



# HES Cabling Systems

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## Technical Specification

Cable Type: 4x2x23# F/FTP Category 7 100 Ohm Outdoor DJ Horizontal LS0H Cable

HCS P/N: H07-00445-xx7-FA00W0

Revision: 03/19 Date: 05 December 2019



Category 7 F/FTP outdoor double-jacketed cable, conforming to IEC 61156-5 and ISO/IEC 11801. The cable contains 4 individually foil-shielded twisted pairs cabled together, overall shielded with aluminum foil and overall jacketed with a gray LS0H compound for indoor use. An additional black PE jacket renders the cable suitable for mild outdoor use. The cable fully supports all IEEE 802.3 PoE applications including Type 1, 2, 3 & 4.

### Physical Description

|                                      |  |
|--------------------------------------|--|
| Basic Conductor                      | Solid 23AWG (UL444), bare annealed copper.   |
| Insulation                           | SFS-PO.  |
| Total number of insulated conductors | 8, twisted in 4 pairs.   |
| Color code                           | Blue x White, Orange x White, Green x White, Brown x White.  |
| Individual pair shield               | Aluminum foil, providing 100% coverage, foil face out.   |
| Drain wire                           | Solid, tin-coated copper wire.   |
| Overall shield                       | Aluminum foil, providing 100% coverage, foil face in.  |
| Rip cord                             | PET rope laid in parallel for easy jacket removal.   |
| Inner jacket                         | Low-smoke, Zero-halogen, Flame-retardant compound for indoor use.  |
| Inner jacket thickness               | 0.5 mm nom.  |
| Color                                | Red RAL 3000.  |
| Inner Diameter                       | 7.1 mm nom.  |
| Outer jacket                         | UV resistant PE compound for outdoor use.  |
| Outer jacket thickness               | 1.0 mm nom.  |
| Color                                | Black RAL 9005.  |
| Overall Diameter                     | 9.2 mm nom.  |
| Surface Marking (White)              | HCS H07-00445 4x2x23# F/FTP CATEGORY 7 DataLink 600 SHIELDED DJ OUTDOOR CABLE VERIFIED to IEC 61156-5 & ISO/IEC 11801 CE 2011/65/EU (RoHS-2) [Meter Mark] METER [Batch Number] |

### Mechanical Properties

|                          |               |
|--------------------------|---------------|
| Bend Radius              | 8xD mm min.   |
| Storage temperature      | -20 to +80C   |
| Operating temperature    | -20 to +60C   |
| Installation temperature | 0 to +50C     |
| Pulling force            | 100 N max.    |
| Total Weight             | 75 kg/km nom. |

### Electrical Properties

|  |   |
|--|---|
| Mean Impedance                         | 100±5 Ohm @ 1-600 MHz                           |
| Vp                                     | 75-77% nom.                                     |
| Capacitance                            | 40 pF/m nom @ 1 kHz                             |
| Capacitance unbalance (wire to ground) | 1500 pF/m max @ 1 kHz                           |
| Conductors DC Resistance               | 77 Ohm/km max. (2% max. resistance unbalance).  |
| Conductors DC Loop Resistance          | 154 Ohm/km max. (2% max. resistance unbalance). |
| DC Resistance unbalance                | 2% max.   |
| Coupling attenuation                   | IEC 61156-5 Type Ib.                            |
| Transfer Impedance                     | IEC 61156-5 Grade 1.                            |
| Voltage rating                         | 72Vdc max.                                      |
| Delay Skew                             | 25 nS/100m max.                                 |

### Transmission Properties @ 20C - Conforming to IEC 61156-5 Category 7

| FREQ.<br>MHz | Insertion Loss<br>dB/100m |      | NEXT<br>dB |     | PS NEXT<br>dB |     | EL FEXT<br>dB/100m |     | PS EL FEXT<br>dB/100m |     | RL<br>dB |     | TCL<br>dB | EL-TCTL<br>dB |
|--------------|---------------------------|------|------------|-----|---------------|-----|--------------------|-----|-----------------------|-----|----------|-----|-----------|---------------|
|              | Max                       | Nom  | Min        | Nom | Min           | Nom | Min                | Nom | Min                   | Nom | Min      | Nom | Min       | Min           |
| 1.00         | 2.0                       | 1.8  | 80.0       | 100 | 75.0          | 97  | 75.0               | 105 | 72.0                  | 105 | 20.0     | -   | 40        | 35            |
| 10.00        | 5.9                       | 5.4  | 80.0       | 100 | 75.0          | 97  | 74.0               | 97  | 71.0                  | 94  | 25.0     | 30  | 40        | 15            |
| 16.00        | 7.4                       | 6.8  | 80.0       | 100 | 75.0          | 97  | 69.9               | 93  | 66.9                  | 90  | 25.0     | 30  | 40        | 11            |
| 25.00        | 9.3                       | 8.7  | 80.0       | 100 | 75.0          | 97  | 66.0               | 90  | 63.0                  | 85  | 24.3     | 30  | 36        | 7.0           |
| 31.25        | 10.7                      | 9.6  | 80.0       | 100 | 75.0          | 97  | 64.1               | 87  | 61.1                  | 84  | 23.6     | 30  | 35        | 5.5           |
| 62.50        | 14.9                      | 13.7 | 75.5       | 100 | 72.5          | 97  | 58.1               | 81  | 55.1                  | 78  | 21.5     | 30  | 32        | NS            |
| 100.0        | 19.0                      | 17.4 | 72.4       | 100 | 69.4          | 97  | 54.0               | 77  | 51.0                  | 74  | 20.1     | 30  | 30        | NS            |
| 200.0        | 27.5                      | 25.0 | 67.9       | 92  | 64.9          | 89  | 48.0               | 71  | 45.0                  | 68  | 18.0     | 25  | 27        | NS            |
| 300.0        | 34.1                      | 30.9 | 65.2       | 89  | 62.2          | 86  | 44.5               | 67  | 41.5                  | 64  | 16.8     | 24  | NS        | NS            |
| 400.0        | 40.0                      | 35.6 | 63.4       | 88  | 60.4          | 85  | 42.0               | 65  | 39.0                  | 62  | 15.9     | 24  | NS        | NS            |
| 500.0        | 45.3                      | 40.3 | 61.9       | 86  | 58.9          | 83  | 40.0               | 62  | 37.0                  | 60  | 15.2     | 22  | NS        | NS            |
| 600.0        | 50.1                      | 44.8 | 60.7       | 85  | 57.7          | 83  | 38.4               | 61  | 35.4                  | 58  | 14.7     | 22  | NS        | NS            |

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