

# MASTER SPECIFICATION

## GigaLAN 10<sup>®</sup> SMALL DIAMETER CABLE

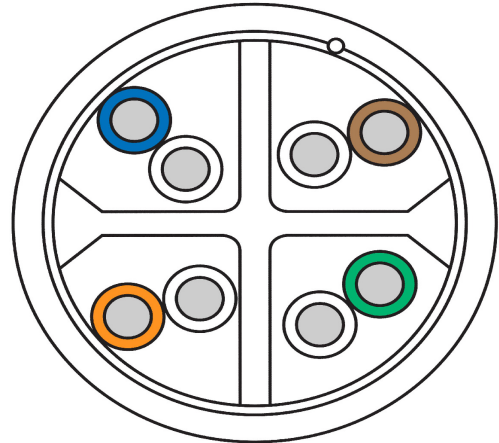
### 4 PAIR #23 AWG UTP CATEGORY 6A PLENUM

Design Number:  
**HT57889**

#### DESCRIPTION

UNSHIELDED TWISTED PAIR (UTP) GigaLAN 10 SMALL DIAMETER CABLE FOR USE IN HORIZONTAL CABLING SYSTEMS PER ANSI/TIA-568-C AND ISO/IEC 11801 ed 2.2 (2011) CLASS EA. THE CABLE EXCEEDS ANSI/TIA-568-C.2 AND ISO/IEC 11801 ed 2.2 (2011) CATEGORY 6A ELECTRICAL CHARACTERISTICS. THIS PATENTED CABLE CONSISTS OF #23 AWG SOLID BARE COPPER INSULATED CONDUCTORS, ASSEMBLED INTO FOUR TIGHTLY TWISTED PAIRS, UTILIZING A FLEXWEB(R) CORE SEPARATOR, ALIEN CROSSTALK BARRIER AND RIPCORD, UNDER A JACKET. PRINT INCLUDES DESCENDING FOOTAGE MARKERS FROM 1000 TO 0 ON EACH 1000 FT REEL. SEE BELDEN.COM/P FOR ANY/ALL APPLICABLE PATENT DETAILS.

THE CABLE IS PLENUM RATED FOR USE IN AIR HANDLING DUCTS AND SPACES IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE CABLE IS UL (USA) & cUL (CANADA) LISTED FOR THIS APPLICATION BY PASSING NFPA 262 (FT6 OR PREVIOUSLY UL 910 STEINER TUNNEL) TEST.



#### SUPPORTED APPLICATIONS

IEEE 802.3an 10GBASE-T (10 GIGABIT ETHERNET), 1000BASE-T (GIGABIT ETHERNET), 100BASE-T (FAST ETHERNET), AND IEEE 802.3 10BASE-T (ETHERNET), IEEE 802.3af POE, IEEE 802.3at-2009 POE+, ANSI.X3.263 FDDI TP-PMD, IEEE 802.5 4 AND 16 Mbps TOKEN RING, ATM UP TO 1.2 Gbps, 550 MHz BROADBAND VIDEO, 10G Wi-Fi ACCESS POINTS, IEEE 802.3bt Type 1, Type 2, Type 3, Type 4

#### CONSTRUCTION

**PRIMARIES:** COND: 23 AWG (.6 mm) SOLID BARE COPPER  
INSULATION: FEP ON ALL 4 PAIRS

**PAIR ASSEMBLY:** 2 PRIMARIES TWISTED IN VARIED LAYS

**COLOR CODE:** SEE TABLE 1

**CABLE ASSEMBLY:** 4 PAIRS CABLED TOGETHER WITH A FLEXWEB CORE SEPARATOR AND ALIEN CROSSTALK BARRIER

**JACKET:** NO LEAD PLENUM RATED THERMOPLASTIC  
JACKET COLOR: SEE TABLE 2  
NOMINAL CABLE OD: .265" (6.73 mm)

**LISTINGS:** C(UL)US CMP, (UL) CMP-LP (0.7A) OR CL3P-LP (0.7A)  
VERIFIED CAT 6A

#### PHYSICAL CHARACTERISTICS

**CABLE WEIGHT w/REEL:** 40 lbs/1000ft (60 kg/km)

**BENDING RADIUS:** 1.1" (28 mm) MIN (4 x CABLE OD)

**PULLING TENSION:** 40 lbf (175 N) MAX

**OPERATING TEMP.:** -20°C to +75°C (-4°F to +167°F)

**STORAGE TEMP.:** -20°C to +75°C (-4°F to +167°F)

**\*INSTALLATION TEMP.:** 0°C to +50°C (+32°F to +122°F)

\*THE INSTALLATION TEMPERATURE REFERS TO THE TEMPERATURE OF THE CABLE WHILE BEING INSTALLED OR PULLED. DO NOT INSTALL BELOW 0°C (+32°F).

TABLE 1

PAIR NUMBER	PAIR COLOR CODE	
1	WHITE	BLUE
2	WHITE	ORANGE
3	WHITE	GREEN
4	WHITE	BROWN

TABLE 2

MOHAWK PART NUMBER	MOHAWK DESIGN NUMBER	JACKET COLOR
M59145	HT57890	WHITE
M59146	HT57891	BLUE
M59147	HT57892	PINK
M59148	HT57893	YELLOW
M59149	HT57894	GRAY
M59150	HT57895	GREEN
M59151	HT57896	RED
M59152	HT57897	ORANGE
M59153	HT57898	BLACK
M59154	HT57899	VIOLET



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Rev	Description	Date	Init.
E	UPDATE COLOR CODE, LISTINGS, OPER/STOR TEMP	08/24/16	JS
F	UPDATE WGT & FOOTER	02/15/17	JS
G	UPDATE DESC, APPS, LISTINGS, TEMPS, STDS	09/01/17	JS
H	UPDATE ADD 802.3BT TYPES 1-4	01/16/19	CC
Date: 10/10/14		Page 1 of 2	
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## GigaLAN 10<sup>®</sup> SMALL DIAMETER CABLE

### 4 PAIR #23 AWG UTP CATEGORY 6A PLENUM

Design Number:  
**HT57889**

**ELECTRICAL CHARACTERISTICS** (REF TABLE 3)

**STANDARDS:** EXCEEDS ANSI/TIA-568-C.2 CAT 6A,  
ICEA S-116-732-2013 CAT 6A,  
ISO/IEC 11801 ed 2.2 (2011) CLASS EA &  
IEC 61156-5 ed 2.0 HORIZONTAL CABLE

**CONDUCTOR DCR:** 7.5 Ω/100m (22.8 Ω/Mft) MAX

**DCR UNBALANCE:** 2% MAX (CONDUCTOR-CONDUCTOR)  
4% MAX (PAIR-PAIR)

**MUTUAL**

**CAPACITANCE:** 56 pF/m NOM

**CAPACITANCE UNBALANCE**

**PAIR/GROUND:** 90 pF/100m MAX

**CHARACTERISTIC IMPEDANCE:** 105 Ω ± 15% (0.772-2 MHz)

**IMPEDANCE:** 100 Ω ± 10% (>2-500 MHz)

**INPUT IMPEDANCE:** 100 Ω ± 15% (1-100 MHz)

**IMPEDANCE:** 100 Ω ± 22% (>100-200 MHz)

100 Ω ± 32% (>200-500 MHz)

**RETURN LOSS (RL):** 20 + 5 log<sub>10</sub>(f) dB MIN (1-10 MHz)

25 dB MIN (>10-20 MHz)

25 - 7 log<sub>10</sub>(f/20) dB MIN (>20 MHz)

**PROPAGATION DELAY:** 534+36 / √f ns/100m MAX

**PROPAGATION DELAY SKEW:** 45 ns/100m MAX

**INSERTION LOSS (IL):** 1.82√f + .0082f + .25/√f dB/100m MAX

**NEAR END**

**CROSSTALK (NEXT):** 45.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM NEAR END**

**CROSSTALK (PS-NEXT):** 43.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**ATTENUATION TO CROSSTALK**

**RATIO FAR END (ACRF):** 31.8 - 20 log<sub>10</sub>(f/100)dB/100m MIN

**POWER SUM ATTENUATION TO CROSSTALK**

**RATIO FAR END (PS ACRF):** 28.8 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM ALIEN NEAR END**

**CROSSTALK (PS ANEXT):** 70.0 - 15 log<sub>10</sub>(f/100) dB/100m MIN  
74.5 dB MIN

**POWER SUM ALIEN ATTENUATION TO CROSSTALK RATIO**

**NEAR END (PS AACRN):** PSANEXT - IL dB/100m MIN

**POWER SUM ALIEN ATTENUATION TO CROSSTALK RATIO**

**FAR END (PS AACRF):** 45.7 - 20 log<sub>10</sub>(f/100) dB/100m MIN  
74.5 dB MIN

**NOMINAL VELOCITY OF**

**PROPAGATION (NVP):** 69%

NOTE: Attenuation To Crosstalk Ratio Far End (ACRF) was previously referred to as Equal Level Far End Crosstalk (ELFEXT).

WHERE f = Frequency In MHz from 1 to 500 MHz.

**TABLE 3**  
**REFERENCE ELECTRICAL CHARACTERISTICS**

FREQ (MHz)	INSERTION LOSS (dB/100m)	NEXT (dB/100m)	PS NEXT (dB/100m)	ACRF (dB/100m)	PS ACRF (dB/100m)	RETURN LOSS (dB)	PROP. DELAY (ns/100m)	ALIEN CROSSTALK		
								PS ANEXT (dB/100m)	PS AACRN (dB/100m)	PS AACRF (dB/100m)
1.0	max	min	min	min	min	min	max	min	min	min
4.0	2.1	75.3	73.3	71.8	68.8	20.0	570.0	74.5	72.4	74.5
8.0	3.8	66.3	64.3	59.8	56.8	23.0	552.0	74.5	70.7	73.7
10.0	5.3	61.8	59.8	53.7	50.7	24.5	546.7	74.5	69.2	67.6
16.0	5.9	60.3	58.3	51.8	48.8	25.0	545.4	74.5	68.6	65.7
20.0	7.5	57.2	55.2	47.7	44.7	25.0	543.0	74.5	67.0	61.6
25.0	8.4	55.8	53.8	45.8	42.8	25.0	542.0	74.5	66.1	59.7
31.25	9.4	54.3	52.3	43.8	40.8	24.3	541.2	74.5	65.1	57.7
62.5	10.5	52.9	50.9	41.9	38.9	23.6	540.4	74.5	64.0	55.8
100.0	14.9	48.4	46.4	35.9	32.9	21.5	538.6	73.1	58.2	49.8
200.0	19.0	45.3	43.3	31.8	28.8	20.1	537.6	70.0	51.0	45.7
250.0	27.4	40.8	38.8	25.8	22.8	18.0	536.9	65.5	38.1	39.7
300.0	30.8	39.3	37.3	23.8	20.8	17.3	536.5	64.0	33.2	37.7
350.0	34.0	38.1	36.1	22.3	19.3	16.8	536.3	62.8	28.8	36.2
400.0	36.9	37.1	35.1	20.9	17.9	16.3	536.1	61.8	24.9	34.8
450.0	39.7	36.3	34.3	19.8	16.8	15.9	535.9	61.0	21.3	33.7
500.0	42.3	35.5	33.5	18.7	15.7	15.5	535.8	60.2	17.9	32.6
550.0	44.8	34.8	32.8	17.8	14.8	15.2	535.6	59.5	14.7	31.7
600.0	47.2	34.2	32.2	17.0	14.0	14.9	--	58.9	11.7	30.9
650.0	49.5	33.6	31.6	16.2	13.2	14.7	--	58.3	8.8	30.1
750.0	51.7	33.4	31.1	15.5	12.5	14.4	--	57.8	6.1	29.4
750.0	56.0	32.2	30.2	14.3	11.3	14.0	--	56.9	0.9	28.2

SWEEP TESTED TO 750 MHz; VALUES ABOVE 500 MHz ARE FOR ENGINEERING INFORMATION ONLY.



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