12 (BN)
	-	REFSIN	B-	13 (YE/BK)		Data-	Data-	Data-	13 (BU/BK)
	Data+	Data+	Data+	14 (BU)		TEMP+	TEMP+	TEMP+	14 (GN)
	-	COS	A+	15 (RD)		Clock-	Clock-	Clock-	15 (VT/BK)
	-	REFCOS	A-	16 (RD/BK)					
	Data-	Data-	Data-	17 (BU/BK)					

Extension with M23 connector									
A side M23 (F03/F07)					B side M23 (G03/G08)				
	Pin			Assign- ment		Pin			Assign- ment
	SSI	SinCos/SSI	EnDat	SSI		SinCos/SSI	EnDat		
	-	-	Sensor+	1 (BN)		-	-	Sensor+	1 (BN)
	not assigned	not assigned	not assigned	2		not assigned	not assigned	not assigned	2
	not assigned	not assigned	not assigned	3		not assigned	not assigned	not assigned	3
	-	-	Sensor-	4 (BN/BK)		-	-	Sensor-	4 (BN/BK)
	TEMP+	TEMP+	TEMP+	5 (GN)		TEMP+	TEMP+	TEMP+	5 (GN)
	TEMP-	TEMP-	TEMP-	6 (GN/BK)		TEMP-	TEMP-	TEMP-	6 (GN/BK)
	Vcc	Vcc	Vcc	7 (WH)		Vcc	Vcc	Vcc	7 (WH)
	Clock+	Clock+	Clock+	8 (VT)		Clock+	Clock+	Clock+	8 (VT)
	Clock-	Clock-	Clock-	9 (VT/BK)		Clock-	Clock-	Clock-	9 (VT/BK)
	GND	GND	GND	10 (BK)		GND	GND	GND	10 (BK)
	not assigned	not assigned	not assigned	11		not assigned	not assigned	not assigned	11
	-	SIN	B+	12 (YE)		-	SIN	B+	12 (YE)
	-	REFSIN	B-	13 (BK/YE)		-	REFSIN	B-	13 (BK/YE)
	Data+	Data+	Data+	14 (BU)		Data+	Data+	Data+	14 (BU)
	-	COS	A+	15 (RD)		-	COS	A+	15 (RD)
	-	REFCOS	A-	16 (RD/BK)		-	REFCOS	A-	16 (RD/BK)
	Data-	Data-	Data-	17 (BU/BK)		Data-	Data-	Data-	17 (BU/BK)

Dimension drawing of the connectors:



Blower cables



Blower cables with M17 connectors, 1 x 230 V

Rated data

	1 mm ²	
Laying system	Fixed installation	Drag chain
Cable structure	5 x 1	5 x 1
Name	EYL0001	EYL0002
Rated voltage	600 V	600 V
Degree of protection	IP69	IP69
Surge impedance	-	-
Number of motion cycles	-	5 x 10 ⁶
Maximum traversing velocity	-	10 m/s
Max. acceleration	-	40 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	-	-
Capacity core/shield	-	-
Shield attenuation	-	-
Core colors	Black 1-4, green/yellow	Black 1-4, green/yellow
Sheath color	Gray, similar to RAL 7031	Gray, similar to RAL 7031

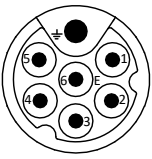
Test data

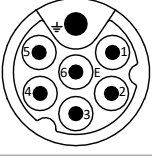
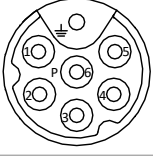
	1 mm ²	
Test voltage Power	4 kV	4 kV
Test voltage Signal	-	-
Test voltage Brake	-	-
Conductor resistance Power	≤ 19.5 Ω/km	≤ 19.5 Ω/km
Conductor resistance Signal	-	-
Conductor resistance Brake	-	-

Mechanical data

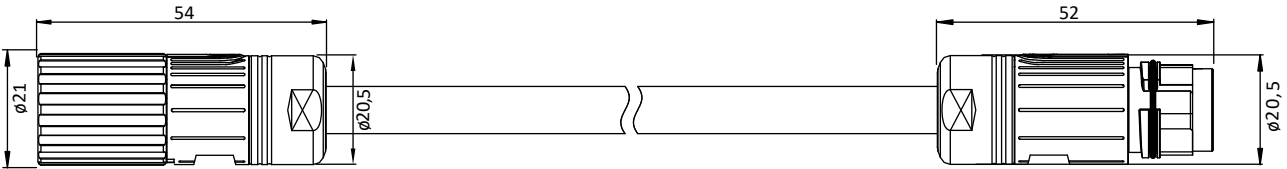
	1 mm ²	
Weight/m	0.098 kg	0.098 kg
Cable diameter	7.9 mm	7.7 mm
Bend radius x outer diameter	5x	5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	-
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment

Connection cable with M17 connector					
A side M17 (L02/L04)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	-		L2	-
	L3	-		L3	-
	rated	2 (BK2)		rated	2 (BK2)

Extension with M17 connector					
A side M17 (L02/L04)			B side M17 (J02/J04)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	-		L2	-
	L3	-		L3	-
	rated	2 (BK2)		rated	2 (BK2)

Dimension drawing of the connectors:



Blower cables



Blower cables with M17 connectors, 3 x 400 V

Rated data

	1 mm ²	
Laying system	Fixed installation	Drag chain
Cable structure	5 x 1	5 x 1
Name	EYL0001	EYL0002
Rated voltage	600 V	600 V
Degree of protection	IP69	IP69
Surge impedance	-	-
Number of motion cycles	-	5 x 10 ⁶
Maximum traversing velocity	-	10 m/s
Max. acceleration	-	40 m/s ²
Torsion	Max. ±30°/m	Max. ±30°/m
Capacity core/core	-	-
Capacity core/shield	-	-
Shield attenuation	-	-
Core colors	Black 1-4, green/yellow	Black 1-4, green/yellow
Sheath color	Gray, similar to RAL 7031	Gray, similar to RAL 7031

Test data

	1 mm ²	
Test voltage Power	4 kV	4 kV
Test voltage Signal	-	-
Test voltage Brake	-	-
Conductor resistance Power	≤ 19.5 Ω/km	≤ 19.5 Ω/km
Conductor resistance Signal	-	-
Conductor resistance Brake	-	-

Mechanical data

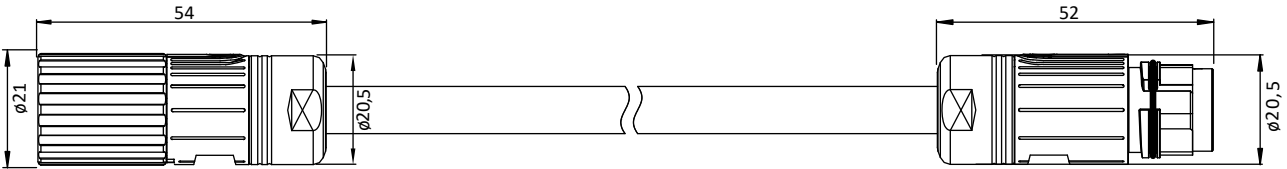
	1 mm ²	
Weight/m	0.098 kg	0.098 kg
Cable diameter	7.9 mm	7.7 mm
Bend radius x outer diameter	5x	5x
Locking type	Bayonet, Screw lock	Bayonet, Screw lock
Connector material	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Mating cycles	50	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-	-
Silicone-free	✓	✓
Halogen-free	-	-
Oil resistance	✓	✓
UV and weather resistance	✓	✓
Fuel resistance	✓	✓

Pin assignment

Connection cable with M17 connector					
A side M17 (L05/L06)			B side open		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	rated	-		rated	-

Extension with M17 connector					
A side M17 (L05/L06)			B side M17 (J05/J06)		
	Pin	Assignment		Pin	Assignment
	PE	PE (GNYE)		PE	PE (GNYE)
	L1	1 (BK1)		L1	1 (BK1)
	L2	2 (BK2)		L2	2 (BK2)
	L3	3 (BK3)		L3	3 (BK3)
	rated	-		rated	-

Dimension drawing of the connectors:



Communication cables



Digital frequency cables with sub-D connector

Rated data

	Digital frequency
Laying system	Fixed installation
Cable structure	3 (2 x 0.14) + (3 x 0.14)
Name	EYD0017
Rated voltage	300 V
Degree of protection	IP20
Surge impedance	100 Ω
Number of motion cycles	-
Maximum traversing velocity	-
Max. acceleration	-
Torsion	Max. ±30°/m
Capacity core/core	0.14 mm ² : ≤ 50 pF/m
Capacity core/shield	0.14 mm ² : ≤ 90 pF/m
Shield attenuation	3 dB at 1 MHz
Core colors	Yellow, yellow/black, red, red/black, green, green/black, black, gray, pink
Sheath color	Black, similar to RAL 9005

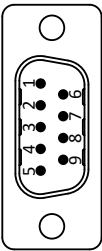
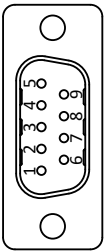
Test data

	Digital frequency
Test voltage Power	-
Test voltage Signal	1.5 kV
Test voltage Brake	-
Conductor resistance Power	-
Conductor resistance Signal	≤ 130 Ω/km
Conductor resistance Brake	-

Mechanical data

	Digital frequency
Weight/m	0.099 kg
Cable diameter	9.4 mm
Bend radius x outer diameter	7.5x
Locking type	Screw lock
Connector material	Zinc die-cast, nickel-plated
Mating cycles	50
Flame retardancy	IEC 60332-1-2, UL1581 Vertical Wire Flame Test, CSA C22.2 No 3-92 Vertical Wire Flame Test
Dust resistance	-
Silicone-free	✓
Halogen-free	-
Oil resistance	✓
UV and weather resistance	✓
Fuel resistance	✓

Pin assignment

Connection cable with M23 connector					
A side Sub-D (W03)			B side Sub-D (S02)		
	Pin	Assignment		Pin	Assignment
	B	1 (GN)		B	1 (GN)
	/A	2 (GN/BK)		/A	2 (GN/BK)
	A	3 (PK)		A	3 (PK)
	Vcc	4 (RD)		Vcc	4 (RD)
	GND	5 (RD/BK)		GND	5 (RD/BK)
	/Z	6 (YE)		/Z	6 (YE)
	Z	7 (YE/BK)		Z	7 (YE/BK)
	Enable	8 (GY)		Enable	8 (GY)
	/B	9 (BK)		/B	9 (BK)

Dimension drawing of the connectors:

