

Belden

Belden



**The DataTwist range
of unshielded cables –
*your safety belt for fast applications.***

Belden DataTwist™

Setting new standards in reliability for unshielded cables.

DataTwist – an extensive range of high-performance structured wiring cables made by Belden. With their excellent EMC properties the unshielded DataTwist 17XX series of cables are the convincing solution for satisfying the requirements of tomorrow. The extraordinary performance of these cables provides the highest level of data integrity in demanding installations.

DataTwist cables from Belden are the result of a new high-precision manufacturing process. Extremely stable characteristics are obtained thanks to the patent pending design. This factor, combined with their outstanding transmission properties, means they enable structured cabling at the highest level of technology, both now and future.

Belden DataTwist series of unshielded cables opens a new dimension in data transfer reliability.

They have been tested by Delta to the international ISO/IEC IS 11801 standard and awarded certification.

DataTwist products thus meet the most exacting international specifications.

DataTwist cables presented in this brochure are also available in halogen-free and Siamese constructions.



Using our cable has decisive advantages.

The outstanding performance characteristics of Belden's 17XX series of unshielded DataTwist cables extend over a whole range of electrical parameters. Direct comparison with the requirements of the standards for Category 5 reveals that they provide convincing advantages, for example:

- An improvement of over 400% in the values for capacitance unbalance.

The advantage: marked reduction in noise: as a result of the capacitance of both conductors being the same.

- Up to 50% reduction in impedance tolerance and SRL (*Structural Return Loss*).

The advantage: strong, clear signal: because less energy is lost as the signal is propagated along the conductor.

For further advantages please refer to our specification sheets.



DataTwist – adjoined core wires ensure optimal properties.

The reliability of DataTwist doesn't just happen. It is the result of a high-precision, innovative manufacturing process. The 17XX series is distinguished by a special, patented design. Adjoined conductors and the highest manufacturing accuracy give these cables a geometrical stability which is way above average. This results in outstanding electrical properties and the highest degree of reliability in demanding installations.

In the Belden production process the cable's individual, isolated conductors are longitudinally fixed and stabilized in such a way that:

Optimum: an exact and constant spacing is maintained between the two conductors;

Optimum: the individual conductors of a pair are manufactured under identical mechanical pretension;

Optimum: a precise axial twisting of the insulated cores is maintained over the entire cable length

Optimum: and that the core twist, which is decisive for the consistency of the electrical parameters, remains constant both during the manufacturing process and installation.

Belden DataTwist™

Safe and sound.

Highly balanced construction gives outstanding EMC behavior.

The excellent high frequency properties of the unshielded DataTwist cables has won over many users. The well balanced construction and adjoined/bonded cores provide reliability, even for high performance applications. Low radiation and level of immunity to noise of the DataTwist products are important features when compared to standard cables.

Just as an example, the 1720A DataTwist cable has a capacitance unbalance which is more than 400% less than that specified in the ISO/IEC IS 11801 standard. The attenuation unbalance is also exemplary; Belden 1720A passed the EMC system test with exceptionally good results.

Decide in favor of DataTwist 17XX cables by Belden. Don't risk using standard cables whose high frequency properties are inferior because of their greater unbalance. Don't risk the danger that a complete system may no longer meet the European radiation standard or that the system reacts over sensitively to electric fields. With DataTwist you don't take risks.

DataTwist – safety by proven quality.

Customers world-wide value the reliability of Belden cables. The use of statistical process analysis ensures that the fixed specification is maintained. The stability of all individual electrical and mechanical values is guaranteed using the most up-to-date process control. This ensures that every installed cable always meets the desired requirements.

All Belden development plants, production plants and sales offices are certified according to ISO 9001 or ISO 9002.

15 year warranty.

Our customers rely on the proven quality of Belden products. And this reliability will last for years.

Belden offers on all DataTwist products a standard 15 year warranty. This means that all DataTwist products will maintain their technical performance for this period of time at least.

Belden cables – outstanding reliability: Metre for metre.



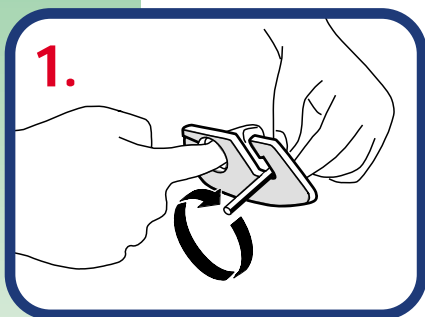
Simpler and safer connection – an advantage that counts.

The construction of the unshielded DataTwist cables enables an easy, safe and quick connection meeting the EIA/TIA 568 requirements for the connection of plug and socket connectors, even when the cable has been pre-installed.

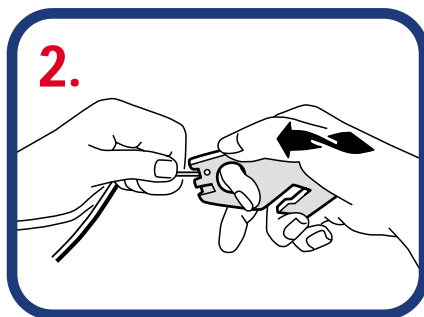
With DataTwist products the chance of making errors during the installation is considerably less than with ordinary twisted pair cables. The special construction of the cables ensures that the pairs do not become untwisted by themselves.

The result: less installation errors and thus less remedial work, costing time and money.

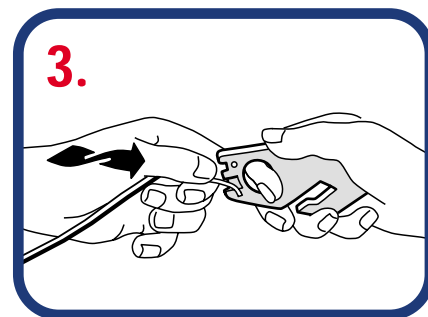
Easy preparation of Belden 17XX series cables using the Belden Tool 1798A.



To remove the cable jacket insert cable into the cutting area and rotate tool for one complete turn. Then remove jacket end.



Insert adjoined pair into front cutter and make one quarter of a turn. Then firmly press the pair onto the knife so that the cable becomes separated at the top by approx. 1 mm.



Use the flattened area below the front knife to separate the remaining part of the conductors.

NOTE: Standards allow a maximum of 13 mm of untwisted section after termination.

Haloarrest™

Halogen-free cables from Belden.

More safety for man and the environment.

The name Belden has stood for technological progress and non-compromising quality in the cable industry for over 90 years. In bringing out a vast number of innovations we have developed what is probably the widest range of communication cables on the market.

We are also strongly committed to the development of environmentally friendly methods and materials. We see it as our natural duty to continually minimise the risks to nature, mankind and to materials, not only during the manufacture, but also in the future use of our products.

Our new Haloarrest™ product line is a result of much design input. With this we are now able to offer a large number of standard data cables in halogen-free design.

Halogen – a risky material

Halogenes are components of the plastics used in the cable industry. These materials are used to give the core and jacket insulation the desired mechanical, chemical and electrical properties. The plastics which contain halogens are indeed flame resistant and self-extinguishing, but when in a fire they release undesirable poisonous gases. These gases, in connection with the water used to fight the fire can destroy electronic equipment within the building and even the building's foundations themselves.

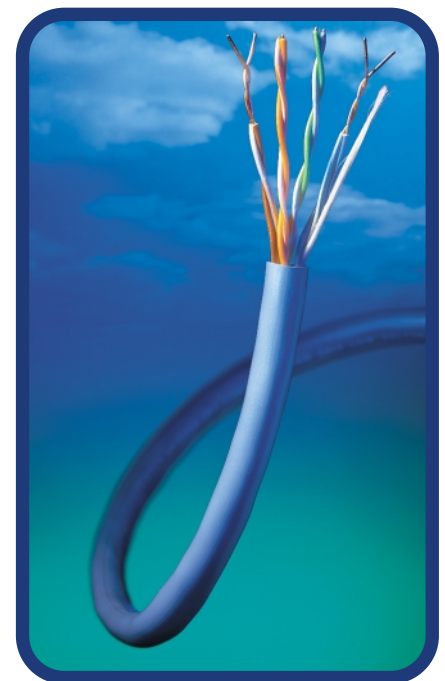
Haloarrest™ – more safety in a fire

Haloarrest products satisfy the requirements of the most important international standards with respect to flame resistance, smoke development and poison content. In comparison with products containing halogens, Haloarrest provides considerable advantages in the event of a fire:

- Less impairment of vision
- Minimal poisonous gases
- No release of highly caustic acids
- More safety for man, for nature and for materials

Areas of usage

- In places where large numbers of people congregate, such as high-rise flats, hotels, hospitals, department stores, underground transport systems, schools, playschools, old age people homes, vehicles, cinemas, theatres, airports, museums, tunnels etc.
- In places with a high concentration of valuable materials such as all kinds of power stations, industrial plants, data processing centres, exchanges and news stations, e.g. for radio, television and telecommunication.
- In alarm systems, signal systems, checking systems and control systems.



● *Choose Belden's Haloarrest™ products and make a decision which will still be right in many years to come. With their renowned high quality and performance they provide the user the highest level of safety. Don't take any risks, use Haloarrest™.*

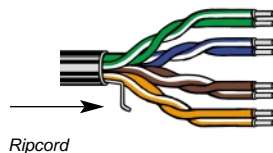
DataTwist™ / Technical data

High-Performance installation cable

Belden 1700A ● DataTwist™ 350

CAT. 5e

Belden 1700ANH Halogen-free version
Belden 1702A Duplex version of 1700A
Belden 1702ANH Halogen-free duplex version



Product Description

Unshielded Twisted Pair Cable, 4 pairs x AWG 24, each with bonded pairs, ripcord. Solid bare copper conductors, polyolefine insulation.

Colour code: see DataTwist colour code table.

Cable to: TIA/EIA 568 A enhanced, EN 50173, ISO/IEC IS 11801

High-Performance

Frequency (MHz)		0.772	1	4	8	10	16	20	25	31.25	62.5	100	155	200	310	350
Attenuation (dB/100 m)	max. (Cat. 5e)	1.8	2.1	4.3	5.9	6.6	8.2	9.2	10.5	11.8	17.1	22.0	-	-	-	-
Attenuation (dB/100 m)	typical	1.5	1.8	3.7	5.3	5.9	7.5	8.5	9.7	10.8	15.3	19.5	24.3	29.2	37.8	41.2
NEXT (dB)	min. (Cat. 5e)	67	65	56	51	50	47	45	44	42	38	35	-	-	-	-
NEXT (dB)	typical	75	73	64	60	58	55	54	52	51	47	44	42	41	38	37
PS-NEXT (dB)	min. (Cat. 5e)	64	62	53	48	47	44	42	41	39	35	32	-	-	-	-
PS-NEXT (dB)	typical	73	71	62	58	56	53	52	50	49	45	42	40	39	36	35
PS-ELFEXT (dB)	min. (Cat. 5e)	63	61	49	43	41	36	35	33	31	25	21	-	-	-	-
PS-ELFEXT (dB)	typical	73	71	59	63	61	46	43	41	39	33	28	26	23	-	-
ACR (dB/100 m)	min. (Cat. 5e)	65	63	52	45	43	39	36	34	30	21	13	-	-	-	-
ACR (dB/100 m)	typical	74	71	60	55	52	48	46	42	40	32	25	18	12	-	-
PS-ACR (dB/100 m)	min. (Cat. 5e)	62	60	49	42	40	36	33	31	27	18	10	-	-	-	-
PS-ACR (dB/100 m)	typical	72	69	58	53	50	46	44	40	38	30	23	16	10	-	-

Number of pairs: 4
Standard colour: grey, blue
Velocity of propagation (%): 69
D.C.R. (Ohm/km): 78.7
Nominal Capacitance (pF/m): 46
Diameter of insulated conductor (mm): 0.965

Nominal overall diameter (mm): 5.08	
Impedance (Ohm): 100 Ohm ± 15 %	
Energy of flame (kJ/m):	
	Single Duplex
A	440 880
ANH	275 550

Standard lengths (put up):		Standard weight:
U 1000 ft.	U 304.8 m	10.0 kg
1000 ft.	305.0 m	10.0 kg
1640 ft.	500.0 m	17.2 kg
3280 ft.	1000.0 m	33.0 kg

Belden 7812E ● DataTwist™ 350 – CAT. 6

CAT. 5e ● CAT. 6

Belden 7812ENH Halogen-free version



High-Performance

Product Description

Unshielded Twisted Pair Cable, 4 pairs x AWG 23, each with bonded pairs. Solid bare copper conductors, polyolefine insulation.

Colour code: see DataTwist colour code table.

Cable to: TIA/EIA 568 A enhanced, EN 50173, ISO/IEC IS 11801

Frequency (MHz)		0.772	1	4	8	10	16	20	25	31.25	62.5	100	155	200	250
Attenuation (dB/100 m)	max. (Cat. 6)	1.8	2.1	3.8	5.4	6.0	7.6	8.5	9.6	10.8	15.5	19.9	25.3	29.2	33.0
Attenuation (dB/100 m)	typical	1.6	1.8	3.5	5.1	5.7	7.3	8.2	9.3	10.4	15.1	19.4	24.3	27.5	30.8
NEXT (dB)	min. (Cat. 6)	66	66	66	61.5	60	57	55.5	54	52.6	48.1	45	42.2	40.5	39.1
NEXT (dB)	typical	80	80	76	72	70	67	66	64	63	58	55	51	49	45
PS-NEXT (dB)	min. (Cat. 6)	63	63	63	58.5	57	54	52.5	51	49.6	45.1	42	39.2	37.5	36.1
PS-NEXT (dB)	typical	78	78	74	70	68	65	64	62	61	56	53	49	47	43
PS-ELFEXT (dB)	min. (Cat. 6)	53	53	53	47	45	40.9	39	37	35.1	29.1	25	21.2	19	17.1
PS-ELFEXT (dB)	typical	75	70	63	57	55	50.9	49	47	45.1	39.1	35	31.2	29	27.1
ACR (dB/100 m)	min. (Cat. 6)	64.2	64	62.2	56.1	54	49.4	47	44.4	41.8	32.6	25.1	16.9	11.3	6.1
ACR (dB/100 m)	typical	78.2	78	72.2	66.6	64	59.4	57.5	54.4	52.2	42.5	35.1	25.7	19.8	12
PS-ACR (dB/100 m)	min. (Cat. 6)	61.2	61	59.2	53.1	51	46.4	44	41.4	38.8	29.6	22.1	13.9	8.3	3.1
PS-ACR (dB/100 m)	typical	76.2	76	70.2	64.6	62	57.4	55.5	52.4	50.2	40.5	33.1	23.7	17.8	10

Number of pairs: 4
Standard colour: grey, blue
Velocity of propagation (%): 70
D.C.R. (Ohm/km): 70
Nominal Capacitance (pF/m): 52
Diameter of insulated conductor (mm): 1.05

Nominal overall diameter (mm): 6.5	
Impedance (Ohm): 100 Ohm ± 15 %	
Energy of flame (kJ/m):	
E	775
ENH	430

Standard lengths (put up):		Standard weight:
U 1000 ft.	U 304.8 m	12.90 kg
1000 ft.	305.0 m	13.60 kg
1640 ft.	500.0 m	22.80 kg
3280 ft.	1000.0 m	43.25 kg

Patch cable

Belden 1867E

CAT. 5e

Belden 1867ENH Halogen-free version



Product Description

Unshielded Twisted Pair Patch-Cable, 4 pairs x AWG 26. Stranded bare copper conductors, polyolefine insulation. Colour code: see DataTwist colour code table.

Cable to: TIA/EIA 568 A enhanced, EN 50173, ISO/IEC IS 11801

Frequency (MHz)		0.772	1	4	8	10	16	20	25	31.25	62.5	100
Attenuation (dB/10 m)	max. (Cat. 5e)	0.3	0.3	0.6	0.9	1.0	1.2	1.4	1.6	1.8	2.6	3.3
NEXT (dB)	min. (Cat. 5e)	67	65	56	52	50	47	46	44	43	38	35
ACR (dB/10 m)	min. (Cat. 5e)	67	65	56	51	49	46	44	43	41	36	32

Number of pairs: 4	Nominal overall diameter (mm): 4.2	Standard lengths (put up):	Standard weight:
Standard colour: grey, blue	Impedance (Ohm): 100 Ohm ± 15 %	1000 ft.	305.0 m
Velocity of propagation (%): 70	Energy of flame (kJ/m):	1640 ft.	500.0 m
D.C.R. (Ohm/km): 131	E		6.8 kg
Nominal Capacitance (pF/m): 50	ENH		11.2 kg
Diameter of insulated conductor (mm): 0.78			

Belden 1752A ● DataTwist™ 350 Flex

CAT. 5e

Belden 1752ANH Halogen-free version



Product Description

Unshielded Twisted Pair Patch-Cable, 4 pairs x AWG 24, each with bonded pairs. Tinned stranded copper conductors, polyolefine insulation. Colour code: see DataTwist colour code table.

Cable to: TIA/EIA 568 A enhanced, EN 50173, ISO/IEC IS 11801

High-Performance

Frequency (MHz)		0.772	1	4	8	10	16	20	25	31.25	62.5	100	150	200	250	350
Attenuation (dB/10 m)	max. (Cat. 5e)	0.3	0.3	0.6	0.9	1.0	1.2	1.4	1.6	1.8	2.6	3.3	-	-	-	-
Attenuation (dB/10 m)	typical	0.2	0.2	0.4	0.6	0.6	0.8	0.9	1.0	1.1	1.6	2.1	2.6	3.1	3.6	4.5
PS-NEXT (dB)	min. (Cat. 5e)	67	65	56	52	50	47	46	44	43	38	35	-	-	-	-
PS-NEXT (dB)	typical	78	76	72	68	63	61	60	57	55	53	50	47	45	43	42
PS-ACR (dB/10 m)	min. (Cat. 5e)	67	65	55	51	49	46	45	42	41	35	32	-	-	-	-
PS-ACR (dB/10 m)	typical	78	76	72	67	62	60	59	56	54	51	48	44	42	39	37

Number of pairs: 4	Nominal overall diameter (mm): 5.6	Standard lengths (put up):	Standard weight:
Standard colour: grey, blue	Impedance (Ohm): 100 Ohm ± 15 %	1000 ft.	305 m
Velocity of propagation (%): 69	Energy of flame (kJ/m):		9.5 kg
D.C.R. (Ohm/km): 79.7	A		
Nominal Capacitance (pF/m): 46	ANH		
Diameter of insulated conductor (mm): 0.99			

Installation cable

Belden 7854E

CAT. 5

Belden 7854ENH Halogen-free version



Product Description

Unshielded Twisted Pair Cable, 4 pairs x AWG 24. Solid bare copper conductors, polyolefine insulation. Colour code: see DataTwist colour code table.

Cable to: TIA/EIA 568 A, EN 50173, ISO/IEC IS 11801

Frequency (MHz)		0.772	1	4	8	10	16	20	25	31.25	62.5	100
Attenuation (dB/100 m)	max. (Cat. 5)	1.8	2.1	4.3	5.9	6.6	8.2	9.2	10.5	11.8	17.1	22.0
NEXT (dB)	min. (Cat. 5)	64	62	53	48	47	44	42	41	40	35	32
ACR (dB/100 m)	min. (Cat. 5)	62	60	49	42	40	36	33	31	28	18	10

Number of pairs: 4	Nominal overall diameter (mm): 5	Standard lengths (put up):		Standard weight:
Standard colour: grey, blue	Impedance (Ohm): 100 Ohm ± 15 %	U 1000 ft.	U 304.8 m	8.5 kg
Velocity of propagation (%): 70	Energy of flame (kJ/m):	1000 ft.	305.0 m	8.5 kg
D.C.R. (Ohm/km): 94	E 430	1640 ft.	500.0 m	14.0 kg
Nominal Capacitance (pF/m): 50	ENH 260	3280 ft.	1000.0 m	28.0 kg
Diameter of insulated conductor (mm): 0.9				

Belden 1583E

CAT. 5e

Belden 1583ENH Halogen-free version
Belden 1667E Duplex version of 1583E
Belden 1667ENH Halogen-free duplex version



Product Description

Unshielded Twisted Pair Cable, 4 pairs x AWG 24. Solid bare copper conductors, polyolefine insulation. Colour code: see DataTwist colour code table.

Cable to: TIA/EIA 568 A enhanced, EN 50173, ISO/IEC IS 11801

Frequency (MHz)		0.772	1	4	8	10	16	20	25	31.25	62.5	100
Attenuation (dB/100 m)	max. (Cat. 5e)	1.8	2.1	4.3	5.9	6.6	8.2	9.2	10.5	11.8	17.1	22.0
Attenuation (dB/100 m)	typical	1.7	2.0	4.0	5.6	6.3	8.0	9.0	10.2	11.3	16.2	20.7
NEXT (dB)	min. (Cat. 5e)	67	65.3	56.3	51.8	50.3	47.3	45.8	44.3	42.9	38.4	35.3
NEXT (dB)	typical	75	73	64	59	58	55	54	53	51	47	44
PS-NEXT (dB)	min. (Cat. 5e)	64	62.3	53.3	48.8	47.3	44.3	42.8	41.3	39.9	35.4	32.3
PS-NEXT (dB)	typical	73	71	62	57	56	53	52	51	49	45	42
PS-ELFEXT (dB)	min. (Cat. 5e)	-	60.8	48.7	42.7	40.8	36.7	34.7	32.8	30.9	24.8	20.8
PS-ELFEXT (dB)	typical	-	71	59	53	51	46	43	42	39	33	28
ACR (dB/100 m)	min. (Cat. 5e)	65	63	52	46	44	39	37	34	31	22	14
ACR (dB/100 m)	typical	73	71	61	54	52	48	45	42	40	31	24
PS-ACR (dB/100 m)	min. (Cat. 5e)	62	60	49	43	41	36	34	31	28	19	11
PS-ACR (dB/100 m)	typical	71	69	59	52	50	46	43	40	38	29	22

Number of pairs: 4	Nominal overall diameter (mm): 5	Standard lengths (put up):		Standard weight:
Standard colour: grey, blue	Impedance (Ohm): 100 Ohm ± 15 %	U 1000 ft.	U 305.0 m	8.5 kg
Velocity of propagation (%): 68	Energy of flame (kJ/m):	1000 ft.	305.0 m	8.5 kg
D.C.R. (Ohm/km): 94	Single Duplex	1640 ft.	500.0 m	14.0 kg
Nominal Capacitance (pF/m): 49	E 410 820	3280 ft.	1000.0 m	28.0 kg
Diameter of insulated conductor (mm): 0.89	ENH 250 500			

DataTwist™ colour code table

Pair No. 1 = white/blue & blue
Pair No. 2 = white/orange & orange
Pair No. 3 = white/green & green
Pair No. 4 = white/brown & brown

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