

# 8ECH0008.1111A-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                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                  | <b>1.5 mm<sup>2</sup> hybrid motor cables</b>                                                                                                                                                                                              |                                                                                       |
| 8ECH0008.1111A-0 | ACOPOS P3 hybrid motor cable, length 8 m, 4x 1.5 mm <sup>2</sup> + 2x 0.75 mm <sup>2</sup> + 2x 0.30 mm <sup>2</sup> + 2x 2x 0.15 mm <sup>2</sup> , 13-pin female speedtec hybrid motor connector size 1, can be used in cable drag chains |  |

Table 1: 8ECH0008.1111A-0 - Order data

## 3 Technical data

| Order number                | 8ECH0008.1111A-0                                                                                                                           |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General information</b>  |                                                                                                                                            |
| Cable cross section         | 4x 1.5 mm <sup>2</sup> + 2x 0.75 mm <sup>2</sup> + (2x 1x 0.30 mm <sup>2</sup> + 2x 2x 0.15 mm <sup>2</sup> )                              |
| Durability                  | Oil resistance per EN 60811-2-1 <sup>1)</sup>                                                                                              |
| Certification <sup>2)</sup> | 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 |
| <b>Certifications</b>       |                                                                                                                                            |
| CE                          | Yes                                                                                                                                        |
| UKCA                        | Yes                                                                                                                                        |
| EAC                         | Yes                                                                                                                                        |
| <b>Cable construction</b>   |                                                                                                                                            |
| <b>Power lines</b>          |                                                                                                                                            |
| Quantity                    | 4                                                                                                                                          |
| Wire insulation             | PP                                                                                                                                         |
| Wire colors                 | Black, brown, blue, yellow/green                                                                                                           |
| Variant                     | Copper stranded wire                                                                                                                       |
| Cross section               | 1.5 mm <sup>2</sup>                                                                                                                        |
| Shield                      | No                                                                                                                                         |
| Stranding                   | No                                                                                                                                         |
| <b>Supply lines</b>         |                                                                                                                                            |
| Quantity                    | 2                                                                                                                                          |
| Wire insulation             | PP                                                                                                                                         |
| Wire colors                 | White/Blue, white/green                                                                                                                    |
| Variant                     | Tinned copper stranded wire                                                                                                                |
| Cross section               | 0.75 mm <sup>2</sup>                                                                                                                       |
| Shield                      | No                                                                                                                                         |
| Stranding                   | No                                                                                                                                         |

Table 2: 8ECH0008.1111A-0 - Technical data

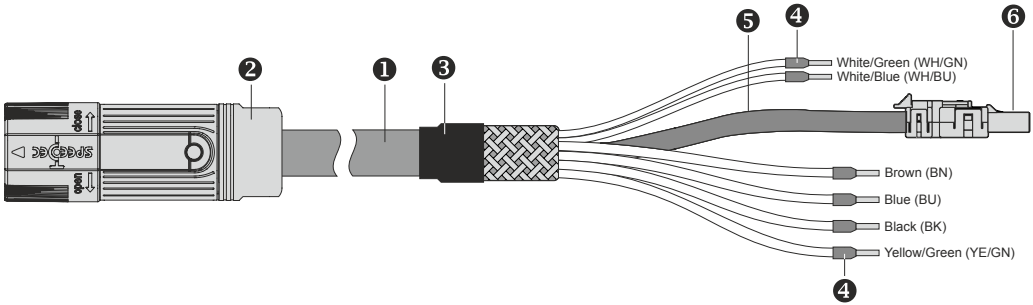
| Order number                                                | 8ECH0008.1111A-0                                                                                                                       |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 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 mm <sup>2</sup> , 4x 0.15 mm <sup>2</sup>                                                                                      |
| 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                                                                                                       |
| <b>Connector</b>                                            |                                                                                                                                        |
| 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                                                                                                                 |
| <b>Electrical properties <sup>1)</sup></b>                  |                                                                                                                                        |
| 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 mm <sup>2</sup> : ≤68 Ω/km, 0.15 mm <sup>2</sup> : ≤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                                                                                                                                 |
| <b>Ambient conditions <sup>1)</sup></b>                     |                                                                                                                                        |
| Temperature                                                 |                                                                                                                                        |
| Moving                                                      | -20°C to +90°C                                                                                                                         |
| Static                                                      | -20°C to +90°C                                                                                                                         |
| <b>Mechanical properties <sup>1)</sup></b>                  |                                                                                                                                        |
| Dimensions                                                  |                                                                                                                                        |
| Length                                                      | 8 m                                                                                                                                    |
| Diameter                                                    | 13 mm ±0.4 mm                                                                                                                          |
| Bend radius                                                 |                                                                                                                                        |
| Single bend                                                 | >40 mm                                                                                                                                 |
| Moving                                                      | ≥100 mm                                                                                                                                |
| Drag chain data                                             |                                                                                                                                        |
| Acceleration                                                | Max. 50 m/s <sup>2</sup> (depends on the length of the travel path)                                                                    |
| Flex cycles                                                 | ≥3,000,000                                                                                                                             |
| Velocity                                                    | Max. 300 m/min                                                                                                                         |
| Weight                                                      | 1.9 kg                                                                                                                                 |

Table 2: 8ECH0008.1111A-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 mm <sup>2</sup> + 2 x 0.75 mm <sup>2</sup> + (2 + 1 x 0.30 mm <sup>2</sup> + 2 x 2 x 0.15 mm <sup>2</sup> )<br>8ECHxxxx.1312A-0:<br>4 x 4.0 mm <sup>2</sup> + 2 x 1 mm <sup>2</sup> + (2 x 1 x 0.30 mm <sup>2</sup> + 2 x 2 x 0.15 mm <sup>2</sup> ) |
| 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

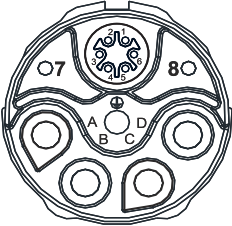
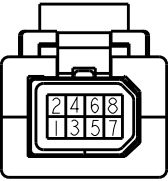
| Circular connector                                                                  | Pin | Description | Function                    | Pin | Mini I/O connector                                                                    |
|-------------------------------------------------------------------------------------|-----|-------------|-----------------------------|-----|---------------------------------------------------------------------------------------|
|  | 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

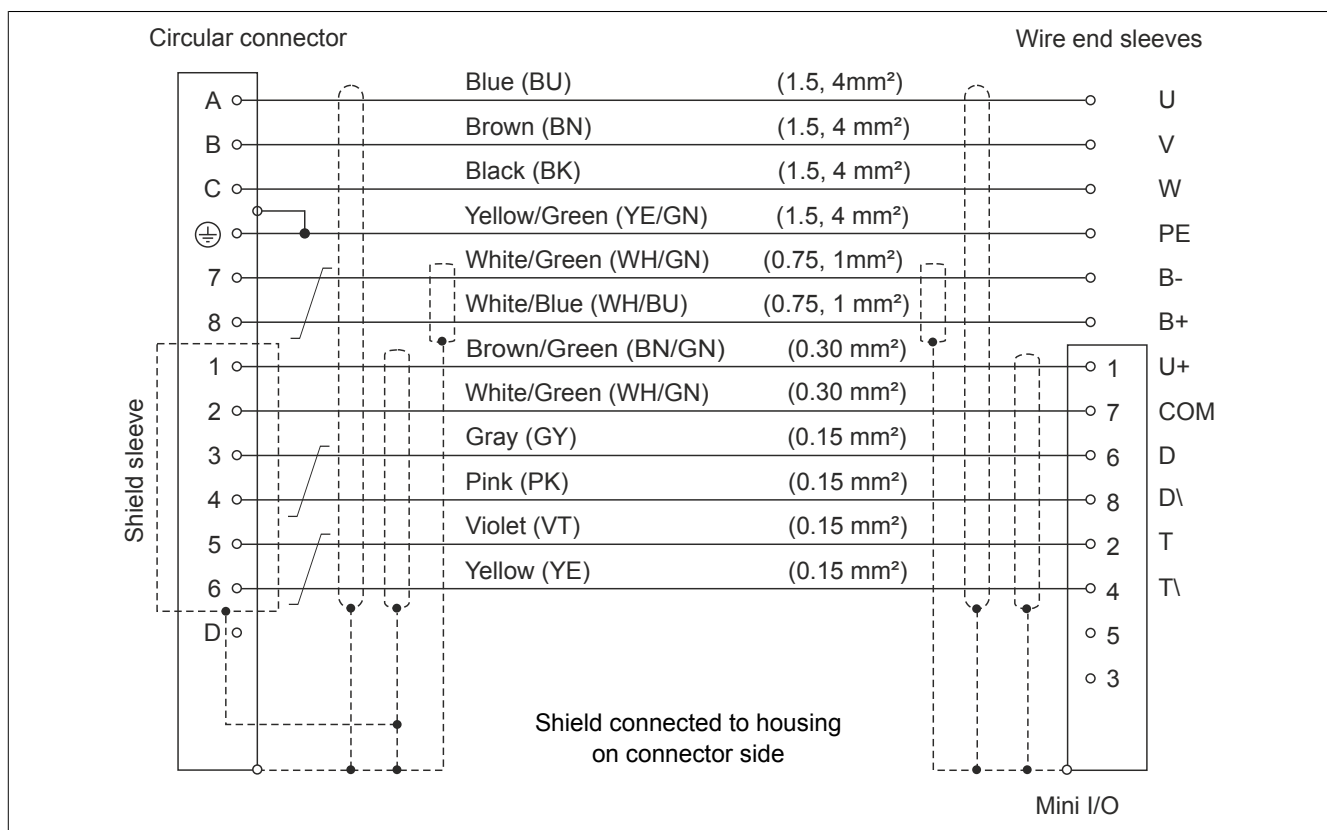


Figure 1: Hybrid motor cables - Cable diagram