

# 8BCE0050.1111A-0

## 1 General information

- UL/CSA listed
- Can be used in cable drag chains
- Assembled specifically for use with ACOPOSmulti drive systems and B&R servo motors with Y-Tec connectors
- speedtec - Innovative connector system for secure connections

## 2 Order data

| Model number     | Short description                                                                                                                                                                                                       | Figure                                                                              |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                  | <b>EnDat 2.1 cables</b>                                                                                                                                                                                                 |  |
| 8BCE0050.1111A-0 | ACOPOSmulti EnDat 2.1 cable, length 50 m, 10x 0.14 mm <sup>2</sup> + 2x 0.5 mm <sup>2</sup> , 17-pin female speedtec EnDat connector, 15-pin male DSUB servo connector, can be used in cable drag chains, UL/CSA listed |                                                                                     |

Table 1: 8BCE0050.1111A-0 - Order data

## 3 Technical data

| Model number                      | 8BCE0050.1111A-0                                                                                                                      |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>General information</b>        |                                                                                                                                       |
| Cable cross section               | 5x 2x 0.14 mm <sup>2</sup> + 1x 2x 0.50 mm <sup>2</sup>                                                                               |
| Durability                        | Oil resistance per VDE 0472 Part 803 as well as standard hydraulic oils <sup>1)</sup>                                                 |
| Certification                     | UL AWM style 20963, 80°C, 30 V, E63216 and CSA AWM I/II A/B, 90°C, 30 V, FT1 LL46064 <sup>1)</sup>                                    |
| Certifications                    |                                                                                                                                       |
| CE                                | Yes                                                                                                                                   |
| UL                                | cULus E225616<br>Power conversion equipment                                                                                           |
| <b>Cable construction</b>         |                                                                                                                                       |
| Supply lines                      |                                                                                                                                       |
| Quantity                          | 2                                                                                                                                     |
| Wire insulation                   | Special thermoplastic material                                                                                                        |
| Wire colors                       | White/Green, white/red                                                                                                                |
| Design                            | Tinned copper stranded wire                                                                                                           |
| Cross section                     | 0.5 mm <sup>2</sup>                                                                                                                   |
| Shield                            | No                                                                                                                                    |
| Stranding                         | White/Red with white/green and filler elements                                                                                        |
| Signal lines                      |                                                                                                                                       |
| Quantity                          | 10                                                                                                                                    |
| Wire insulation                   | Special thermoplastic material                                                                                                        |
| Wire colors                       | Blue, brown, yellow, gray, green, pink, red, black, violet, white                                                                     |
| Design                            | Tinned copper stranded wire                                                                                                           |
| Cross section                     | 0.14 mm <sup>2</sup>                                                                                                                  |
| Shield                            | No                                                                                                                                    |
| Stranding                         | Green with brown, gray with yellow, white with violet, black with red, pink with blue                                                 |
| Cable stranding                   | With terminating foil shield                                                                                                          |
| Complete shielding                | Copper braiding, optical coverage >85% and foil shield                                                                                |
| Outer jacket                      |                                                                                                                                       |
| Material                          | PUR                                                                                                                                   |
| Color                             | Green, similar to RAL 6018 flat                                                                                                       |
| Labeling                          | BERNECKER + RAINER 5x2x0.14+2x0.50 FLEX UL AWM STYLE<br>20963 80°C 30 V E63216 CSA AWM I/II A/B 90°C 30 V FT1 LL46064 <sup>1)</sup>   |
| <b>Connector</b>                  |                                                                                                                                       |
| Type                              | 17-pin female speedtec EnDat connector                                                                                                |
| Connection cycles                 | <500                                                                                                                                  |
| Contacts                          | 17                                                                                                                                    |
| Additional connectors             | 15-pin male DSUB servo connector<br>Connection cycles: <200<br>Contacts: 15<br>Degree of protection per EN 60529: IP20 when connected |
| Degree of protection per EN 60529 | IP66/67 when connected                                                                                                                |

Table 2: 8BCE0050.1111A-0 - Technical data

| Model number                                    | 8BCE0050.1111A-0         |
|-------------------------------------------------|--------------------------|
| <b>Electrical characteristics <sup>1)</sup></b> |                          |
| Operating voltage                               | $\leq 30 V_{eff}$        |
| Test voltage                                    |                          |
| Wire/Wire                                       | 1 kV                     |
| Wire/Shield                                     | 0.8 kV                   |
| Conductor resistance                            |                          |
| Supply lines                                    | $\leq 40 \Omega/km$      |
| Signal lines                                    | $\leq 140 \Omega/km$     |
| Insulation resistance                           | $> 200 M\Omega \cdot km$ |
| <b>Environmental conditions <sup>1)</sup></b>   |                          |
| Temperature                                     |                          |
| Moving                                          | -20°C to +80°C           |
| Static                                          | -20°C to +90°C           |
| <b>Mechanical characteristics <sup>1)</sup></b> |                          |
| Dimensions                                      |                          |
| Length                                          | 50 m                     |
| Diameter                                        | 7.85 mm $\pm$ 0.2 mm     |
| Bend radius                                     |                          |
| Single bend                                     | $\geq 24$ mm             |
| Moving                                          | $\geq 60$ mm             |
| Drag chain data                                 |                          |
| Acceleration                                    | $\leq 6$ g               |
| Flex cycles <sup>2)</sup>                       | $> 3,000,000$            |
| Speed                                           | $\leq 4$ m/s             |
| Weight                                          | 4 kg                     |

Table 2: 8BCE0050.1111A-0 - Technical data

- 1) Values refer to the raw cable being used.  
2) At an ambient temperature of 20°C and bend radius of 65 mm.

## 4 Wiring

### 4.1 Construction

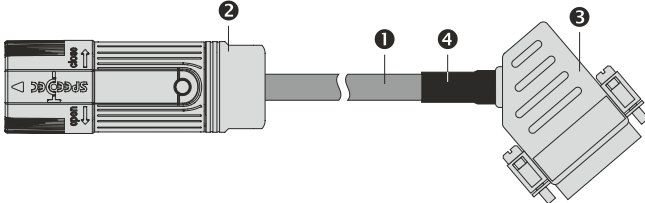
|  |                                        |                                                     |
|--------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------|
| Pos.                                                                                 | Description                            | Note                                                |
| 1                                                                                    | Encoder line                           | 5x 2x 0.14 mm <sup>2</sup> + 2x 0.5 mm <sup>2</sup> |
| 2                                                                                    | 17-pin female circular connector       |                                                     |
| 3                                                                                    | DSUB housing 45°, metal-plated, 15-pin |                                                     |
| 4                                                                                    | Heat shrink tubing                     |                                                     |

Table 3: 8BCE EnDat 2.1 cables - Construction

### 4.2 Pinout

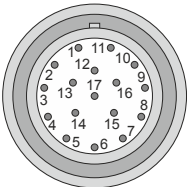
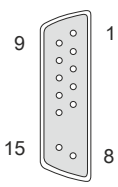
| Circular connector                                                                  | Pin | Description                 | Function                  | Pin | DSUB connector                                                                        |
|-------------------------------------------------------------------------------------|-----|-----------------------------|---------------------------|-----|---------------------------------------------------------------------------------------|
|  | 15  | A                           | Channel A                 | 1   |  |
|                                                                                     | 10  | COM (1, 3 - 9, 11, 13 - 15) | Encoder power supply 0 V  | 2   |                                                                                       |
|                                                                                     | 12  | B                           | Channel B                 | 3   |                                                                                       |
|                                                                                     | 7   | +5 V out / 0.25 A           | Encoder power supply +5 V | 4   |                                                                                       |
|                                                                                     | 14  | D                           | Data input                | 5   |                                                                                       |
|                                                                                     | 8   | T                           | Clock output              | 8   |                                                                                       |
|                                                                                     | 16  | A\                          | Channel A inverted        | 9   |                                                                                       |
|                                                                                     | 4   | Sense COM                   | Sense input 0 V           | 10  |                                                                                       |
|                                                                                     | 13  | B\                          | Channel B inverted        | 11  |                                                                                       |
|                                                                                     | 1   | Sense +5 V                  | Sense input +5 V          | 12  |                                                                                       |
|                                                                                     | 17  | D\                          | Data inverted             | 13  |                                                                                       |
|                                                                                     | 9   | T\                          | Clock output inverted     | 15  |                                                                                       |

Table 4: 8BCE EnDat 2.1 cables - Pinout

### 4.3 Cable diagram

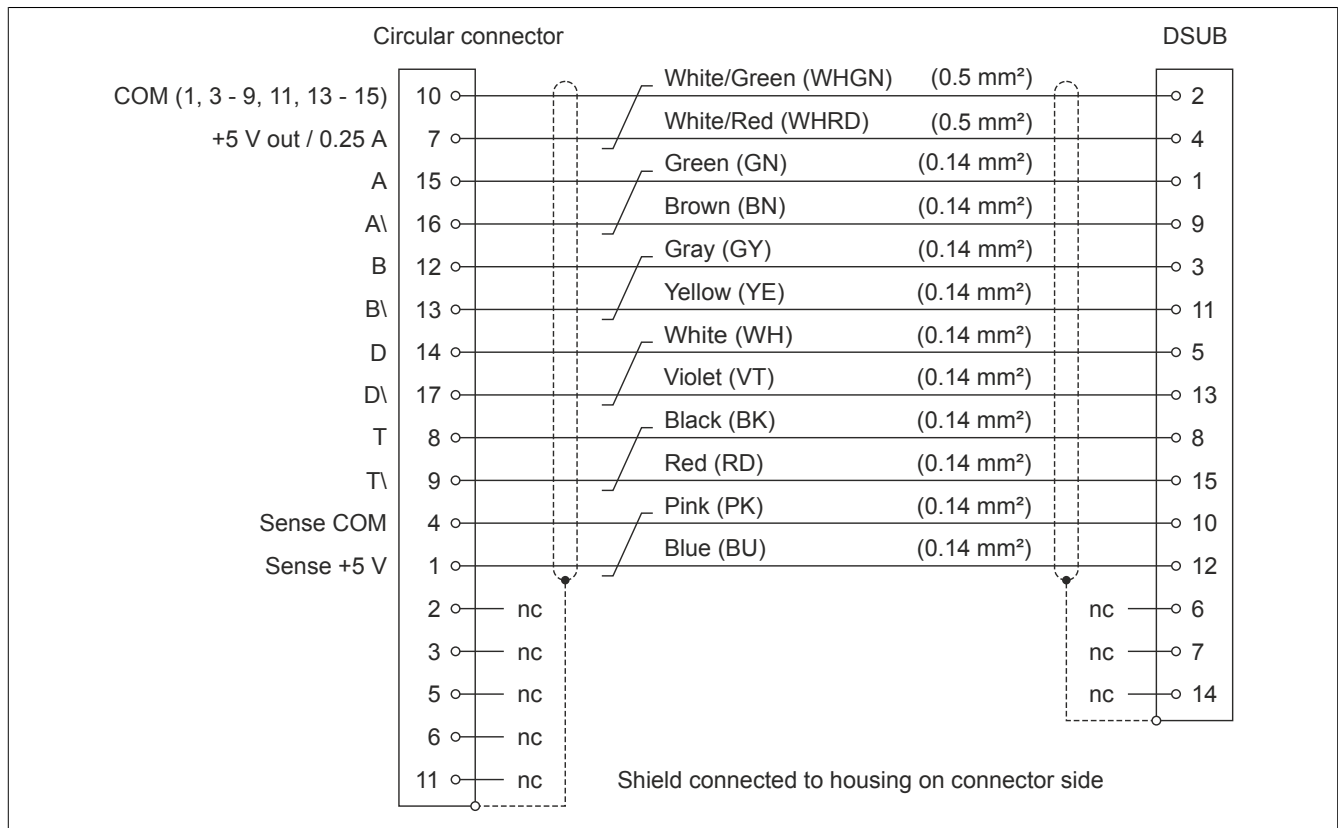


Figure 1: 8BCE EnDat 2.1 cables - Cable diagram