# 8BCH0003.5221A-0

## 1 Order data

| Model number | Short description | Figure |
|---|---|---|
| | **2.5 mm² hybrid motor cable food grade** | |
| 8BCH0003.5221A-0 | ACOPOSmulti hybrid motor cable, length 3 m, 4x 2.5 mm² + 2x 0.75 mm² + 2x 0.24 mm² + 2x 2x 0.15 mm², 13-pin female circular connector made of stainless steel, food grade, UL/CSA listed |  |

Table 1: 8BCH0003.5221A-0 - Order data

## 2 Technical data

| Model number | 8BCH0003.5221A-0 |
|---|---|
| **General information** | |
| Cable cross section | 4x 2.5 mm² + 2x 0.75 mm² + (2x 0.24 mm² + 2x 2x 0.15 mm²) |
| Durability | Oil resistance per EN 60811-2-1 [1)] |
| Certification | UL AWM style 21223, 80°C, 1000 V and CSA C22.2 no. 210 I/II A/B FT1; FDA Code of Federal Regulations, Title 21 (CFR21), section 177.1550, "Perfluorocarbon resins" [1)] |
| Certifications | |
| CE | Yes |
| UL | cULus E225616<br>Power conversion equipment |
| **Cable construction** | |
| Power lines | |
| Quantity | 4 |
| Wire insulation | Special thermoplastic material |
| Wire colors | Black, brown, blue, yellow/green |
| Design | Tinned copper stranded wire |
| Cross section | 2.5 mm² |
| Shield | No |
| Stranding | No |
| Supply lines | |
| Quantity | 2 |
| Wire insulation | Special thermoplastic material |
| Wire colors | White/Blue, white/green |
| Design | Tinned copper stranded wire |
| Cross section | 0.24 mm² |
| Shield | Yes |
| Stranding | No |
| Signal lines | |
| Quantity | 6 |
| Wire insulation | Special thermoplastic material |
| Wire colors | Blue/Green, white/green, gray/pink, yellow/violet |
| Design | Tinned copper stranded wire |
| Cross section | 2x 0.75 mm², 4x 0.15 mm² |
| Shield | 0.75 mm² shielding for pairs, complete shielding (4x 0.15 mm²), tinned copper braiding, optical coverage >85% and foil shield |
| Stranding | White/Blue with white/green, pink with gray and yellow with violet |
| Cable stranding | With filler elements and foil shield |
| Complete shielding | Tinned copper braiding, optical coverage >85% and foil shield |
| Outer jacket | |
| Material | FEP |
| Color | Orange, similar to RAL 2003 flat |
| Labeling | B&R 4x2.5 + 2x0.75 + (2x2x26AWG + 2x1x24AWG) *<br>E130266 * UL AWM STYLE 21619 150°C 1000 V FT1 [1)] |
| **Connector** | |
| Type | 13-pin female stainless steel circular connector |
| Connection cycles | <500 |
| Contacts | 13 |
| Additional connectors | 9-pin male DSUB connector<br>Connection cycles: <200<br>Contacts: 9<br>Degree of protection per EN 60529: IP20 when connected |
| Degree of protection per EN 60529 | IP69K when connected |

Table 2: 8BCH0003.5221A-0 - Technical data

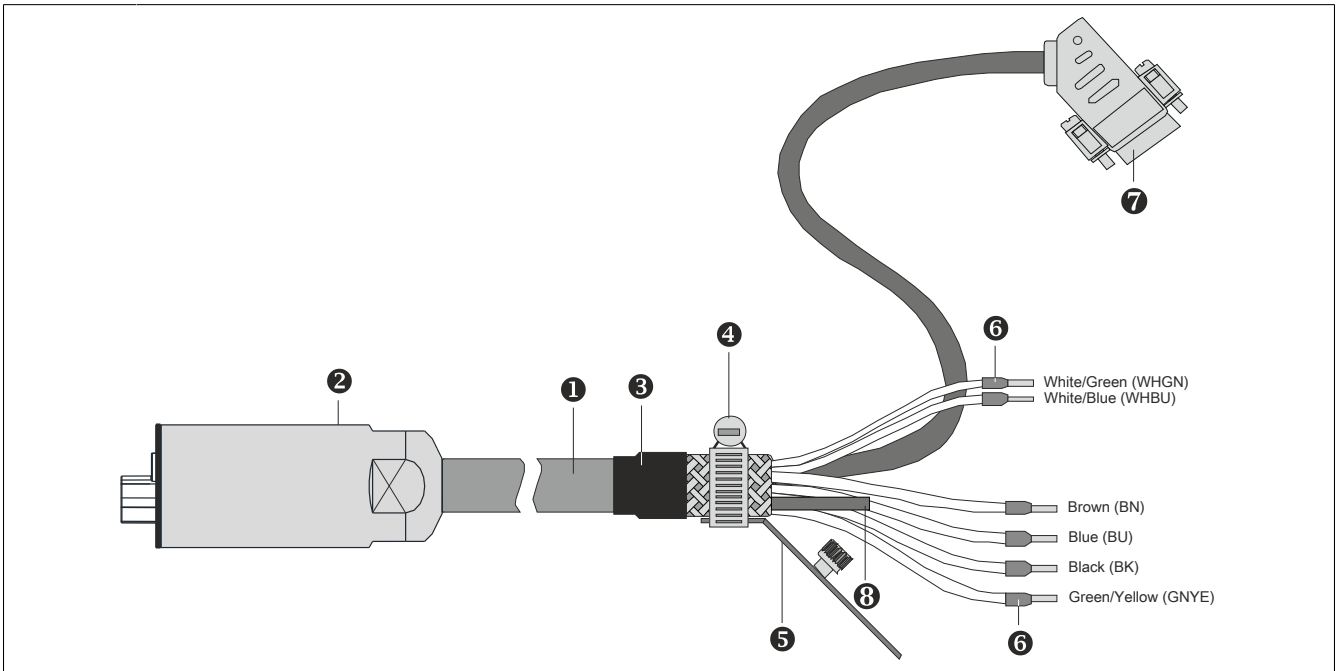
| Model number | 8BCH0003.5221A-0 |
|---|---|
| **Electrical characteristics** [1] | |
| Test voltage | |
| Wire/Wire | 4 kV |
| Wire/Shield | 4 kV |
| Conductor resistance | |
| Power lines | ≤8.2 Ω/km |
| Supply lines | ≤84 Ω/km |
| Signal lines | 0.75 mm²: ≤26 Ω/km, 0.15 mm²: ≤140 Ω/km |
| Insulation resistance | ≤500 Ω*km |
| Current-carrying capacity per DIN VDE 0298 part 4, table 11 | |
| Wall mounting | 31.9 A |
| Installed in conduit or cable duct | 36.4 A |
| Installed in cable tray | 38.2 A |
| **Environmental conditions** [1] | |
| Temperature | |
| Moving | -20°C to +150°C |
| Static | -20°C to +150°C |
| **Mechanical characteristics** [1] | |
| Dimensions | |
| Length | 3 m |
| Diameter | 12.7 mm ± 0.3 mm |
| Bend radius | |
| Single bend | >52 mm |
| Moving | ≥104 mm |
| Weight | 0.9 kg |

Table 2: 8BCH0003.5221A-0 - Technical data

1) Values refer to the raw cable being used.

# 3 Wiring

## 3.1 Cable construction




| Pos. | Description | Note |
|---|---|---|
| 1 | Hybrid cable | 4x 2.5 mm² + 2x 0.75 mm² + (2x 0.24 mm² + 2x 2x 0.15 mm²) + PA6 hose |
| 2 | 13-pin stainless steel circular connector | |
| 3 | Self-adhesive heat shrink tubing | |
| 4 | Cable clamp | |
| 5 | Shield mounting | |
| 6 | Wire end sleeves | |
| 7 | DSUB housing | |
| 8 | PA6 tube (length: 3 cm) | |

Table 3: 2.5 mm² food-grade hybrid motor cables - Cable construction

## 3.2 Pinout

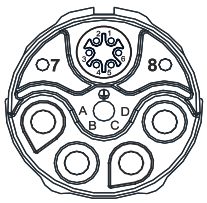
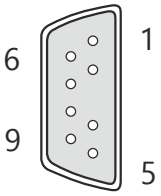
| Circular connector | Pin | Description | Function | Pin | DSUB connector |
|---|---|---|---|---|---|
|  | 6 | T\ | Clock output inverted | 9 |  |
| | 1 | U+ | Encoder power supply +12 V | 1 | |
| | 2 | COM | Encoder power supply 0 V | 6 | |
| | 3 | D | Data | 4 | |
| | 4 | D\ | Data inverted | 8 | |
| | 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 4: 2.5 mm² food-grade hybrid motor cables - Pinout

## 3.3 Cable diagram

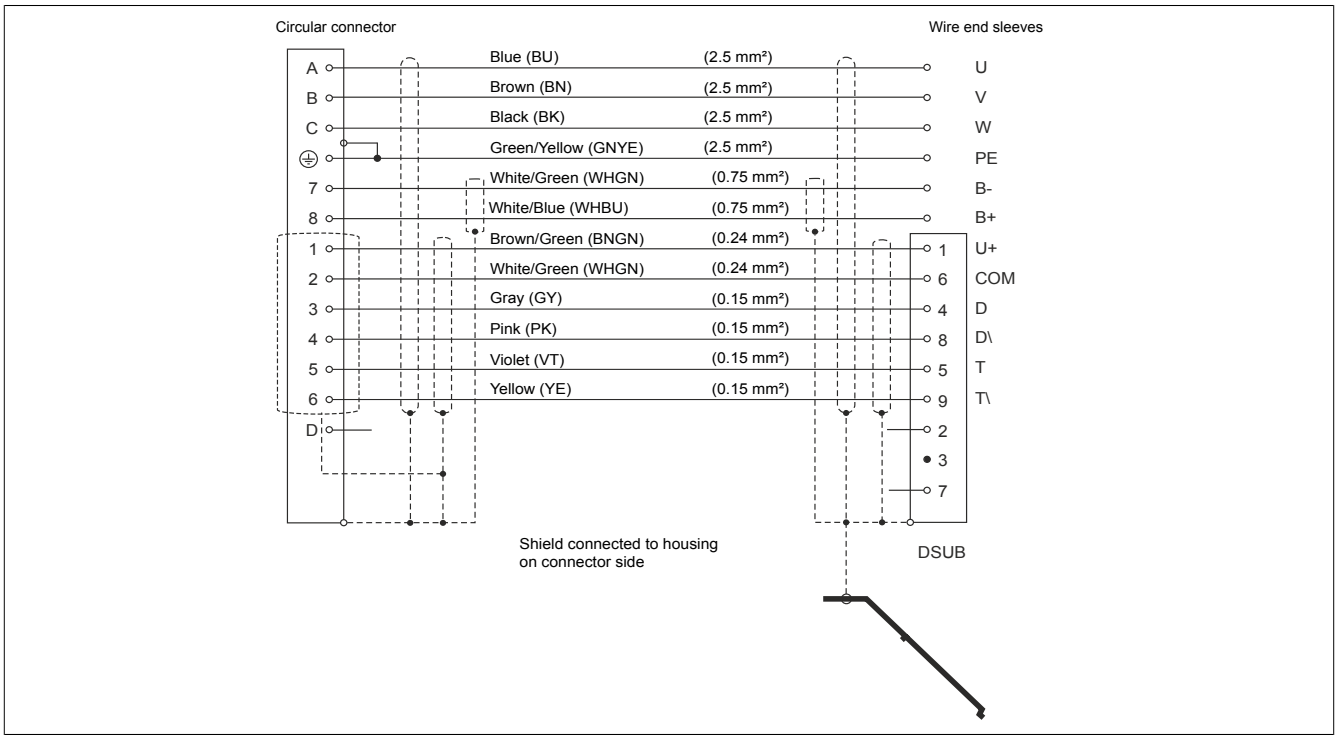



Figure 1: 2.5 mm² food-grade hybrid motor cables - Cable diagram