



# HES Cabling Systems

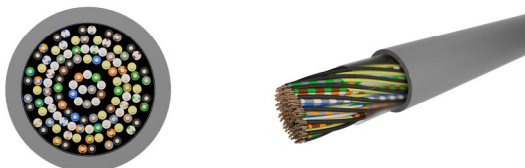
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## Technical Specification

Cable Type: 1-204x2x0.5 Indoor Switchboard Cable BC Grey LS0H Jacket

Part Number: AU8nnE9L

Revision: 09/24 Date: 25/07/2024 Page 1 of 2



1 to 204 Pair PVC Insulated and LS0H (HFFR) jacketed indoor cables for switchboard and internal telecom installations.

The cables conform to the following standards: British Telecom CW1293 and CW110J, Bezeq 74.7 & SI 1155 (up to 102 pairs, except the outer jacket).

### Physical Description

|                                         |                                                                                                                                                                                                                                                       |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic conductor                         | Solid 24 AWG bare annealed copper                                                                                                                                                                                                                     |
| Basic conductor OD                      | 0.495 mm min. 0.510mm max.                                                                                                                                                                                                                            |
| Insulation type                         | SR-PVC. Min. Tensile strength: 18.5 N/mm <sup>2</sup> . Min. Elongation: 125%                                                                                                                                                                         |
| Insulation thickness                    | 0.15 mm min.                                                                                                                                                                                                                                          |
| Insulation OD                           | 0.92 mm nom. 1.0 mm max. O.D.                                                                                                                                                                                                                         |
| Pair arrangement                        | Concentric cabling except 200-Pair & 204-Pair cables                                                                                                                                                                                                  |
| Color code                              | Bezeq Spec. 74 and BPO CW(M)110 (Page 2)                                                                                                                                                                                                              |
| Overall cable binder (under the jacket) | Polyester tape warp                                                                                                                                                                                                                                   |
| Rip cord for easy jacket removal        | Polyamide rip-cord, 100N min. tensile strength                                                                                                                                                                                                        |
| Outer jacket                            | LS0H Halogen-Free and Flame-retardant compound for indoor use                                                                                                                                                                                         |
| Jacket color                            | Grey RAL 7005                                                                                                                                                                                                                                         |
| Surface marking                         | HCS AU8nnE9L nnx2x0.5 TELECOM CABLE HFFR JACKET FR IEC 60332-1 CE 2011/65/EU (RoHS-2) [Month, Year]<br>[Batch Number] [Sequential Meter Mark] METER<br>nn shall be replaced with the actual number of pairs in the cable as shown in the table below. |

Note

### Mechanical Properties

|                                        |                                                                                                                                                                                                                                               |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bend radius                            | 10xD min.                                                                                                                                                                                                                                     |
| Storage temperature rating             | -20 to +80°C                                                                                                                                                                                                                                  |
| Temperature rating during installation | 0 to +50°C                                                                                                                                                                                                                                    |
| Insulation shrink test                 | 200mm insulated wire wrapped around a metal mandrel forming a wrapped length of 25mm. Both wire ends are kept straight for 25mm. The mandrel is conditioned for 2h @ 120C. The exposed conductor length in either end shall not exceed 1.5mm. |
| Flame test                             | IEC 60332-1                                                                                                                                                                                                                                   |
| Cold bend                              | -15°C.                                                                                                                                                                                                                                        |

### Electrical Properties @ 20°C

|                       |                                               |
|-----------------------|-----------------------------------------------|
| DC resistance         | 96.0 Ω/km max.                                |
| Insulation resistance | 800 MΩ·km min. between conductors (dry cable) |
| Insulation resistance | 80 MΩ·km min. single conductor (in water)     |
| Impedance             | 100 Ω nom. at LF.                             |
| Mutual capacitance    | 100 pF/m max. @ 0.8-1 kHz                     |
| Capacitance unbalance | 250 pF/500m max.                              |
| Voltage rating        | 72 Vdc max.                                   |
| Dielectric strength   | 2000V/ 1 minute.                              |

### Construction types

| HCS P/N  | Cable Construction         | Jacket Thickness | Cable OD |         | Total Weight<br>kg/km |
|----------|----------------------------|------------------|----------|---------|-----------------------|
|          |                            | Min. mm          | Nom. mm  | Max. mm |                       |
| AU801E9L | 1 x 2 x 0.5                | 0.4              | 3.2      | 3.5     | 15                    |
| AU802E9L | 2 x 2 x 0.5                | 0.4              | 4.3      | 4.8     | 20                    |
| AU803E9L | 3 x 2 x 0.5                | 0.5              | 4.9      | 5.3     | 30                    |
| AU804E9L | 4 x 2 x 0.5                | 0.5              | 5.4      | 5.8     | 36                    |
| AU805E9L | 5 x 2 x 0.5                | 0.6              | 6.1      | 6.4     | 48                    |
| AU806E9L | 6 x 2 x 0.5                | 0.7              | 6.4      | 6.8     | 56                    |
| AU808E9L | 8 x 2 x 0.5                | 0.7              | 6.9      | 7.6     | 65                    |
| AU810E9L | 10 x 2 x 0.5               | 0.7              | 7.7      | 8.2     | 82                    |
| AU812E9L | 12 x 2 x 0.5               | 0.7              | 8.2      | 8.6     | 90                    |
| AU816E9L | 16 x 2 x 0.5               | 0.8              | 9.3      | 10.0    | 125                   |
| AU820E9L | 20 x 2 x 0.5               | 0.8              | 9.8      | 10.5    | 145                   |
| AU824E9L | 24 x 2 x 0.5               | 0.8              | 11.1     | 11.3    | 176                   |
| AU825E9L | 25 x 2 x 0.5               | 0.8              | 11.2     | 11.4    | 180                   |
| AU826E9L | 26 x 2 x 0.5               | 0.8              | 11.3     | 11.5    | 184                   |
| AU830E9L | 30 x 2 x 0.5               | 0.8              | 11.6     | 12.0    | 205                   |
| AU832E9L | 32 x 2 x 0.5               | 0.8              | 11.8     | 12.2    | 217                   |
| AU840E9L | 40 x 2 x 0.5               | 0.9              | 13.5     | 14.6    | 270                   |
| AU850E9L | 50 x 2 x 0.5               | 1.0              | 15.5     | 15.7    | 340                   |
| AU860E9L | 60 x 2 x 0.5               | 1.0              | 16.0     | 16.8    | 400                   |
| AU865E9L | 65 x 2 x 0.5               | 1.0              | 16.5     | 17.0    | 422                   |
| AU880E9L | 80 x 2 x 0.5               | 1.2              | 18.0     | 18.5    | 520                   |
| AU8A0E9L | 100 x 2 x 0.5              | 1.3              | 21.0     | 22.5    | 655                   |
| AU8A2E9L | 102 x 2 x 0.5              | 1.3              | 21.2     | 22.6    | 666                   |
| AU8B0E9L | 200 x 2 x 0.5 (4x50x2x0.5) | 2.0              | 31.0     | 33.0    | 1280                  |
| AU8B4E9L | 204 x 2 x 0.5 (4x51x2x0.5) | 2.0              | 31.0     | 33.1    | 1300                  |



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Revision: 09/24 Date: 25/07/2024 Page 2 of 2

### Color Code

| No. | 1st Wire | 2nd Wire     | No. | 1st Wire | 2nd Wire     |
|-----|----------|--------------|-----|----------|--------------|
| 1   | White    | Blue         | 51  | Black    | White/Orange |
| 2   | White    | Orange       | 52  | Black    | Orange/Green |
| 3   | White    | Green        | 53  | Black    | Orange/Brown |
| 4   | White    | Brown        | 54  | Black    | Grey/Orange  |
| 5   | White    | Grey         | 55  | Black    | White/Green  |
| 6   | White    | White/Blue   | 56  | Black    | Green/Brown  |
| 7   | White    | Orange/Blue  | 57  | Black    | Grey/Green   |
| 8   | White    | Green/Blue   | 58  | Black    | White/Brown  |
| 9   | White    | Brown/Blue   | 59  | Black    | Grey/Brown   |
| 10  | White    | Grey/Blue    | 60  | Black    | White/Grey   |
| 11  | White    | White/Orange | 61  | Violet   | Blue         |
| 12  | White    | Orange/Green | 62  | Violet   | Orange       |
| 13  | White    | Orange/Brown | 63  | Violet   | Green        |
| 14  | White    | Grey/Orange  | 64  | Violet   | Brown        |
| 15  | White    | White/Green  | 65  | Violet   | Grey         |
| 16  | White    | Green/Brown  | 66  | Violet   | White/Blue   |
| 17  | White    | Grey/Green   | 67  | Violet   | Orange/Blue  |
| 18  | White    | White/Brown  | 68  | Violet   | Green/Blue   |
| 19  | White    | Grey/Brown   | 69  | Violet   | Brown/Blue   |
| 20  | White    | White/Grey   | 70  | Violet   | Grey/Blue    |
| 21  | Yellow   | Blue         | 71  | Violet   | White/Orange |
| 22  | Yellow   | Orange       | 72  | Violet   | Orange/Green |
| 23  | Yellow   | Green        | 73  | Violet   | Orange/Brown |
| 24  | Yellow   | Brown        | 74  | Violet   | Grey/Orange  |
| 25  | Yellow   | Grey         | 75  | Violet   | White/Green  |
| 26  | Yellow   | White/Blue   | 76  | Violet   | Green/Brown  |
| 27  | Yellow   | Orange/Blue  | 77  | Violet   | Grey/Green   |
| 28  | Yellow   | Green/Blue   | 78  | Violet   | White/Brown  |
| 29  | Yellow   | Brown/Blue   | 79  | Violet   | Grey/Brown   |
| 30  | Yellow   | Grey/Blue    | 80  | Violet   | White/Grey   |
| 31  | Yellow   | White/Orange | 81  | Red      | Blue         |
| 32  | Yellow   | Orange/Green | 82  | Red      | Orange       |
| 33  | Yellow   | Orange/Brown | 83  | Red      | Green        |
| 34  | Yellow   | Grey/Orange  | 84  | Red      | Brown        |
| 35  | Yellow   | White/Green  | 85  | Red      | Grey         |
| 36  | Yellow   | Green/Brown  | 86  | Red      | White/Blue   |
| 37  | Yellow   | Grey/Green   | 87  | Red      | Orange/Blue  |
| 38  | Yellow   | White/Brown  | 88  | Red      | Green/Blue   |
| 39  | Yellow   | Grey/Brown   | 89  | Red      | Brown/Blue   |
| 40  | Yellow   | White/Grey   | 90  | Red      | Grey/Blue    |
| 41  | Black    | Blue         | 91  | Red      | White/Orange |
| 42  | Black    | Orange       | 92  | Red      | Orange/Green |
| 43  | Black    | Green        | 93  | Red      | Orange/Brown |
| 44  | Black    | Brown        | 94  | Red      | Grey/Orange  |
| 45  | Black    | Grey         | 95  | Red      | White/Green  |
| 46  | Black    | White/Blue   | 96  | Red      | Green/Brown  |
| 47  | Black    | Orange/Blue  | 97  | Red      | Grey/Green   |
| 48  | Black    | Green/Blue   | 98  | Red      | White/Brown  |
| 49  | Black    | Brown/Blue   | 99  | Red      | Grey/Brown   |
| 50  | Black    | Grey/Blue    | 100 | Red      | White/Grey   |

### Notes:

1. All colors shall conform to BS6746C and shall be stable in the temperature operating range of the cable.
2. In dual color wires, the first color indicated shall be the color of the wire insulation. The second color shall be applied as annular rings.
3. The width of the rings shall be 1.5mm min.
4. The distance between the color rings shall not exceed 15.0 mm so they shall be clearly visible each 15mm along the cable.
5. The applied color rings shall not cover more than 40% of the basic insulation in any section along the wires.
6. 200-Pair cables shall be made of 4 groups, 50 pairs each, cabled together. The 4 groups shall have identical color code (1-50) and they will be identified by colored markers: Blue, Orange, Green & Brown.
7. 204-Pair cables shall be made of 4 groups, 51 pairs each, cabled together. The 4 groups shall have identical color code (1-51) and they will be identified by colored markers: Blue, Orange, Green & Brown.

**This cable fully conforms to EU Directive 2011/65/EU (RoHS-2)**