HES Cabling Systems

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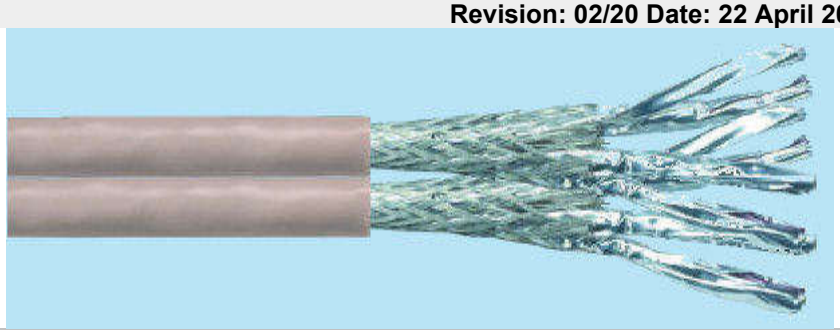
Technical Specification

Assembly Type: 2x(4x2x23#) FIG-8 S/FTP CAT 7 LS0H-3 Cable terminated with Shielded CAT 6A Keystone Jack, Indoor

HCS P/N: T6A-H0270-LL

Revision: 02/20 Date: 22 April 2020



Plug & Play Category 6A indoor assembly made of a duplex (FIG-8) CAT7 23AWG S/FTP indoor cable terminated on both sides with CAT6A shielded Keystone jacks. The assembly fully conforms to ISO/IEC-11801 Class EA and TIA-568.2-D CAT6A Permanent-Link limits. All assembly components are verified at the component level. All permanent links in all assemblies supplied are individually factory tested; Detailed test reports are available upon request.

Components	
Cable type	Duplex Category 7 2x(4x2x23AWG S/FTP) FIG-8 LS0H indoor cable, HCS P/N H07-00804-xx0-CA1600, colored gray. Detailed spec attached.
Connectors	Fully shielded Category 6A keystone jack. HCS P/N J6A-00826. Spec attached.

Assembly Properties	
Total number of 4-pair CAT7A cables	2, in duplex FIG-8 construction.
Cables identification	One cable has two longitudinal ribs.
Assembly length	Indicated in the P/N as follows: LL = length in dm up to 9.9m. from 10m and above: An=10m+n. Bn=20m+n … J0=90m
Max. length	90 m.

Transmission Properties of each Permanent Link
ISO/IEC-11801 Class EA and TIA-568.2-D CAT6A Permanent-Link limits.

Physical Properties	
Bend Radius	15xD mm min.
Storage Temperature	-20 to +75C
Installation temperature range	0 to +50C
Operation temperature range	-20 to +60C

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

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Technical Specification

Cable Type: 2x(4x2x23#) S/FTP Category 7 100 Ohm LS0H FIG-8 Data Cable

HCS P/N H07-00804-xx0-CA1600

Revision: 03/20 Date: 22 April 2020

Category 7 S/FTP indoor cable, conforming to IEC 61156-5-2009, tested up to 600MHz. The cable contains 8 individually foil-shielded twisted pairs cabled in two 4-pair cores, each overall shielded with a tinned-copper braid. The two cores are overall jacketed in parallel FIG-8 formation with LS0H compound for indoor use. The cable conforms to IEC 60332-1 and it 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 Cca-s1a,d0,a1.

Physical Description

Basic Conductor	Solid 23AWG (UL 444) bare annealed copper.
Insulation	SFS-PO.
Total number of insulated conductors	16, twisted in two cores, 4 pairs each.
Color code in each core	Blue x White, Orange x White, Green x White, Brown x White.
Individual pair shield	Aluminum foil, providing 100% coverage, foil face out.
Overall shield on each core	Tin-coated copper wire braid, 16% nom. coverage.
Drain wire	None.
Outer jacket	Low-smoke, Zero-halogen, Flame-retardant compound for indoor use, FIG-8 formation. (M540).
Core identification	Two longitudinal ribs on one side.
Outer jacket thickness	0.60-0.70 mm.
Color	Light Gray RAL 7035.
Overall Diameter	7.1 x 15 mm nom.
Surface Marking	HCS H07-00804 2x(4x2x23#) S/FTP CATEGORY 7 DataLink 600 SHIELDED CABLE VERIFIED to CAT 7 ISO/IEC-11801 & IEC 61156-5 FR IEC 60332-1 CE CPR Class Cca-s1a,d0,a1 CE 2011/65/EU (RoHS-2) [Meter Mark] METER [Batch Number]

Mechanical Properties

Bend Radius	Dynamic: 8xD mm min. Static: 4xD mm min
Storage Temperature	-20 to +60C
Temperature installation range	0 to +50C
Temperature operating range	-20 to +60C
Flame Tests	IEC 60332-1 (flame propagation), IEC 60754 (acid gas) & IEC 61034 (smoke density).
EU Regulation 305/2011 (CPR) conformance	CENELEC EN 13501 Class Cca-s1a,d0,a1. NB 0099.
Pulling force	150 N max.
Total Weight	96 kg/km nom.

Electrical Properties @ 20C

Mean Impedance	100±5 Ohm @ 1-600 MHz
Vp	75-77% nom.
Capacitance	40 pF/m nom @ 1 kHz
Capacitance unbalance to ground	1.6 pF/m max. @ 1 kHz
Insulation Resistance	0.5 GOhm•km min.
DC Resistance	77 Ohm/km max. (2% max. resistance unbalance).
DC Loop Resistance	154 Ohm/km max. (2% max. resistance unbalance).
Voltage rating	72Vdc max.
Transfer impedance	IEC 61156-5 Grade 1.
Coupling attenuation	IEC 61156-5 Type II.
Phase delay	534+36/$f^{½}$ nS/100m max. @ f=1-600 MHz.
Delay Skew	15 nS/100m max.

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

FREQ.	Insertion Loss		NEXT		PS NEXT		ELFEXT		PS ELFEXT		RL		TCL	EL-TCTL	PS ANEXT	PS AFEXT
MHz	dB/100m		dB		dB		dB/100m		dB/100m		dB		dB	dB	dB	dB
	Max	Nom	Min	Nom	Min	Nom	Min	Nom	Min	Nom	Min	Nom	Min	Min	Min	Min
1	NS	1.8	78.0	100	75.0	97	78.0	105	75.0	103	20.0	23	40.0	35.0	67.0	67.0
4	3.74	3.4	78.0	100	75.0	97	78.0	93	75.0	91	23.0	25	40.0	23.0	67.0	67.0
8	5.24	4.8	78.0	100	75.0	97	75.9	87	72.9	85	24.5	30	40.0	16.9	67.0	67.0
10	5.86	5.4	78.0	100	75.0	97	74.0	85	71.0	83	25.0	30	40.0	15.0	67.0	67.0
16	7.41	6.8	78.0	100	75.0	97	69.9	81	66.9	79	25.0	30	38.0	10.9	67.0	67.0
20	8.29	7.7	78.0	100	75.0	97	68.0	79	65.0	77	25.0	30	37.0	9.0	67.0	67.0
25	9.29	8.7	78.0	100	75.0	97	66.0	77	63.0	75	24.3	30	36.0	7.0	67.0	65.2
31.25	10.41	9.6	78.0	100	75.0	97	64.1	75	61.1	73	23.6	28	35.1	5.1	67.0	63.3
62.5	14.88	13.7	75.5	100	72.5	97	58.0	69	55.1	67	21.5	28	32.0	NS	67.0	57.3
100	19.02	17.4	72.4	100	69.4	97	54.0	65	51.0	63	20.1	25	30.0	NS	67.0	53.2
150	23.56	19.3	69.8	95	66.8	92	50.0	62	47.5	60	18.9	25	28.2	NS	67.0	49.7
200	27.47	25.0	67.9	92	64.9	89	48.0	59	45.0	57	18.0	25	27.0	NS	67.0	47.2
250	30.97	28.1	66.4	90	63.4	87	46.0	57	43.0	55	17.3	25	26.0	NS	67.0	45.2
300	34.19	30.9	65.2	89	62.2	86	44.5	55	41.5	53	17.3	25	NS	NS	67.0	43.7
400	40.01	35.0	63.4	88	60.4	85	42.0	53	39.0	51	17.3	23	NS	NS	67.0	41.2
500	45.26	40.0	61.9	86	58.9	83	40.0	50	37.0	48	17.3	23	NS	NS	67.0	39.2
600	50.10	44.8	60.7	85	57.7	82	38.4	49	35.4	47	17.3	23	NS	NS	65.8	37.6

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

DataLink 500A

Category 6A Shielded Tool-Less RJ-45 Keystone Jacks

HES Cabling Systems
Connecting Networks™

Description

HCS DataLink 500A Tool-Less shielded copper RJ-45 keystone jack series includes high performance fully shielded Category 6A snap-in 8-position/8-contact (8P8C) jacks conforming to IEC 60603-7-51 (shielded 500 MHz connectors).
HCS DataLink 500A tool-less jacks are designed for simple and reliable termination, fast and easy snap-in and out of wall plates, patch panels and surface box outlets.
HCS DataLink 500A tool-less jacks are designed in a 180° orientation and are available with back interconnection of 110 IDC blocks in universal pin/pair assignment. All jacks fully conform to and provide a substantial margin above all ANSI/TIA-568-C.2 and IEC 60603-7-51 component requirements, tested at the component level.
The HCS Logo and the DataLink 500A Trademark ensure long lasting high-performance and full support of all present and emerging applications, including 10GBASE-T (10 Gigabit-Ethernet).

Applications

HCS DataLink 500A shielded tool-less copper RJ-45 keystone jacks are used in wall outlets, patch panels and surface box outlets and they fully support all presently available LAN applications, including the following protocols:

- ☑ 10GBASE-T 10 Gigabit Ethernet
- ☑ 1000BASE-T Gigabit Ethernet
- ☑ ATM 155
- ☑ TP-PMD
- ☑ 100BASE-T Fast Ethernet
- ☑ 100BASE-T2
- ☑ 100BASE-T4
- ☑ 100BASE-TX
- ☑ Token Ring 100 Mbps
- ☑ ATM 52
- ☑ ATM 25
- ☑ 10BASE-T Ethernet
- ☑ Token Ring 4 Mbps and 16 Mbps
- ☑ Broadband and Baseband Video
- ☑ ISDN Basic and Primary Access
- ☑ 1BASE-5 Starlan
- ☑ ISALAN
- ☑ ITU V.21 and X.11

Qualifications and Approvals

HCS DataLink 500A tool-less jacks are supported by the Century™ Lifetime Warranty and by the DoubleSafe™ QA program as a part of complete HCS cabling system. HCS DataLink 500A jacks are tested and verified at the component level. They comply to IEC 60603-7-51 (8-way, shielded, free and fixed connectors, for data transmission with frequencies up to 500 MHz) and to the following standards:

TRANSMISSION

- ☑ ANSI/TIA/568-C.2 CAT 6A
- ☑ ISO/IEC-11801 CAT 6A

EMC

- ☑ EN-55022, Class B (Europa)
- ☑ FCC Part 15, Subpart J, Class A (USA)

SAFETY

- ☑ UL94 V-0 rated plastic materials
- ☑ Zero-halogen in LS0H constructions.

Benefits & Features

- ➔ Exceptional material properties and design - Providing a unique Century™ Lifetime Warranty.
- ➔ Patented 180° design - Providing perfect termination with minimum distance to the IDC.
- ➔ High quality corrosion-resistant thick die-cast shield - Providing excellent EMC (Electro Magnetic Compatibility), minimizing radiation and maximizing noise immunity.
- ➔ Detailed installation manual in English and Turkish - Providing clear and comprehensive instructions.
- ➔ Exceeding Category 6A performance - Providing full support to 10 Gigabit Ethernet.
- ➔ Robust and installer-friendly design - Providing reduced installation and operating costs
- ➔ Compatible with 22-26 AWG solid or stranded conductors - Providing support to a wider range of cabling types.
- ➔ Unique DoubleSafe™ Quality Assurance Program - Providing lowest rejection rate available.

GENERAL PROPERTIES

Housing Material	High impact, Flame-retardant plastic compound, UL 94 V-0.
Overall Shield	Fully shielded corrosion-resistant die-cast zinc-alloy casing.
Jack Contacts Spring Material	High strength phosphor bronze alloy.
Jack Contacts Plating	1.27 µm gold plating over 5µm nickel.
IDC Contacts Material	High strength phosphor bronze alloy.
IDC Contacts Plating	Pure SN alloy, 5µm min. thickness.
Operating Environmental Conditions	-10 to +60C at 5-93% RH (Non condensing)
Storage Environmental Conditions	-40 to +70C at 5-93% RH (Non condensing)
Packaging	50 or 100 units per box.
Plug to Jack Retention Force	50N min for 60 sec..
Plug to Jack Mating Force	9N max. for 8 wire jack.
Terminated Wire Retention Force	Axial pullout force: 9N min. Normal pullout force: 44N min
Insertion/Extraction Durability	750 mating cycles conforming to IEC 60603-7 Level A durability
IDC Termination Durability	200 terminations min. acc to TIA/EIA 568B.2 requirements.
Conductor Compatibility Range	22 to 26 AWG, solid or stranded
Standard Color	White RAL 1013.

TRANSMISSION AND ELECTRICAL SPECIFICATIONS

FREQ.	Insertion Loss	NEXT	FEXT	RL	TCL	EL TCTL	PS ANEXT	PS AFEXT
MHz	dB	dB	dB	dB	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Min	Min
1.00	0.1	75.0	75.0	30.0	40.0	40.0	67.0	67.0
4.00	0.1	75.0	71.1	30.0	40.0	40.0	67.0	67.0
8.00	0.1	75.0	65.0	30.0	40.0	40.0	67.0	67.0
10.00	0.1	74.0	63.1	30.0	40.0	40.0	67.0	67.0
16.00	0.1	69.9	59.0	30.0	40.0	40.0	67.0	67.0
25.00	0.1	66.0	55.1	30.0	40.0	40.0	67.0	67.0
31.25	0.1	64.1	53.2	30.0	38.1	38.1	67.0	67.0
62.50	0.16	58.1	47.2	30.0	32.1	32.1	67.0	67.0
100.00	0.20	54.0	43.1	28.0	28.0	28.0	67.0	67.0
200.00	0.28	48.0	37.1	22.0	22.0	22.0	64.5	61.0
250.00	0.32	46.0	35.1	20.0	20.0	20.0	62.5	59.0
300.00	0.35	42.9	33.6	18.5	18.5	18.5	61.0	57.5
400.00	0.40	37.9	31.1	16.0	16.0	16.0	58.5	55.0
500.00	0.45	34.0	29.1	14.0	14.0	14.0	56.5	53.0

Propagation Delay	2.5 nS max @ 1-250 MHz
Propagation Delay Skew	1.25 nS max @ 1-250 MHz
Current Rating	1.5 A max.
Contact Resistance	20 mOhm max (per contact)
Input/Output Resistance	200 mOhm max
Input/Output Resistance Unbalance	50 mOhm max
Voltage Rating	72 Vdc max
Dielectric Strength	1000 Volts rms for 1 minute
Insulation Resistance	500 MegaOhm min @ 500 Vdc
DC Resistance	0.1 Ohm max @ 20C
Coupling Attenuation	35-20Log(f/100) dB@ 100-1000 MHz

ORDERING INFORMATION

HCS P/N	Description	Blocks	T568
J6A-00824	8P8C RJ-45 Shielded Category 6A Tool-less 180° Keystone Jack	TL IDC	B
J6A-00825	8P8C RJ-45 Shielded Category 6A Tool-less 180° Keystone Jack	TL IDC	A
J6A-00826	8P8C RJ-45 Shielded Category 6A Tool-less 180° Keystone Jack	TL IDC	UNI
J6A-Z0826	8P8C RJ-45 Shielded Category 6A Tool-less 180° Keystone Jack	TL IDC	UNI