# 8ECH0010.1111A-0

## Information:

**Due to their assembly, these cables can only be used with the following ACOPOS P3 servo drives:**

- **8EI1X6xxSxx.xxxx-1**
- **8EI2X2xxxxx.xxxx-1**
- **8EI4X5xxxxx.xxxx-1**
- **8EI8X8xxxxx.xxxx-1**

## 1 General information

- Can be used in cable drag chains
- Motor and encoder lines in one cable
- Assembled specifically for use with ACOPOS P3 servo drives and B&R servo motors with option "Single-cable solution (hybrid)"
- speedtec - Innovative connector system for secure connections

## 2 Order data

| Order number | Short description | Figure |
|---|---|---|
| | **1.5 mm² hybrid motor cables** |  |
| 8ECH0010.1111A-0 | ACOPOS P3 hybrid motor cable, length 10 m, 4x 1.5 mm² + 2x 0.75 mm² + 2x 0.30 mm² + 2x 2x 0.15 mm², 13-pin female speedtec hybrid motor connector size 1, can be used in cable drag chains | |

Table 1: 8ECH0010.1111A-0 - Order data

## 3 Technical data

| Order number | 8ECH0010.1111A-0 |
|---|---|
| **General information** | |
| Cable cross section | 4x 1.5 mm² + 2x 0.75 mm² + (2x 1x 0.30 mm² + 2x 2x 0.15 mm²) |
| Durability | Oil resistance per EN 60811-2-1 [1] |
| Certification [2] | UL AWM style 21223, 80°C, 1000 V and CSA C22.2 no. 210 I/II A/B FT1<br>UL AWM style 22381, 90°C, 1000 V and CSA C22.2 no. 210 I/II A/B FT1<br>UL AWM style 21209, 90°C, 1000 V and CSA C22.2 no. 210 I/II A/B FT1 |
| Certifications | |
| CE | Yes |
| UKCA | Yes |
| **Cable construction** | |
| Power lines | |
| Quantity | 4 |
| Wire insulation | PP |
| Wire colors | Black, brown, blue, yellow/green |
| Variant | Copper stranded wire |
| Cross section | 1.5 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 | 0.75 mm² |
| Shield | No |
| Stranding | No |

Table 2: 8ECH0010.1111A-0 - Technical data

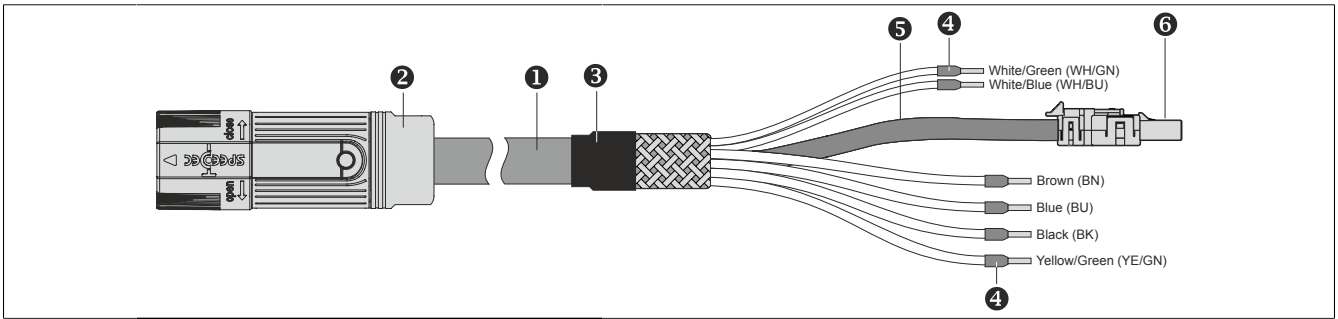
| Order number | 8ECH0010.1111A-0 |
|---|---|
| Signal line | |
| Quantity | 6 |
| Wire insulation | PP |
| Wire colors | Brown/Green, white/green, gray/pink, yellow/violet |
| Variant | 2x copper stranded wire, 4x tinned copper stranded wire |
| Cross section | 2x 0.30 mm², 4x 0.15 mm² |
| Shield | 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 |
| 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 4x1.5 + 2x0.75 + (2x2x26AWG + 2x1x24AWG) * E130266<br>* cRUus 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 | 8-pin male Mini I/O encoder connector<br>Mating cycles: <1500<br>Contacts: 8<br>Degree of protection per EN 60529: IP30 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 | ≤13.3 Ω/km |
| Supply lines | ≤26 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 | 20.2 A |
| Installed in conduit or cable duct | 17.8 A |
| Installed in cable tray | 20.9 A |
| **Ambient conditions [1]** | |
| Temperature | |
| Moving | -20°C to +90°C |
| Static | -20°C to +90°C |
| **Mechanical properties [1]** | |
| Dimensions | |
| Length | 10 m |
| Diameter | 13 mm ±0.4 mm |
| Bend radius | |
| Single bend | >40 mm |
| Moving | ≥100 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 | 2.4 kg |

Table 2: 8ECH0010.1111A-0 - Technical data

1) Values refer to the raw cable being used.
2) Depends on the raw cable used.

# 4 Wiring

## 4.1 Cable construction




| Pos. | Description | Note |
|---|---|---|
| 1 | Hybrid cable | 8ECHxxxx.1111A-0:<br>4 x 1.5 mm² + 2 x 0.75 mm² + (2 + 1 x 0.30 mm² + 2 x 2 x 0.15 mm²)<br>8ECHxxxx.1312A-0:<br>4 x 4.0 mm² + 2 x 1 mm² + (2 x 1 x 0.30 mm² + 2 x 2 x 0.15 mm²) |
| 2 | 13-pin female circular connector | Dimensions: ø 28 x 80 mm |
| 3 | Heat shrink tubing | |
| 4 | Wire end sleeves | |
| 5 | Heat shrink tubing | |
| 6 | Mini I/O encoder connector | Dimensions: 11 x 8 x 33 mm |

Table 3: Hybrid motor cables - Cable construction

## 4.2 Pinout

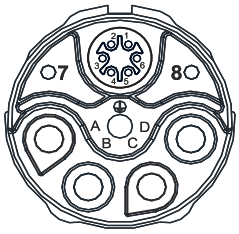
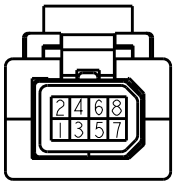
| Circular connector | Pin | Description | Function | Pin | Mini I/O connector |
|---|---|---|---|---|---|
|  | 1 | U+ | Encoder power supply +12 V | 1 |  |
| | 2 | COM | Encoder power supply 0 V | 7 | |
| | 3 | D | Data | 6 | |
| | 4 | D\ | Data inverted | 8 | |
| | 5 | T | Clock output | 2 | |
| | 6 | T\ | Clock output inverted | 4 | |
| | 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

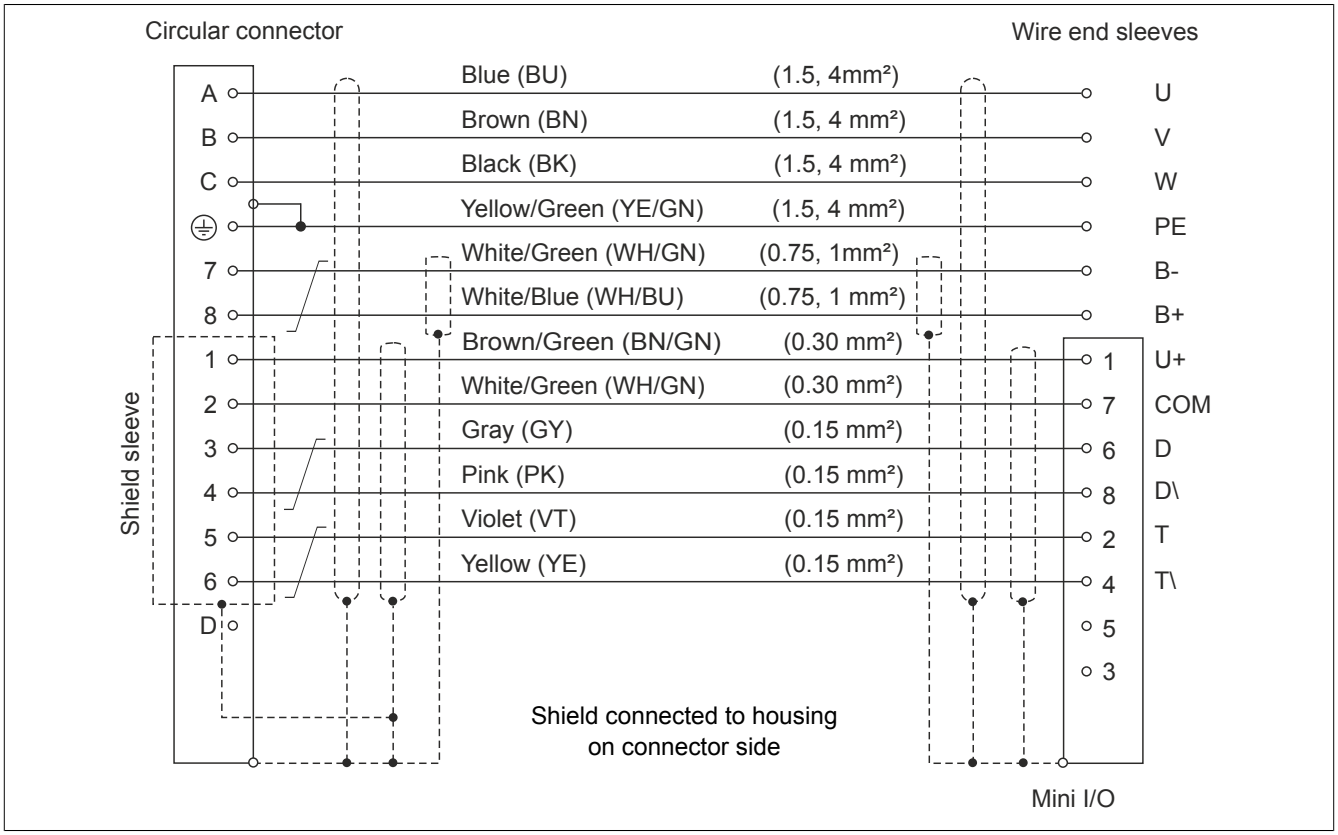



Figure 1: Hybrid motor cables - Cable diagram