



# GigaLAN<sup>10</sup><sup>®</sup>

4 Pair #23 AWG UTP  
Augmented Category 6

**NOW! With  
Reduced O.D.** GigaLAN 10 GbE

## DESCRIPTION

UNSHIELDED TWISTED PAIR (UTP) GIGALAN 10 CABLE FOR USE IN HORIZONTAL CABLING SYSTEMS PER DRAFT TIA 568-B.2-10 AND DRAFT ISO/IEC 11801 CLASS EA. THE CABLE EXCEEDS DRAFT TIA 568-B.2-10 AND DRAFT ISO/IEC 11801 CATEGORY 6A ELECTRICAL CHARACTERISTICS. THIS PATENTED CABLE CONSISTS OF #23 AWG SOLID BARE COPPER INSULATED CONDUCTORS, ASSEMBLED INTO FOUR TIGHTLY TWISTED PAIRS, WITH A NEW FLEXWEB<sup>®</sup> CORE SEPARATOR, WITH A RIPCORD, UNDER A JACKET. PRINT INCLUDES DESCENDING FOOTAGE MARKERS FROM 1000 TO 0 ON EACH 1000 FT REEL. THIS PRODUCT AND/OR ITS MANUFACTURE IS COVERED BY US PATENT NOS. 7135641, 6596944, 6074503, 5424491 AND PATENTS PENDING.

THE PLENUM RATED CABLE IS 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.

THE RISER (NON-PLENUM) RATED CABLE IS FOR USE AS A VERTICAL RUN IN A SHAFT AND FOR GENERAL PURPOSE COMMUNICATIONS USE IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE CABLE IS UL (USA) & cUL (CANADA) LISTED FOR THIS APPLICATION BY PASSING THE UL 1666 RISER CABLE FLAMMABILITY TEST. THE CABLE ALSO PASSES THE CSA FT4 VERTICAL FLAME TEST - CABLES IN CABLE TROUGH FROM CLAUSE 4.11.4 OF CSA C22.2 NO. 0.3.

THIS CABLE COMPLIES WITH THE EU-RoHS DIRECTIVE 2002/95/EC (RESTRICTIONS ON HAZARDOUS SUBSTANCES) REGULATIONS.

## 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 POWER OVER ETHERNET FOR VoIP, 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 AND STANDARDS UNDER DEVELOPMENT SUCH AS ATM AT 2.4 AND 4.8 Gbps.

## INDUSTRY APPROVALS

**STANDARDS:** EXCEEDS DRAFT TIA 568-B.2-10 CAT 6A, DRAFT ISO/IEC 11801:2002 AMEND 1 CAT 6A & DRAFT IEC 61156-5 CAT 6A HORIZONTAL CABLE

**SAFETY:** PL: C(UL)US TYPE CMP  
NP: C(UL)US TYPE CMR (PENDING)

**PERFORMANCE:** ETL VERIFIED TO DRAFT TIA CAT 6A

## CONSTRUCTION

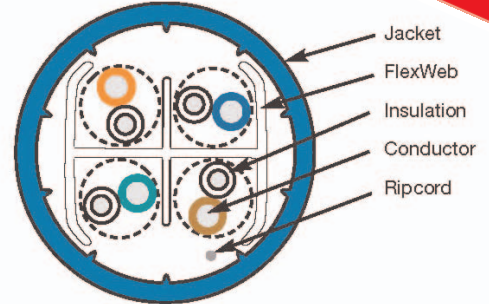
**PRIMARIES:** CONDUCTOR: 23 AWG (.6 mm) SOLID BARE COPPER  
PL: INSULATION: FEP  
NP: THERMOPLASTIC POLYOLEFIN

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

**COLOR CODE:** SEE TABLE 1

**CABLE ASSEMBLY:** 4 PAIRS CABLED TOGETHER WITH A FLEXWEB CORE SEPARATOR

**JACKET:** PL: NO LEAD PLENUM RATED THERMOPLASTIC  
NP: NO LEAD FLAME RETARDANT THERMOPLASTIC  
JACKET COLOR SEE TABLE 2  
NOMINAL CABLE OD: .295" (7.49 mm)



(not to scale)

TABLE 1

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

TABLE 2

PLENUM		NON-PLENUM	
PART NUMBER	JACKET COLOR	PART NUMBER	JACKET COLOR
M58646	BLUE	M58650	BLUE
M58647	WHITE	M58651	WHITE
M58648	YELLOW	M58652	YELLOW
M58649	GRAY	M58653	GRAY
M58682	PINK	M58688	PINK
M58683	GREEN	M58689	GREEN
M58684	RED	M58690	RED
M58685	ORANGE	M58691	ORANGE
M58686	BLACK	M58692	BLACK
M58687	VIOLET	M58693	VIOLET

## PHYSICAL CHARACTERISTICS

**CABLE WEIGHT:** PL: 50 lbs/1000ft (74 kg/km)  
NP: 45 lbs/1000ft (67 kg/km) (CALCULATED)

**BENDING RADIUS:** PL: 1.25" (32mm) MIN (4 X CABLE OD)  
NP: 1.25" (32mm) MIN (4 X CABLE OD)

**PULLING TENSION:** 25 lbf (110 N) MAX

**OPERATING TEMP.:** -20°C to +60°C (-4°F to +140°F)

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

**INSTALLATION TEMP.\*:** 0°C to +60°C (+32°F to +140°F)

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

PL = PLENUM  
NP = NON-PLENUM

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### ELECTRICAL CHARACTERISTICS (REF TABLE 3)

<b>CONDUCTOR DCR:</b>	6.6 Ω/100m (20.0 Ω/Mft) MAX
<b>DCR UNBALANCE:</b>	3% MAX
<b>MUTUAL CAPACITANCE:</b>	46 pF/m (14 pF/ft) NOM
<b>CAPACITANCE UNBALANCE PAIR/GROUND:</b>	33 pF/100m (100 pF/Mft) MAX
<b>CHARACTERISTIC IMPEDANCE:</b>	100 Ω ± 7% (10-550 MHz)
<b>INPUT IMPEDANCE:</b>	100 Ω ± 10% (1-100 MHz) 100 Ω ± 15% (>100-350 MHz) 100 Ω ± 22% (>350 MHz)
<b>RETURN LOSS (RL):</b>	20 + 7 log <sub>10</sub> (f) dB MIN (1-10 MHz) 27 dB MIN (>10-20 MHz) 27 - 7 log <sub>10</sub> (f/20) dB MIN (>20 MHz)
<b>INSERTION LOSS: (ATTENUATION)</b>	1.80 f + .010f + .20/ f dB/100m MAX
<b>NEAR END CROSSTALK (NEXT):</b>	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):** 30.8 - 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/100 MIN

### POWER SUM ALIEN NEAR END

**CROSSTALK (PS ANEXT):** 62.5 - 15 log<sub>10</sub>(f/100) dB/100 MIN  
67 dB MIN

### POWER SUM ALIEN ATTENUATION TO CROSSTALK RATIO

**FAR END (PS AACRF):** 38.2 - 20 log<sub>10</sub>(f/100) dBm/100m MIN  
67 dB MIN

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

**PROPAGATION DELAY SKEW:** 35 ns/100m MAX

**NOMINAL VELOCITY OF PROPAGATION (NVP):** 72% PLENUM

68% NON-PLENUM

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/100m)	PROP. DELAY (ns/100m)	ALIEN CROSSTALK	
								PS ANEXT (dB/100m)	PS AACRF (dB/100m)
.772	max	min	min	min	min	min	max	min	min
1.0	1.8	77.0	75.0	-	-	-	-	-	-
4.0	2.0	75.3	73.3	70.8	68.8	20.0	570.0	67.0	67.0
8.0	3.7	66.3	64.3	58.8	56.8	24.2	552.0	67.0	66.2
10.0	5.2	61.8	59.8	52.7	50.7	26.3	546.7	67.0	60.1
16.0	5.9	60.3	58.3	50.8	48.8	27.0	545.4	67.0	58.2
20.0	7.4	57.2	55.2	46.7	44.7	27.0	543.0	67.0	54.1
25.0	8.3	55.8	53.8	44.8	42.8	27.0	542.0	67.0	52.2
31.25	9.3	54.3	52.3	42.8	40.8	26.3	541.2	67.0	50.2
62.5	10.4	52.9	50.9	40.9	38.9	25.6	540.4	67.0	48.3
100.0	14.9	48.4	46.4	34.9	32.9	23.5	538.6	65.6	42.3
155.0	19.0	45.3	43.3	30.8	28.8	22.1	537.6	62.5	38.2
200.0	24.0	42.4	40.4	27.0	25.0	20.8	536.9	59.6	34.4
250.0	27.5	40.8	38.8	24.8	22.8	20.0	536.5	58.0	32.2
300.0	31.0	39.3	37.3	22.8	20.8	19.3	536.3	56.5	30.2
350.0	34.2	38.1	36.1	21.3	19.3	18.8	536.1	55.3	28.7
400.0	37.2	37.1	35.1	19.9	17.9	18.3	535.9	54.3	27.3
500.0	40.0	36.3	34.3	18.8	16.8	17.9	535.8	53.5	26.2
550.0	45.3	34.8	32.8	16.8	14.8	17.2	535.6	52.0	24.2
600.0	47.7	34.2	32.2	-	-	16.9	-	-	-
650.0	50.1	33.6	31.6	-	-	16.7	-	-	-
750.0	52.4	33.1	31.1	-	-	16.4	-	-	-
750.0	56.8	32.2	30.2	-	-	16.0	-	-	-

VALUES ABOVE 500 MHz ARE FOR ENGINEERING INFORMATION ONLY.

Mohawk reserves the right to change any specification in the interest of product enhancement.