

## 10GXE91

### Networking Cables

#### Datatwist® cable

#### CAT 6a F/FTP LSNH IEC 60332-3-24

2012-02-22 v2

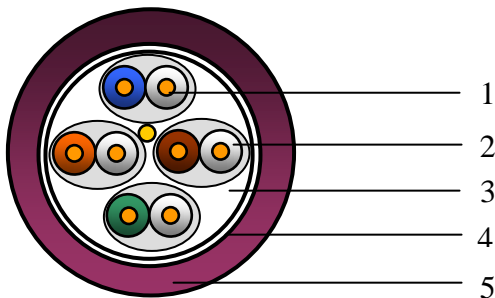
### Applications

- Horizontal and building backbone cable
- Support current and future Category 6a and 6 applications, such as:  
10GBase-T (10 Gigabit Ethernet), 1000Base-T (Gigabit Ethernet), 100 Base-T, 10 Base-T, FDDI, ATM

### General standards

- International standard: ISO/IEC 11801 2nd edition (2002) and ISO/IEC 11801 Amendment 2 (2010)
- European standard: EN 50173-1 (2002) and EN 50173-1 Amendment 1 (2009)
- U.S. Standard: ANSI/TIA/EIA 568-B.2-10 (2008)

### Construction & Dimensions



<b>1. Conductor</b>		
Material		Solid bare copper ETP
Diameter		AWG 23
<b>2. Insulation</b>		
Material		Foamed polyethylene
Nominal diameter over insulation		1.32 mm
<b>3. Cable core</b>		
Pair		2 twisted insulated conductors with overall foil
Foil		Laminated aluminium-polyester Aluminium facing outside
Number of shielded pairs		4, all twisted together with AWG 26 tinned copper drain wire
Colour code pair 1		White / Blue
Colour code pair 2		White / Orange
Colour code pair 3		White / Green
Colour code pair 4		White / Brown
<b>4. Foil shielding</b>		
Material		Laminated Aluminium / Polyester
Position Aluminium		Facing inside

## 5. Jacket

Material	LSNH
Diameter	7.9 ± 0.3 mm
Ripcord	Nylon ripcord under jacket
Colour	Purple (RAL 4005), grey (RAL 7037) or blue (RAL 5015)
Standard text (+ batch code and length indication per meter):	

BELDEN 10GXE91 - 4PR23 SHIELDED LSNH IEC 60332-3-24 ISO/IEC 11801 EN50173 - F/FTP CAT 6A EXTRAPOLATED TO 625 MHz

## Electrical characteristics

Reference standard : ISO/IEC 61156-5 edition 2.0 (2009)

Low frequency and D.C. (at 20°C)	Specification	Unit
D.C. resistance conductor	< 9,5	Ω/100m
Resistance unbalance: within a pair / between pairs	< 2 / < 4	%
Insulation resistance	≥ 5000	MΩ.km
Dielectric strength conductor-conductor and conductor-screen (2 sec.)	2.5	kV DC
Mutual capacitance	< 56	nF/km
Capacitance unbalance pair to ground	< 1600	pF/km
Nominal velocity of propagation (for information only)	0.77	c
Delay skew (differential delay)	≤ 45	ns/100m
Transfer impedance according IEC 61156-5	Grade 2	
Coupling attenuation according IEC 61156-5	Type II	

High frequency (at 20°)														
TYPE	1*	4	10	16	31.2	62.5	100	125	200	250	300	500	625	MHz
Attenuation	2.1	3.8	5.9	7.5	10.5	15.0	19.1	21.5	27.6	31.1	34.3	45.3	51.2	dB/100m
NEXT	75.3	66.3	60.3	57.2	52.9	48.4	45.3	43.8	40.8	39.3	38.1	34.8	33.4	dB/100m
PS NEXT	72.3	63.3	57.3	54.2	49.9	45.4	42.3	40.8	37.8	36.3	35.1	31.8	30.4	dB/100m
ACR	73.2	62.5	54.4	49.8	42.4	33.4	26.2	22.3	13.2	8.3	3.9	-10.4	-17.8	dB/100m
PS ACR	70.2	59.5	51.4	46.8	39.4	30.4	23.2	19.3	10.2	5.3	0.9	-13.4	-20.8	dB/100m
ACR-F	68.0	56.0	48.0	43.9	38.1	32.1	28.0	26.1	22.0	20.0	18.5	14.0	12.1	dB/100m
PS ACR-F	65.0	53.0	45.0	40.9	35.1	29.1	25.0	23.1	19.0	17.0	15.5	11.0	9.1	dB/100m
Return Loss	20.0	23.0	25.0	25.0	23.6	21.5	20.1	19.4	18.0	17.3	17.3	17.3	17.3	dB/100m
TCL level 1	40.0	34.0	30.0	28.0	25.1	22.0	20.0	19.0	17.0	16.0				dB/100m
EL TCTL	35.0	23.0	15.0	10.9	5.1									dB/100m
PS ANEXT	67.0	67.0	67.0	67.0	67.0	65.6	62.5	61.0	58.0	56.5	55.3	52.0	50.6	dB/100m
PS AACR-F	67.0	66.2	58.2	54.1	48.3	42.3	38.2	36.3	32.2	30.2	28.7	24.2	22.3	dB/100m
Impedance upper limit	122.2	115.2	111.9	111.9	114.1	118.3	121.9	123.9	128.8	131.5	131.6	131.6	131.6	Ω
Impedance lower limit	81.8	86.8	89.4	89.4	87.7	84.5	82.0	80.7	77.6	76.0	76.0	76.0	76.0	Ω
Propagation delay	570	552	545	543	540	539	538	537	536	536	536	536	536	ns/100m

NOTE: Limits below 4MHz are for information only.

## Mechanical characteristics

	Specification	Unit
Elongation at break of the conductors	8	%
Minimum elongation at break of the insulation	≥ 100	%
Minimum elongation at break of the sheath	≥ 100	%
Tensile strength of sheath	> 9	MPa

## Environmental and overall characteristics

	Specification	Unit
Maximum operating voltage (for all temperatures cable is intended to be used)	72	V D.C.
Maximum continuous current per conductor (@25°C)	1.5	A
Temperature rating installation	0 / 50	°C
Temperature rating operation	- 30 / 60	°C
Total cable weight	64	kg/km
Minimum bending radius (during operation and installation)	32 / 64	mm
Maximum pulling strength	79	N
Burning load	750	kJ/m
Smoke density acc. to IEC 61034-1/2 & EN50268-1/2; transmittance	> 60	%
Amount of halogen acid gas acc. to IEC 60754-1/2 & EN50267-1/2; pH	> 4.3	
Amount of halogen acid gas acc. to IEC 60754-1/2 & EN50267-1/2; Conductivity	< 10	µS/m
Fire performance according IEC 60332-3-24	Pass	



Belden declares this product to be in compliance with the environmental regulations EU RoHS (Directive 2002/95/EC, 27 January 2003); this is valid for all material produced after the RoHS compliant date for this product.