

Application

- Horizontal and building backbone cable.
- Support current and future **Category 6 and Category 5 enhanced** applications, such as: 10 Base-T, 100 Base-T, 1000 Base-T (Gigabit Ethernet), FDDI, ATM

Key features and Standards

- General standards: **ISO/IEC 11801 2nd edition (2002)**, **EN 50173 2nd edition (2001)**, **ANSI/TIA/EIA 568-b.2 (2002)**

Construction & Dimensions



- Construction: Unshielded 4 twisted pairs
- Conductor: solid bare copper
- Conductor diameter: AWG 23 (0,57 mm)
- Conductor insulation material: Polyolefine
- Diameter over insulation: 1,05 mm
- Cross web: FRNC compound
- Jacket material: FRNC compound
- Outer diameter: 6,5 mm

Pair 1	White-Blue/Blue
Pair 2	White-Orange/Orange
Pair 3	White-Green/Green
Pair 4	White-Brown/Brown

Colour identification according to IEC 60304

Electrical characteristics (at 20 °C)

Nominal mutual capacitance at 1 kHz	50 nF/km
Maximum conductor DCR	77 Ohm/km
NVP - Nominal Velocity of Propagation	0.70 c
SKEW – Propagation delay difference (100 MHz)	typical ≤ 15 ns/100m
Mean Characteristic Impedance 4-100 MHz ¹⁾	100 $\pm$ 5 Ohm

¹⁾: According to cable requirements of ISO/IEC 11801 category 6, Sept. 2002.

General and environmental characteristics

Temperature range - operation	-20°C - +60°C
Temperature range - installation	+0°C - +50°C
Minimum bending radius - operation	26 mm
Minimum bending radius - installation	52 mm
Maximum pulling tension	80 N
Flame retardancy	IEC 332-1
Caloric value	535 kJ/m
Weight (approx.)	43 kg/km
Maximum operating voltage	48 V rms
Maximum continuous current per conductor (25°C)	1.4 A

Product Datasheet

P/N 43177 Rev. 4

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Rev. 1/ 2002-11-20

Belden 7812ENH

Cat 6 UTP FRNC bonded

**Electrical characteristics (at 20 °C)****Attenuation**

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Max.) ¹⁾	-	4.0	6.0	7.6	8.5	10.8	15.5	19.9	25.3	29.2	33	dB/ 100m
Typical	[1.8]	3.5	5.7	7.3	8.2	10.4	15.1	19.4	24.3	27.5	30.8	dB/ 100m

NEXT (Near end crosstalk)

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	-	66	60	57	56	53	48	45	42	41	39	dB/ 100m
Typical	[80]	76	70	67	66	63	58	55	51	49	45	dB/ 100m

Power sum NEXT

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	-	63	57	54	53	50	45	42	39	38	36	dB/ 100m
Typical	[78]	74	68	65	64	61	56	53	49	47	43	dB/ 100m

Power sum ELFEXT

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	-	53	45	41	39	35	29	25	21	19	17	dB/ 100m
Typical	[70]	64	57	51	49	45	39	35	31	29	27	dB/ 100m

ACR

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	-	62.0	54.0	49.4	47.5	42.2	32.5	25.1	16.7	11.8	6.0	dB/ 100m
Typical	[78]	72	64	60	58	53	43	36	27	22	14	dB/ 100m

Power sum ACR

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	-	59.0	51.0	46.4	44.5	39.2	29.5	22.1	13.7	8.8	3.0	dB/ 100m
Typical	[76]	71	62	58	56	51	41	34	25	20	12	dB/ 100m

Return Loss

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	-	23.0	25.0	25.0	25.0	23.6	21.5	20.1	18.8	18.0	17.3	dB/ 100m
Typical	[34]	34	41	42	44	46	45	43	40	40	36	dB/ 100m

¹⁾: Specification values according to cable requirements of ISO/IEC 11801 category 6, Sept. 2002.

Note: Values between brackets are for information only

Ordering information**MARKING**

Text on the cable jacket

Inkjet printing

BELDEN 7812ENH UTP CAT6 4PR AWG23 LSNH ISO/IEC 11801 EN50173 VERIFIED 100 OHM

Meter marking:

Yes

JACKET COLOUR

Colour	RAL code	Colour	RAL code
Grey	RAL 7032	Blue	RAL 5015

PACKAGING (PUT UP)

305m unreel box and 305m, 500m and 1000m Crate reels