

BS5308 Instrumentation Cable Part 1 Type 1

Eland Product Group Reference **A3I**

Application

BS5308 cables are used to carry voice and data services, they also serve as the interconnection between electrical equipment and instruments, particularly in and around process plants, where transducer generated signals are transmitted through to panels, controllers and other devices.



Standards

BS5308 Part 1

Conductor

Class 1, 2 or 5 plain copper conductors to BS EN 60228:2005 (previously BS6360)

Pairing

Two insulated conductors uniformly twisted together with a lay not exceeding 100mm

Insulation

PE (Polyethylene) to BS6234 or XLPE (Cross Linked Polyethylene) to BS5308 or LSZH (Low Smoke Zero Halogen)

Drain Wire

Tinned copper

Filler Core

Unspecified material

Screen

Individually Screened Pairs:
Aluminium/Polyester tape is applied to each pair, metallic side down and in continuous contact with a 0.5mm² tinned copper drain wire

Collectively Screened Cables:

Aluminium/Polyester tape is applied over the laid up pairs metallic side down and in continuous contact with a 0.5mm² tinned copper drain wire

Sheath

PVC (Polyvinyl Chloride) to BS7655 or LSZH (Low Smoke Zero Halogen)

Sheath Colour

Blue or Black

Voltage Rating

300/500V

Temperature Rating

Fixed: -30°C to + 70°C
Flexing: -5°C to + 50°C

Pair Identification

See Pair Identification table on page 2

Note

These cables are not suitable for direct connection to the public mains supply

Dimensions

BS5308 PT1 TY1 Collectively Screened, Unarmoured

| Eland Part Number | No. of Pairs x Nominal Cross Sectional Area # x mm ² | Nominal No. and Nominal Diameter of Strands #/mm | Nominal Overall Diameter mm | Nominal Weight kg/Km |
|-------------------|--|---|--------------------------------|-------------------------|
| A3I0105CP1T1* | 1 x 0.50 | 16/0.2 | 7.0 | 60 |
| A3I0175CP1T1* | 1 x 0.75** | 24/0.2 | 7.3 | 75 |
| A3I0110CP1T1* | 1 x 1.00 | 1/1.13 | 7.4 | 85 |
| A3I0115CP1T1* | 1 x 1.50 | 7/0.53 | 8.3 | 100 |
| A3I0205CP1T1* | 2 x 0.50 | 16/0.2 | 7.9 | 80 |
| A3I0275CP1T1* | 2 x 0.75** | 24/0.2 | 8.3 | 100 |
| A3I0210CP1T1* | 2 x 1.00 | 1/1.13 | 8.4 | 115 |
| A3I0215CP1T1* | 2 x 1.50 | 7/0.53 | 9.7 | 150 |
| A3I0505CP1T1* | 5 x 0.50 | 16/0.2 | 13.1 | 210 |
| A3I0575CP1T1* | 5 x 0.75** | 24/0.2 | 14.3 | 250 |
| A3I0510CP1T1* | 5 x 1.00 | 1/1.13 | 14.2 | 290 |
| A3I0515CP1T1* | 5 x 1.50 | 7/0.53 | 16.4 | 360 |
| A3I1005CP1T1* | 10 x 0.50 | 16/0.2 | 17.2 | 340 |
| A3I1075CP1T1* | 10 x 0.75** | 24/0.2 | 18.7 | 450 |
| A3I1010CP1T1* | 10 x 1.00 | 1/1.13 | 18.4 | 500 |
| A3I1015CP1T1* | 10 x 1.50 | 7/0.53 | 21.6 | 690 |
| A3I2005CP1T1* | 20 x 0.50 | 16/0.2 | 22.3 | 570 |
| A3I2075CP1T1* | 20 x 0.75** | 24/0.2 | 24.5 | 920 |
| A3I2010CP1T1* | 20 x 1.00 | 1/1.13 | 24.4 | 950 |
| A3I2015CP1T1* | 20 x 1.50 | 7/0.53 | 28.5 | 1230 |
| A3I3005CP1T1* | 30 x 0.50 | 16/0.2 | 26.9 | 780 |
| A3I3075CP1T1* | 30 x 0.75** | 24/0.2 | 29.5 | 980 |
| A3I3010CP1T1* | 30 x 1.00 | 1/1.13 | 29.0 | 1030 |
| A3I3015CP1T1* | 30 x 1.50 | 7/0.53 | 34.3 | 1560 |
| A3I5005CP1T1* | 50 x 0.50 | 16/0.2 | 33.9 | 1130 |
| A3I5075CP1T1* | 50 x 0.75** | 24/0.2 | 37.4 | 1690 |
| A3I5010CP1T1* | 50 x 1.00 | 1/1.13 | 37.3 | 1750 |
| A3I5015CP1T1* | 50 x 1.50 | 7/0.53 | 43.6 | 2400 |

*Designates the sheath colour. For Black substitute * for BK and for Blue substitute * for BL

**0.75mm² conductor generally to BS5308 Part 1

BS5308 PT1 TY1 Individually and Collectively Screened, Unarmoured

| Eland Part Number | No. of Pairs x Nominal Cross Sectional Area # x mm ² | Nominal No. and Nominal Diameter of Strands #/mm | Nominal Overall Diameter mm | Nominal Weight kg/Km |
|-------------------|--|---|--------------------------------|-------------------------|
| A3I0205IP1T1* | 2 x 0.50 | 16/0.2 | 12.0 | 100 |
| A3I0275IP1T1* | 2 x 0.75** | 24/0.2 | 12.8 | 190 |
| A3I0210IP1T1* | 2 x 1.00 | 1/1.13 | 12.8 | 200 |
| A3I0215IP1T1* | 2 x 1.50 | 7/0.53 | 14.7 | 250 |
| A3I0505IP1T1* | 5 x 0.50 | 16/0.2 | 15.2 | 250 |
| A3I0575IP1T1* | 5 x 0.75** | 24/0.2 | 16.3 | 270 |
| A3I0510IP1T1* | 5 x 1.00 | 1/1.13 | 16.2 | 290 |
| A3I0515IP1T1* | 5 x 1.50 | 7/0.53 | 18.8 | 460 |
| A3I1005IP1T1* | 10 x 0.50 | 16/0.2 | 21.1 | 480 |
| A3I1075IP1T1* | 10 x 0.75** | 24/0.2 | 22.6 | 550 |
| A3I1010IP1T1* | 10 x 1.00 | 1/1.13 | 22.6 | 580 |
| A3I1015IP1T1* | 10 x 1.50 | 7/0.53 | 26.5 | 760 |

Datasheet Continues »

| Eland Part Number | No. of Pairs x Nominal Cross Sectional Area # x mm ² | Nominal No. and Nominal Diameter of Strands #/mm | Nominal Overall Diameter mm | Nominal Weight kg/Km |
|-------------------|---|--|-----------------------------|----------------------|
| A3I2005IP1T1* | 20 x 0.50 | 16/0.2 | 27.3 | 780 |
| A3I2075IP1T1* | 20 x 0.75** | 24/0.2 | 29.8 | 960 |
| A3I2010IP1T1* | 20 x 1.00 | 1/1.13 | 29.8 | 1010 |
| A3I2015IP1T1* | 20 x 1.50 | 7/0.53 | 34.4 | 1350 |
| A3I3005IP1T1* | 30 x 0.50 | 16/0.2 | 32.3 | 1020 |
| A3I3075IP1T1* | 30 x 0.75** | 24/0.2 | 35.9 | 1100 |
| A3I3010IP1T1* | 30 x 1.00 | 1/1.13 | 35.4 | 1430 |
| A3I3015IP1T1* | 30 x 1.50 | 7/0.53 | 41.0 | 1900 |
| A3I5005IP1T1* | 50 x 0.50 | 16/0.2 | 41.7 | 1680 |
| A3I5075IP1T1* | 50 x 0.75** | 24/0.2 | 45.0 | 2210 |
| A3I5010IP1T1* | 50 x 1.00 | 1/1.13 | 44.9 | 2360 |
| A3I5015IP1T1* | 50 x 1.50 | 7/0.53 | 52.2 | 3060 |

*Designates the sheath colour. For Black substitute * for BK and for Blue substitute * for BL
 **0.75mm² conductor generally to BS5308 Part 1

Electrical Characteristics

Mutual Capacitance (picofarads per metre) and Resistance Values (ohms per kilometre)

| Nominal Cross Sectional Area (Nominal No. and Nominal Diameter of Strands) mm ² (#/mm) | Capacitance at 1kHz pF/m | | Maximum Resistance of Conductor at 20°C ohms/Km | L/R Ratio Maximum Value microH/ohm |
|---|--|--|---|------------------------------------|
| | Cables with only Collective Screens (Except One Pair and Two Pair) | One Pair and Two Pair Cables Collectively Screened and all Cables with Individually Screened Pairs | | |
| 0.50 | 75 | 115 | 39.0 | 25 |
| 0.75* | 75 | 115 | 24.5 | 25 |
| 1.00 | 75 | 115 | 18.1 | 25 |
| 1.50 | 85 | 115 | 12.1 | 40 |

*0.75mm² conductor generally to BS5308 Part 1

Pair Identification

| No. of Pairs | Element A | Element B | No. of Pairs | Element A | Element B | No. of Pairs | Element A | Element B |
|--------------|-----------|-----------|--------------|-----------|-----------|-----------------------|---------------------------|-----------|
| 1 | Black | Blue | 19 | Brown | Orange | 36 | Yellow | Grey |
| 2 | Black | Green | 20 | White | Orange | 37 | Black | Violet |
| 3 | Blue | Green | 21 | Red | Orange | 38 | Blue | Violet |
| 4 | Black | Brown | 22 | Black | Yellow | 39 | Green | Violet |
| 5 | Blue | Brown | 23 | Blue | Yellow | 40 | Brown | Violet |
| 6 | Green | Brown | 24 | Green | Yellow | 41 | White | Violet |
| 7 | Black | White | 25 | Brown | Yellow | 42 | Red | Violet |
| 8 | Blue | White | 26 | White | Yellow | 43 | Orange | Violet |
| 9 | Green | White | 27 | Red | Yellow | 44 | Yellow | Violet |
| 10 | Brown | White | 28 | Orange | Yellow | 45 | Grey | Violet |
| 11 | Black | Red | 29 | Black | Grey | 46 | Black | Turquoise |
| 12 | Blue | Red | 30 | Blue | Grey | 47 | Blue | Turquoise |
| 13 | Green | Red | 31 | Green | Grey | 48 | Green | Turquoise |
| 14 | Brown | Red | 32 | Brown | Grey | 49 | Brown | Turquoise |
| 15 | White | Red | 33 | White | Grey | 50 | White | Turquoise |
| 16 | Black | Orange | 34 | Red | Grey | Single Quad (2 Pairs) | Black, Blue, Green, Brown | |
| 17 | Blue | Orange | 35 | Orange | Grey | | | |
| 18 | Green | Orange | | | | | | |

Note: Two-pair unscreened cables shall be cabled in quad formation and colour coded in clockwise order of rotation: Black, Blue, Green, Brown. All other cables up to 50 pairs shall conform to the coding in the table above.