

# 8BCH0021.1312A-0

## 1 General information

- Can be used in cable drag chains
- Motor and encoder wires in one cable
- Assembled specifically for use with ACOPOSmulti drive systems and B&R servo motors with option "Single-cable solution (hybrid)"
- speedtec - Innovative connector system for secure connections
- Integrated shield plate

### Information:

A shield plate is attached to ACOPOSmulti 8BCH hybrid motor cables. If this shield plate is correctly installed on the respective ACOPOSmulti 8BVI inverter module, no additional shielding measures are necessary.

## 2 Order data

| Order number     | Short description                                                                                                                                                                                                                                                                                               | Figure                                                                              |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 8BCH0021.1312A-0 | <b>4 mm<sup>2</sup> hybrid motor cable</b><br>ACOPOSmulti hybrid motor cable, length 21 m, 4x 4 mm <sup>2</sup> + 2x 1 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, integrated shield plate, can be used in cable drag chains |  |

Table 1: 8BCH0021.1312A-0 - Order data

## 3 Technical data

| Order number               | 8BCH0021.1312A-0                                                                                         |
|----------------------------|----------------------------------------------------------------------------------------------------------|
| <b>General information</b> |                                                                                                          |
| Cable cross section        | 4x 4 mm <sup>2</sup> + 2x 1 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              | E130266 cRUus AWM style 21223, 80°C, 1000 V and CSA C22.2 no. 210 I/II A/B FT1 <sup>1)</sup>             |
| Certifications             |                                                                                                          |
| CE                         | Yes                                                                                                      |
| UKCA                       | Yes                                                                                                      |
| UL                         | cULus E225616                                                                                            |
| EAC                        | Power conversion equipment                                                                               |
|                            | Yes                                                                                                      |
| <b>Cable construction</b>  |                                                                                                          |
| Power lines                |                                                                                                          |
| Quantity                   | 4                                                                                                        |
| Wire insulation            | PP                                                                                                       |
| Wire colors                | Black, brown, blue, yellow/green                                                                         |
| Variant                    | Copper stranded wire                                                                                     |
| Cross section              | 4 mm <sup>2</sup>                                                                                        |
| 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 mm <sup>2</sup>                                                                                        |
| Shield                     | No                                                                                                       |
| Stranding                  | No                                                                                                       |

Table 2: 8BCH0021.1312A-0 - Technical data

| Order number                                                | 8BCH0021.1312A-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                                                                                          |
| Labeling                                                    | B&R 4x4 + 2x1 + (2x2 26AWG + 2x1x 24AWG) *E130266* cRU-us AWM STYLE 21223* AWM I/II A/B 80°C 1000 V FT1 <sup>1)</sup>     |
| Connector                                                   |                                                                                                                           |
| Type                                                        | 13-pin female speedtec hybrid motor connector                                                                             |
| Mating cycles                                               | <500                                                                                                                      |
| Contacts                                                    | 13                                                                                                                        |
| Additional connectors                                       | 9-pin male DSUB connector<br>Mating cycles: <200<br>Contacts: 9<br>Degree of protection per EN 60529: IP20 when connected |
| Degree of protection per EN 60529                           | IP66/67 when connected                                                                                                    |
| Electrical properties <sup>1)</sup>                         |                                                                                                                           |
| 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 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                                               | 30 A <sup>2)</sup>                                                                                                        |
| Installed in conduit or cable duct                          | 30 A <sup>2)</sup>                                                                                                        |
| Installed in cable tray                                     | 30 A <sup>2)</sup>                                                                                                        |
| Ambient conditions <sup>1)</sup>                            |                                                                                                                           |
| Temperature                                                 |                                                                                                                           |
| Moving                                                      | -20°C to +90°C                                                                                                            |
| Static                                                      | -20°C to +90°C                                                                                                            |
| Mechanical properties <sup>1)</sup>                         |                                                                                                                           |
| Dimensions                                                  |                                                                                                                           |
| Length                                                      | 21 m                                                                                                                      |
| Diameter                                                    | 15.7 mm ±0.4 mm                                                                                                           |
| Bend radius                                                 |                                                                                                                           |
| Single bend                                                 | >48 mm                                                                                                                    |
| Moving                                                      | ≥121 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                                                      | 8.1 kg                                                                                                                    |

Table 2: 8BCH0021.1312A-0 - 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

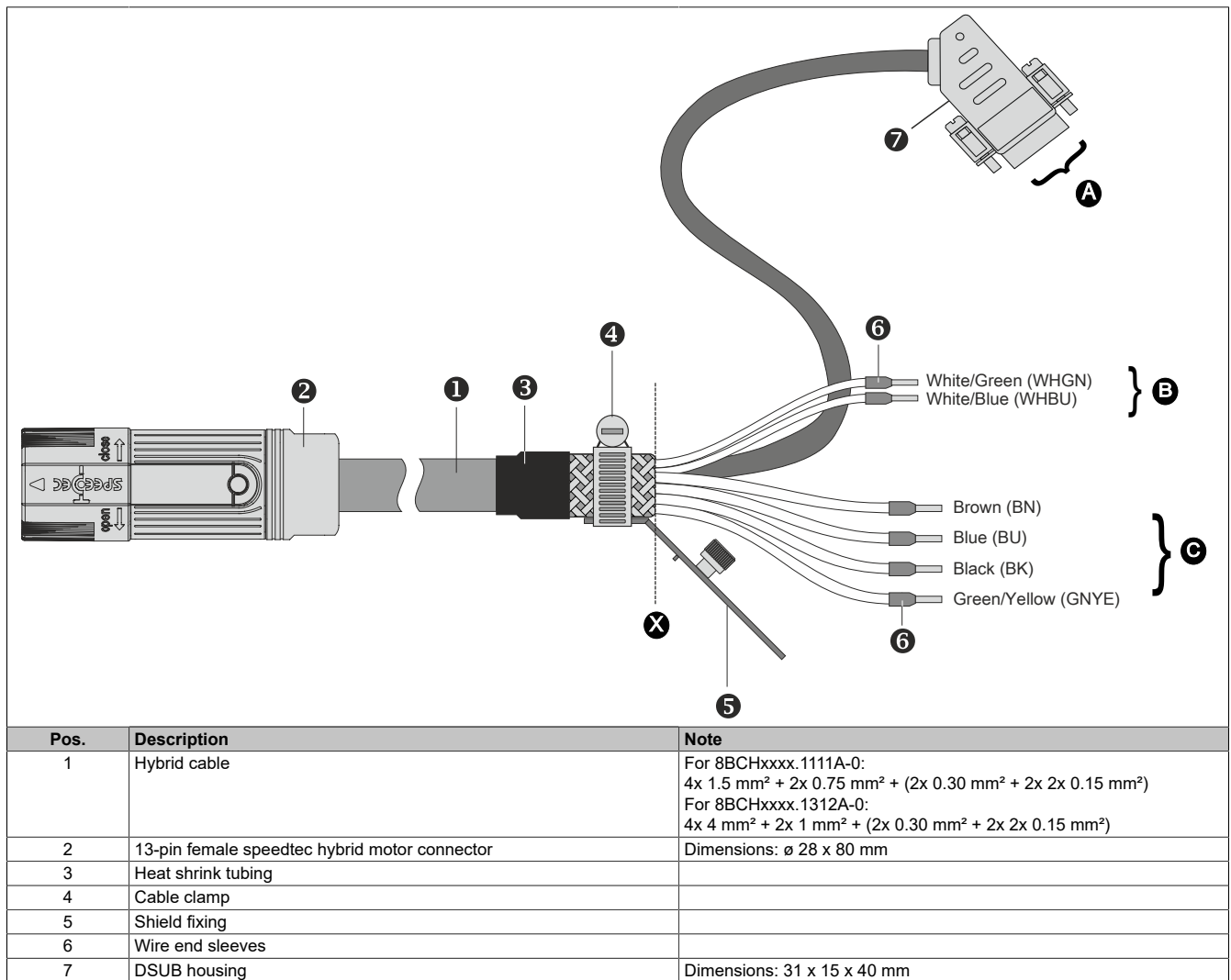


Table 3: Hybrid motor cables - Cable construction

| Pos. | Quantity | Custom cable length from point x |
|------|----------|----------------------------------|
| A    | 1        | 480 mm                           |
| B    | 2        | 135 mm                           |
| C    | 4        | 140 mm                           |

Table 4: Custom cable length

## 4.2 Pinout

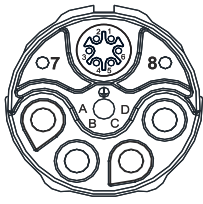
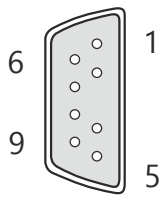
| Circular connector                                                                | Pin | Description | Function                    | Pin | DSUB connector                                                                      |
|-----------------------------------------------------------------------------------|-----|-------------|-----------------------------|-----|-------------------------------------------------------------------------------------|
|  | 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 5: Hybrid motor cables - Pinout

## 4.3 Cable diagram

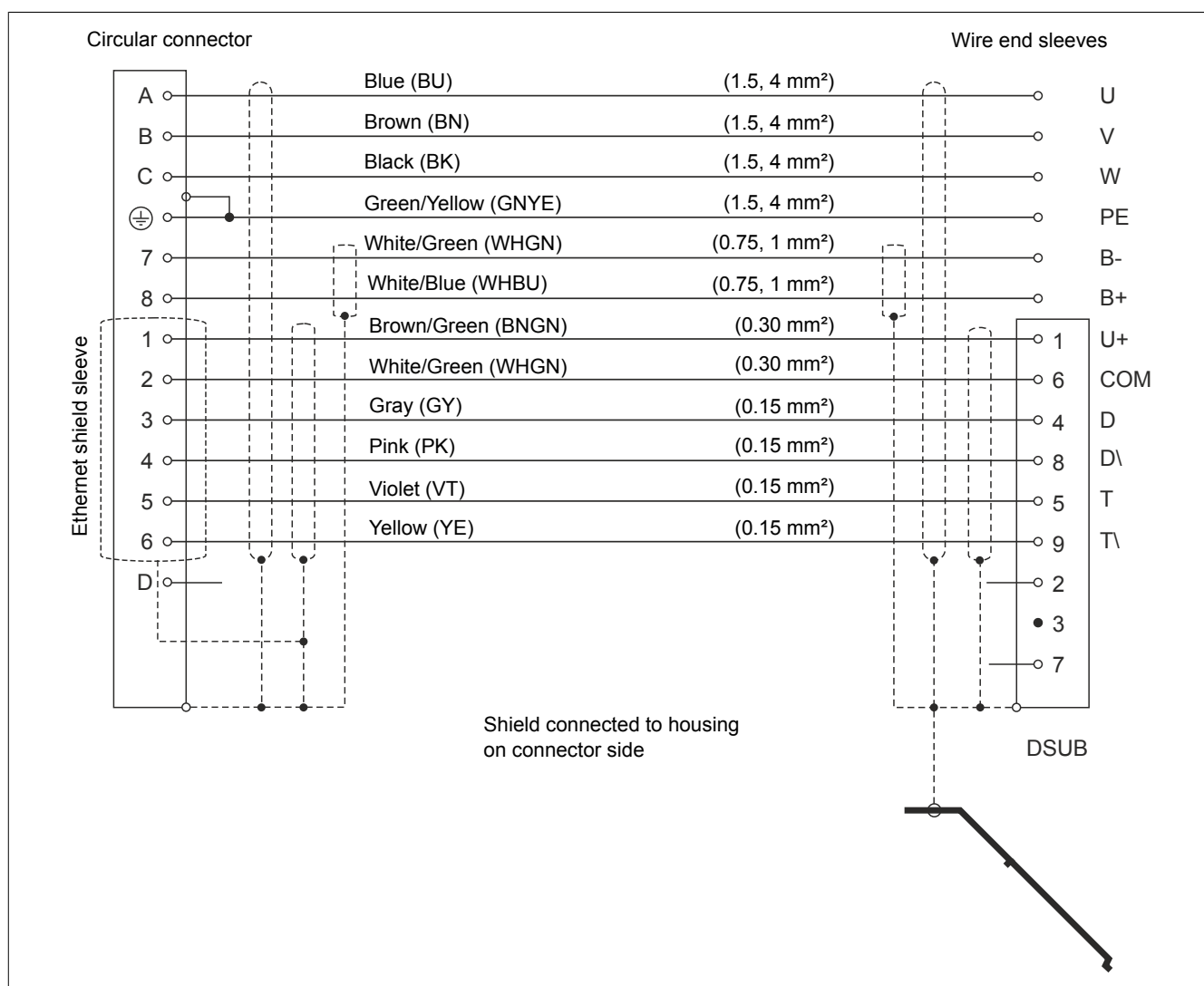


Figure 1: Hybrid motor cables - Cable diagram