

# 8BCE0020.3111A-0

## 1 General information

- Extremely flexible
- Assembled specifically for use with ACOPOSmulti drive systems and B&R servo motors
- speedtec - Innovative connector system for secure connections

## 2 Order data

| Order number     | Short description                                                                                                                                                                                 | Figure                                                                              |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 8BCE0020.3111A-0 | <b>EnDat 2.1 cables</b><br>ACOPOSmulti EnDat 2.1 cable, length 20 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 |  |

Table 1: 8BCE0020.3111A-0 - Order data

## 3 Technical data

| Order number                      | 8BCE0020.3111A-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 DIN VDE 0281-1 (TM5) (HD 21.1 / DIN EN 60811-1-1/2-1)<br>Flame resistance per IEC 60332-1-2 <sup>1)</sup> |
| Certification                     | E130266 cURus AWM STYLE 2637 and AWM I/II A/B 90°C 30 V FT1 <sup>1)</sup>                                                    |
| Certifications                    |                                                                                                                              |
| CE                                | Yes                                                                                                                          |
| UKCA                              | Yes                                                                                                                          |
| UL                                | cULus E225616<br>Power conversion equipment                                                                                  |
| <b>Cable construction</b>         |                                                                                                                              |
| Supply lines                      |                                                                                                                              |
| Quantity                          | 2                                                                                                                            |
| Wire insulation                   | PVC                                                                                                                          |
| Wire colors                       | White/Green, white/red                                                                                                       |
| Variant                           | Tinned copper stranded wire                                                                                                  |
| Cross section                     | 0.5 mm <sup>2</sup>                                                                                                          |
| Shield                            | No                                                                                                                           |
| Stranding                         | White/Red with white/green and filler elements                                                                               |
| Signal line                       |                                                                                                                              |
| Quantity                          | 10                                                                                                                           |
| Wire insulation                   | PVC                                                                                                                          |
| Wire colors                       | Blue, brown, yellow, gray, green, pink, red, black, violet, white                                                            |
| Variant                           | 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                                                                                                 |
| Cable shield                      | Copper braiding, optical coverage >85% and foil shield                                                                       |
| Outer jacket                      |                                                                                                                              |
| Material                          | PVC                                                                                                                          |
| Color                             | Green                                                                                                                        |
| Labeling                          | B&R 5x2x0.14 + 1x2x0.5 * E130266 cURus AWM STYLE 2637 * AWM I/II A/B 90°C 30 V FT1 * <Batch number> <sup>1)</sup>            |
| <b>Connector</b>                  |                                                                                                                              |
| Type                              | 17-pin female speedtec EnDat connector                                                                                       |
| Mating cycles                     | <500                                                                                                                         |
| Contacts                          | 17                                                                                                                           |
| Additional connectors             | 15-pin male DSUB servo connector<br>Mating cycles: <200<br>Contacts: 15                                                      |
| Degree of protection per EN 60529 | Degree of protection per EN 60529: IP20 when connected<br>IP66/67 when connected                                             |

Table 2: 8BCE0020.3111A-0 - Technical data

| Order number                               | 8BCE0020.3111A-0 |
|--------------------------------------------|------------------|
| <b>Electrical properties <sup>1)</sup></b> |                  |
| Test voltage                               |                  |
| Wire - Wire                                | 1 kV             |
| Wire - Shield                              | 0.8 kV           |
| Conductor resistance                       |                  |
| Supply lines                               | ≤40 Ω/km         |
| Signal line                                | ≤140 Ω/km        |
| Insulation resistance                      | ≥20 MΩ*km        |
| <b>Ambient conditions <sup>1)</sup></b>    |                  |
| Temperature                                |                  |
| Moving                                     | -20°C to +80°C   |
| Static                                     | -20°C to +90°C   |
| <b>Mechanical properties <sup>1)</sup></b> |                  |
| Dimensions                                 |                  |
| Length                                     | 20 m             |
| Diameter                                   | 7.6 mm ±0.2 mm   |
| Bend radius                                |                  |
| Single bend                                | ≥31 mm           |
| Moving                                     | ≥62 mm           |
| Weight                                     | 1.7 kg           |

Table 2: 8BCE0020.3111A-0 - Technical data

1) Values refer to the raw cable being used.

## 4 Wiring

### 4.1 Construction

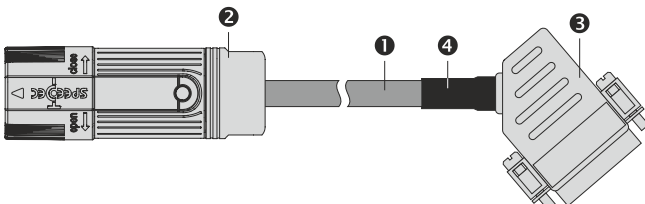
|  |                                        |                                                     |
|-------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------|
| Pos.                                                                                | Description                            | Note                                                |
| 1                                                                                   | Encoder cable                          | 5x 2x 0.14 mm <sup>2</sup> + 2x 0.5 mm <sup>2</sup> |
| 2                                                                                   | 17-pin female circular connector       | Dimensions: ø 26 x 58 mm                            |
| 3                                                                                   | DSUB housing 45°, metal-plated, 15-pin | Dimensions: 31 x 15 x 40 mm                         |
| 4                                                                                   | Heat shrink tubing                     |                                                     |

Table 3: 8BCE EnDat 2.1 cables - Construction

### 4.2 Pinout

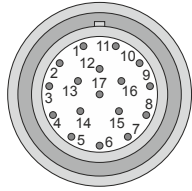
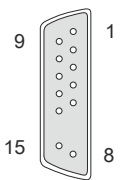
| Circular connector                                                                  | Pin | Description                 | Function                  | Pin | DSUB connector                                                                        |
|-------------------------------------------------------------------------------------|-----|-----------------------------|---------------------------|-----|---------------------------------------------------------------------------------------|
|  | 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

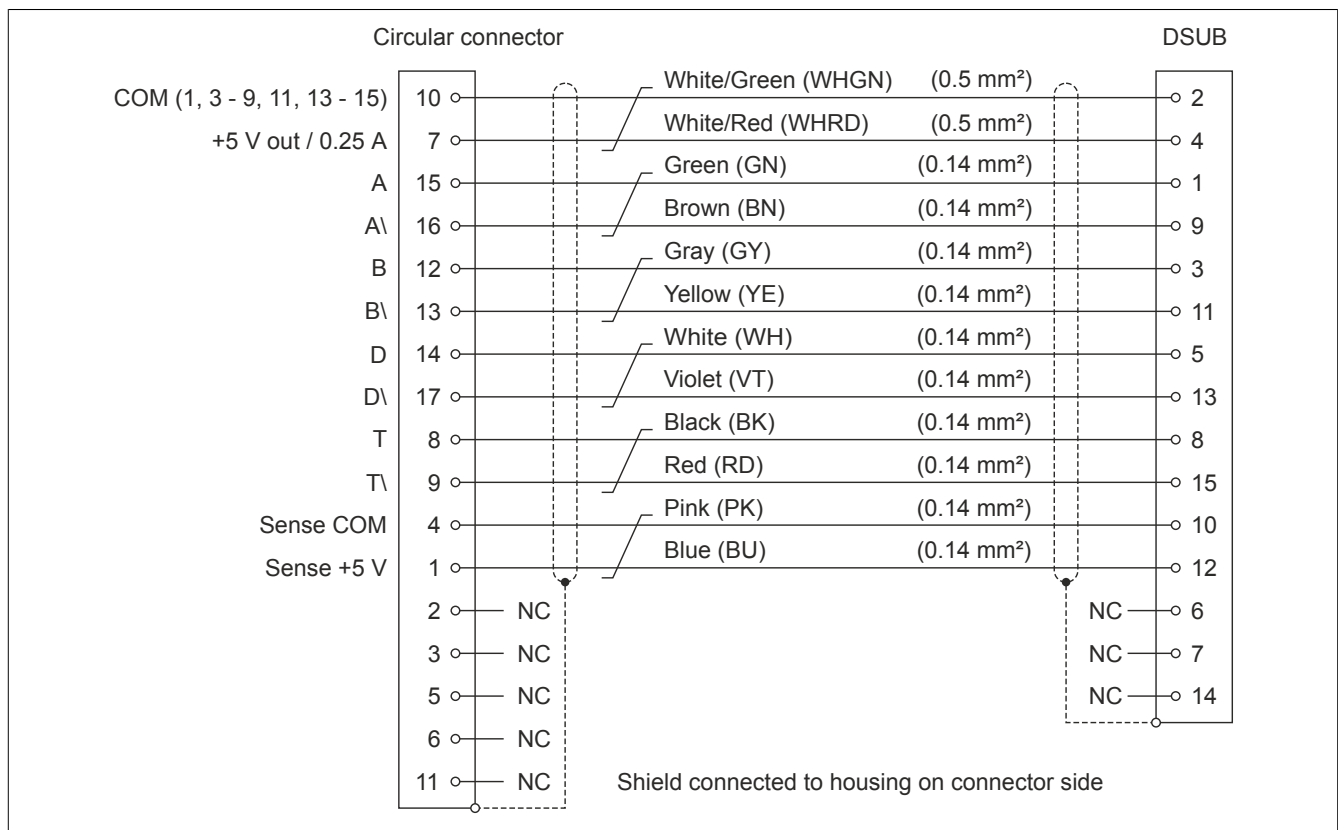


Figure 1: 8BCE EnDat 2.1 cables - Cable diagram