

Application

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

Standards

- General standards: **ISO/IEC 11801, EN 50173, TIA/EIA 568-A-5 enhanced**
- Future standards like: **ISO/IEC 11801 2nd edition, EN 50173 2nd edition und prEN 50288-3-1**

Construction & Dimensions

- Construction: Unshielded 4 twisted pairs
- Conductor: solid bare copper
- Conductor diameter: AWG 23 (0,57 mm)
- Conductor insulation material: Polyethylene (PE)
- Diameter over insulation: 1.05 mm $\pm$ 0.05 mm
- Jacket material: PVC (Flame retardant)
- Outer diameter: 6.5 mm $\pm$ 0.3 mm



Colour code

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

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	4.0	6.0	7.6	8.5	10.7	15.5	19.9	25.3	29.1	33.0	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⁾	65	65	59	56	55	52	47	44	41	40	38	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⁾	65	65	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.) ²⁾	64	64	46	41	40	36	30	26	22	20	18	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⁾	61.0	61.0	53.0	48.4	46.5	41.3	31.5	24.1	15.7	10.9	5.0	dB/ 100m
Typical	78.2	72.5	64.3	59.7	57.8	52.6	42.9	35.6	26.7	21.5	14.2	dB/ 100m

Power sum ACR

Frequency	1	4	10	16	20	31.2	62.5	100	155	200	250	MHz
Spec. (Min.) ¹⁾	58.0	58.0	50.0	45.4	43.5	38.3	28.5	21.1	12.7	7.9	2.0	dB/ 100m
Typical	76.2	70.5	62.3	57.7	55.8	50.6	40.9	33.6	24.7	19.5	12.2	dB/ 100m

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

²⁾: Specification values according to cable requirements of ANSI/TIA/EIA-568-A-5 (enhanced)



Electrical characteristics (at 20 °C)

Nominal mutual capacitance at 1 kHz	80 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
Impedance 1 - 100 MHz	100 ± 15 Ohm
Impedance 100 - 250 MHz	100 ± 18 Ohm

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
Energy of flame	555 kJ/m
Weight (approx.)	43 kg/km
Maximum operating voltage	48 V rms
Maximum continuous current per conductor (25°C)	1.4 A

Ordering information

MARKING

Text on the cable jacket Inkjet printing

BELDEN 7812E UTP CAT6 4PR AWG23 ISO/IEC 11801 EN 50173 VERIFIED 100 OHM

Meter marking: Yes

JACKET COLOUR

Colour	RAL code	Belden colour code
Grey	RAL 7032	3136
Blue	RAL 5015	3135

PACKAGING (PUT UP)

Belden code	Delivery length	Weight	Remark
46078 xxxx 179	305 m	13 kg	Unreel box
46078 xxxx 079	305 m	13 kg	Non returnable reel
46078 xxxx 240	500 m	23 kg	Non returnable reel
46078 xxxx 241	1000 m	43 kg	Non returnable reel

xxxx: Belden colour code