HES Cabling Systems

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Technical Specification

Cable Type: 4x2x23# S/FTP Category 7A 100 Ohm LS0H Indoor Horizontal Cable
HCS P/N H7A-0040K-xx0-DA55W1
Revision: 08/24 Date: 19 May 2024

Category 7A S/FTP indoor cable, conforming to IEC 61156-5, tested up to 1500MHz. The cable contains 4 individually foil-shielded twisted pairs cabled together, overall shielded with a tinned-copper braid overall jacketed with LS0H compound for indoor use, conforming to IEC 60332-1. The cable fully supports all IEEE 802.3 PoE applications including Type 1, 2, 3 & 4, CISCO UPoE & UPoE+ and HDBase-T PoH. The cable conforms to EU Regulation 305/2011 (CPR) Class Dca-s1a,d1,a1. The cable fully supports Class FA permanent links & channels as specified in ISO/IEC 11801 and EN 50173.

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/Blue, Orange x White/Orange, Green x White/Green, Brown x White/Brown.
Individual pair shield	Aluminum foil, providing 100% coverage, foil face out.
Overall shield	Tin-coated copper wire braid, providing 55% coverage.
Drain wire	Tin-coated copper wire, 0.40±0.01 mm, laid in contact with the foils and the braid shields.
Outer jacket	Low-smoke, Zero-halogen, Flame-retardant compound for indoor use.
Outer jacket thickness	0.50±0.05 mm.
Color	**Light Grey RAL 9002.**
Overall Diameter	7.4 mm nom.
Surface Marking	HCS H7A-0040K 4x2x23# S/FTP CATEGORY 7A DataLink 1000 SHIELDED LS0H CABLE VERIFIED to CAT 7A ISO/IEC-11801 & IEC 61156-5 FR IEC 60332-1 CE CPR Class Dca-s1a,d1,a1 CE 2011/65/EU (RoHS-2) [Meter Mark] METER **wwSnnxxx**
Note	**Batch number wwSnnxxx ww=week number Snn=cabling machine number xxx=master reel number.**

Mechanical Properties	
Bend Radius	Dynamic: 8xD min. Static: 4xD min
Storage Temperature	-20 to +75C
Temperature installation range	0 to +50C
Temperature operating range	-20 to +60C
Flame Tests	IEC 60332-1 (flame propagation), IEC 60754 (acid gas release) & IEC 61034 (smoke density).
EU Regulation 305/2011 (CPR) conformance	CENELEC EN 13501 Class Dca-s1a,d1,a1. NB 2652
Pulling force	150 N max.
Total Weight	54 kg/km nom.

Electrical Properties @ 20C	
Characteristic Impedance	100±5 Ohm @ 100 MHz
Vp	74% nom.
Capacitance unbalance to ground	1.6 pF/m max. @ 1 kHz
Insulation Resistance	5 GOhm•km min.
Conductors DC Resistance	77 Ohm/km max. (2% max. resistance unbalance).
Conductors DC Loop Resistance	154 Ohm/km max. (2% max. resistance unbalance).
Shield DC Resistance	15 Ohm/km max.
Voltage rating	72Vdc max.
Coupling attenuation	IEC 61156-5 Type I.
Transfer Impedance	IEC 61156-5 Grade 1.
Phase delay	$534+36/f^{½}$ nS/100m max. @ f=1-1000 MHz.
Delay Skew	25 nS/100m max. @ 4-1000MHz

Transmission Properties @ 20C CAT 7A IEC 61156-5

Freq.	IL	NEXT	PS-NEXT	ACR-F	PS ACR-F	RL	TCL	EL-TCTL	PS ANEXT	PS AACR-F
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB	dB	dB	dB	dB
	Max	Min.	Min.	Min.	Min.	Min.	Min.	Min.	Min.	Min.
1	2.1	78.0	75.0	78.0	75.0	20.0	40.0	35.0	67.0	67.0
10	5.8	78.0	75.0	75.3	72.3	25.0	40.0	15.0	67.0	67.0
20	8.2	78.0	75.0	69.3	66.3	25.0	37.0	9.0	67.0	67.0
25	9.2	78.0	75.0	67.3	64.3	24.3	36.0	7.0	67.0	65.2
30	10.1	78.0	75.0	65.8	62.8	23.8	35.2	5.5	67.0	63.7
62.5	14.6	78.0	75.0	59.4	56.4	21.5	32.0	NS	67.0	57.3
100	18.5	75.4	72.4	55.3	52.3	20.1	30.0	NS	67.0	53.2
200	26.5	70.9	67.9	49.3	46.3	18.0	27.0	NS	67.0	47.2
250	29.7	69.4	66.4	47.3	44.3	17.3	26.0	NS	67.0	45.2
300	32.7	68.2	65.2	45.8	42.8	17.3	NS	NS	67.0	43.7
400	38.0	66.4	63.4	43.3	40.3	17.3	NS	NS	67.0	41.2
500	42.8	64.9	61.9	41.3	38.3	17.3	NS	NS	67.0	39.2
600	47.1	63.7	60.7	39.7	36.7	17.3	NS	NS	65.8	37.6
800	54.9	61.9	58.9	37.2	34.2	16.1	NS	NS	64.0	35.1
1000	61.9	60.4	57.4	35.3	32.3	15.1	NS	NS	62.5	33.2
1200	68.4	59.2	56.2	33.7	30.7	14.3	NS	NS	61.3	31.6
1400	74.4	58.2	55.2	32.2	29.2	13.6	NS	NS	60.3	30.3
1500	77.2	57.8	54.8	31.6	28.6	13.3	NS	NS	59.9	29.7

Transmission parameters indicated above 1000MHz are nominal non-binding values provided for reference only.

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