8CH003.12-3

1 General information

- Can be used in cable drag chains
- Motor and encoder lines in one cable
- Assembled specifically for use with ACOPOS servo drives 8V1180/1320 and B&R servo motors with option "Single-cable solution (hybrid)"
- speedtec - Innovative connector system for secure connections

2 Order data

Model number	Short description	Figure
	4 mm² hybrid motor cables	
8CH003.12-3	ACOPOS hybrid motor cable, length 3 m, 4x 4 mm² + 2x 1 mm² + 2x 0.30 mm² + 2x 2x 0.15 mm², 13-pin female speedtec hybrid motor connector, can be used in cable drag chains	

Table 1: 8CH003.12-3 - Order data

3 Technical data

Model number	8CH003.12-3
General information	
Cable cross section	4x 4 mm² + 2x 1 mm² + (2x 1x 0.30 mm² + 2x 2x 0.15 mm²)
Durability	Oil resistance per EN 60811-2-1 [1)]
Certification	E130266 cRUus AWM Style 21223, 80°C, 1000 V and CSA C22.2 No. 210 I/II A/B FT1 [1)]
Certifications	
CE	Yes
UL	cULus E225616 Power conversion equipment
Cable construction	
Power lines	
Quantity	4
Wire insulation	PP
Wire colors	Black, brown, blue, yellow/green
Variant	Copper stranded wire
Cross section	4 mm²
Shield	No
Stranding	No
Supply lines	
Quantity	2
Wire insulation	PP
Wire colors	White/Blue, white/green
Variant	Tinned copper stranded wire
Cross section	1 mm²
Shield	No
Stranding	No
Signal line	
Quantity	6
Wire insulation	PP
Wire colors	Brown/Green, white/green, gray/pink, yellow/violet
Variant	2x copper stranded wire, 4x tinned copper stranded wire
Cross section	2x 0.30 mm², 4x 0.15 mm²
Shield	Tinned copper braiding, optical coverage > 85% and foil shield
Stranding	Brown/Green with white/green, pink with gray and yellow with violet
Cable stranding	With filler elements and foil shield

Table 2: 8CH003.12-3 - Technical data

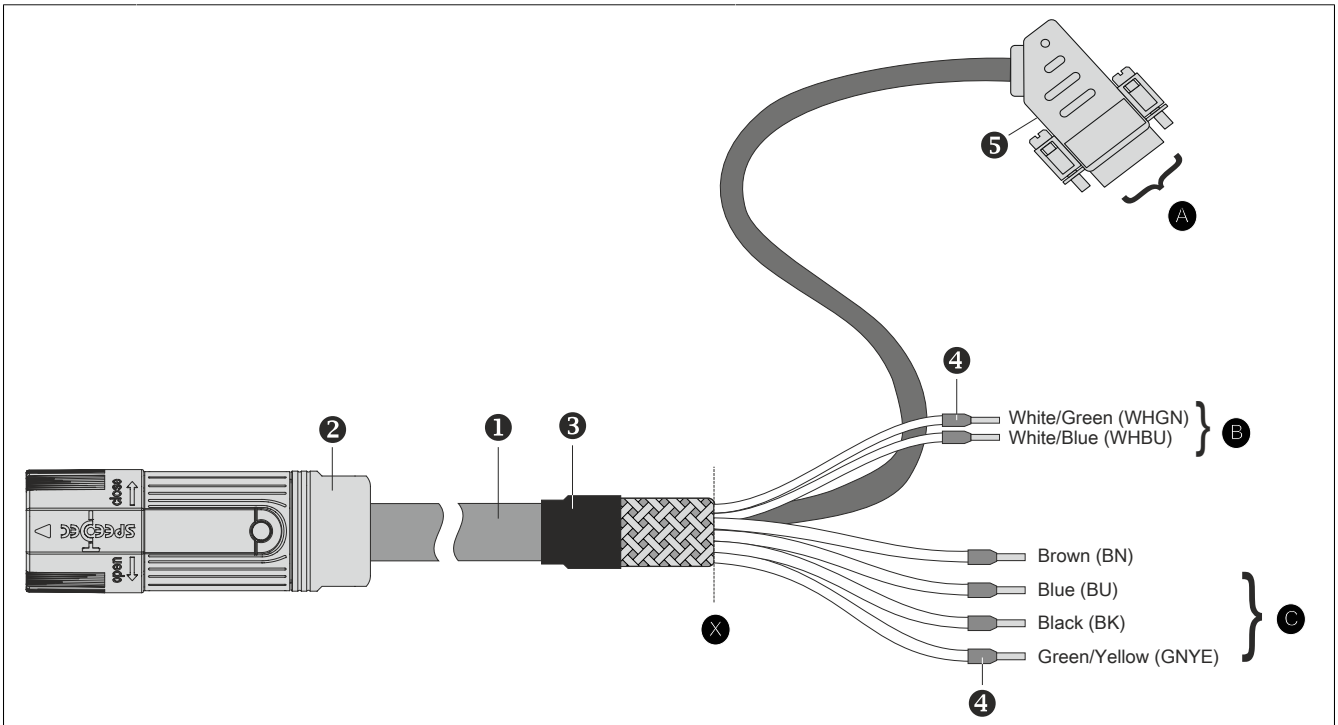
Model number	8CH003.12-3
Cable shield	Tinned copper braiding, optical coverage > 85% and foil shield
Outer jacket	
Material	PUR
Color	Orange, similar to RAL 2003 flat
Labeling	B&R 4x4 + 2x1 + (2x2 26AWG + 2x1x 23AWG) *E130266* cRU-us AWM STYLE 21223* AWM I/II A/B 80°C 1000 V FT1 [1]
Connector	
Type	13-pin female speedtec hybrid motor connector
Mating cycles	<500
Contacts	13
Additional connectors	9-pin male DSUB connector Mating cycles: <200 Contacts: 9 Degree of protection per EN 60529: IP20 when connected
Degree of protection per EN 60529	IP66/67 when connected
Electrical properties [1]	
Test voltage	
Wire/Wire	4 kV
Wire/Shield	4 kV
Conductor resistance	
Power lines	≤5 Ω/km
Supply lines	≤19.5 Ω/km
Signal line	0.30 mm²: ≤68 Ω/km, 0.15 mm²: ≤140 Ω/km
Insulation resistance	≥200 MΩ*km
Current-carrying capacity per DIN VDE 0298 part 4, table 11	
Wall mounting	30 A [2]
Installed in conduit or cable duct	30 A [2]
Installed in cable tray	30 A [2]
Ambient conditions [1]	
Temperature	
Moving	-20°C to +90°C
Static	-20°C to +90°C
Mechanical properties [1]	
Dimensions	
Length	3 m
Diameter	15.7 mm ± 0.4 mm
Bend radius	
Single bend	>65 mm
Moving	≥121 mm
Drag chain data	
Acceleration	Max. 50 m/s² (depends on the length of the travel path)
Flex cycles	≥3,000,000
Speed	Max. 300 m/min
Weight	1.2 kg

Table 2: 8CH003.12-3 - Technical data

1) Values refer to the raw cable being used.
2) Limited to 30 A by the hybrid motor connector.

4 Wiring

4.1 Cable construction



Pos.	Description	Note
1	Hybrid cable	For 8CHxxx.12-1: 4x 1.5 mm² + 2x 0.75 mm² + (2x 0.30 mm² + 2x 2x 0.15 mm²) For 8CHxxx.12-3: 4x 4 mm² + 2x 1 mm² + (2x 0.30 mm² + 2x 2x 0.15 mm²)
2	13-pin female speedtec hybrid motor connector	
3	Heat shrink tubing	
4	Wire end sleeves	
5	DSUB housing, 9-pin male	

Table 3: Hybrid motor cables - Cable construction

Custom cable length from point x (for 1.5 mm²)		
A	1	380 mm
B	2	75 mm
C	4	65 mm

Custom cable length from point (for 4 mm²)		
A	1	380 mm
B	2	150 mm
C	4	90 mm

4.2 Pinout

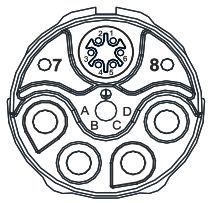
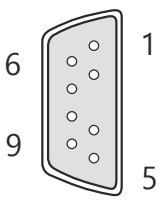
Circular connector	Pin	Description	Function	Pin	DSUB connector
	6	T\	Clock output inverted	9	
	1	U+	Encoder power supply +12 V	1	
	2	COM	Encoder power supply 0 V	6	
	3	D	Data	4	
	4	D\	Data inverted	8	
	5	T	Clock output	5	
	7	B-	Brake 0 V	-	
	8	B+	Brake +24 V	-	
	A	U	Motor connection U	-	
	B	V	Motor connection V	-	
	C	W	Motor connection W	-	
	D	-	-	-	
	⏚	PE	Protective ground conductor	-	

Table 4: Hybrid motor cables - Pinout

4.3 Cable diagram

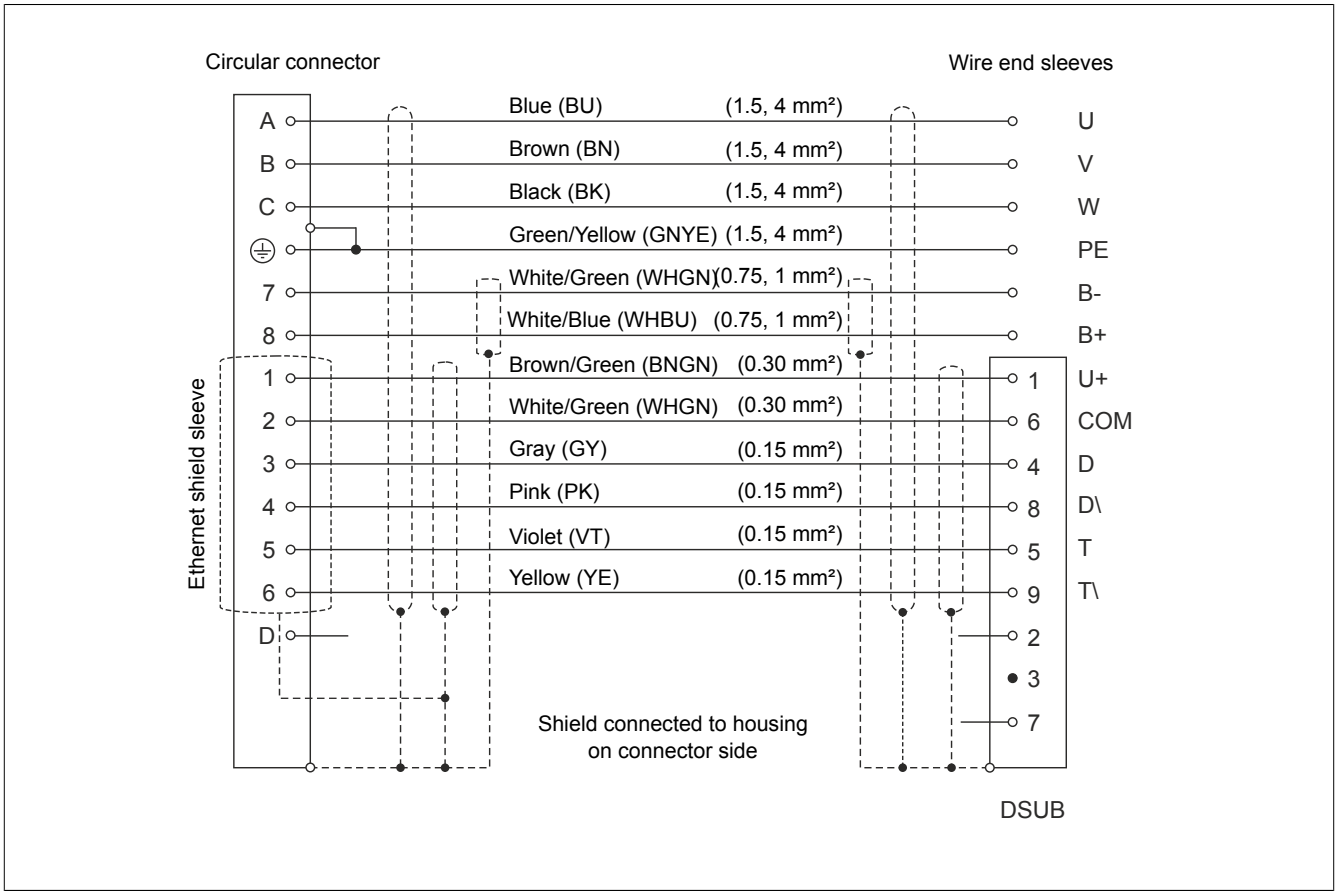


Figure 1: Hybrid motor cables - Cable diagram