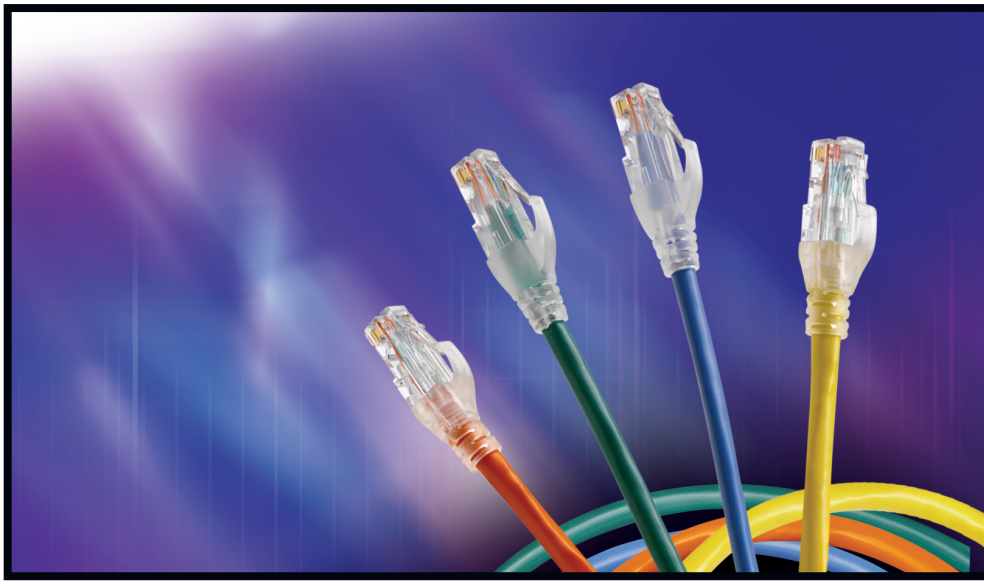
BELDEN
SENDING ALL THE RIGHT SIGNALS®

New Product Bulletin

NP 279

10GX®, CAT6+ and CAT5E Bonded-Pair Modular Cords

Belden's new patch cords are comprised of its patented Bonded-Pair cable and an improved boot construction to ensure optimum electrical performance – even in high-density installations which experience frequent handling stresses.



Belden® Bonded-Pair Modular Cords Are the Only Cords That Pass the Stringent TIA Mechanical Stress Reliability Specifications and Provide Optimum Electrical Performance

The 10GX, CAT6+ and CAT5E series of Bonded-Pair Modular Cords are made with Belden's patented robust design Bonded-Pair cables. These new modular cords offer the best combination of transmission performance and physical integrity. Bonded-Pair cable technology ensures that these cords meet the stringent TIA mechanical stress reliability specifications. They are made with solid conductors for improved attenuation in long patch cords and pigtails often used in Data Centers. The combination of Bonded-Pair cable, improved strain relief and a flexible boot allows for optimum performance in high-density installations. The new simplified ordering code scheme allows for customization of Bonded-Pair Patch Cord and Pigtail configurations.

Features and Benefits

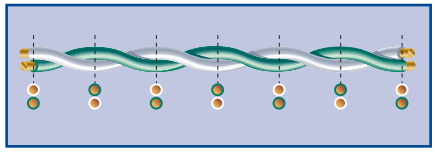
- Made with Belden's patented Bonded-Pair cable for exceptional structural stability and electrical performance in environments where frequent moves, adds, and changes are routine
- Made with small diameter Bonded-Pair cable for greater flexibility and higher density installations
- Solid conductors improve attenuation and are needed in long patch cords and pigtails to eliminate the need for cable derating in open-office cabling
- Built with improved strain relief and a flexible boot for optimum protection in high-density installations
- Wrap-around label on each cord for easier product identification and length sorting
- Exceeds TIA and ISO transmission and mechanical performance requirements
- New ordering code scheme to customize Bonded-Pair Patch Cord and Pigtail configurations

Applications

- Patch panel or equipment connections in Data Centers or Telecommunications Rooms
- Consolidation point connections
- Telecommunications outlet or MUTOA connections

Bonded-Pair Cable

Belden's breakthrough Bonded-Pair cables are the result of a patented design that bonds the individual insulated conductors together along their longitudinal axis. This unique physical characteristic results in uniform conductor-to-conductor spacing – a key aspect in consistent electrical performance. Even when a Bonded-Pair Modular Cord is subjected to everyday handling stresses such as bending, coiling and pulling, its conductor-to-conductor spacing remains stable.



Belden's Bonded-Pair Cables offer uniform conductor-to-conductor spacing even when subjected to handling stresses.

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Bonded-Pair Patch Cords

Configuration Matrices
10GX, CAT6+ and CAT5E Bonded-Pair Modular Cords

The following configuration matrices provide information on how to customize Bonded-Pair Patch Cord and Pigtail configurations and generate part numbers. Please refer to the Ordering Information for the most popular part numbers. For other configuration choices, such as custom lengths, contact our Customer Service Department for more information.

Patch Cords Part Number Example:

C601106007 is CAT6+ Patch Cord, Bonded-Pair, 4-Pair, 23 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Performance			Cable			Termination			Standard Color			Length		
10GX	=	CA	10GX Bonded-Pair, Solid, CMR	=	21	T568A/B-T568A/B	=	1	Brown	=	01	1 ft. (0.3 m)	=	001
			10GX Bonded-Pair, Solid, CMP	=	22				Red	=	02	2 ft. (0.6 m)	=	002
CAT6+	=	C6	C6/5 Bonded-Pair, Solid, CMR	=	01				Orange	=	03	3 ft. (0.9 m)	=	003
CAT5E	=	C5	C6/5 Bonded-Pair, Solid, CMP	=	02				Yellow	=	04	4 ft. (1.2 m)	=	004
									Green	=	05	5 ft. (1.5 m)	=	005
									Blue	=	06	6 ft. (1.8 m)	=	006
									Purple	=	07	7 ft. (2.1 m)	=	007
									Gray	=	08	8 ft. (2.4 m)	=	008
									White	=	09	9 ft. (2.7 m)	=	009
									Black	=	00	10 ft. (3.0 m)	=	010
												11 ft. (3.4 m)	=	011
									TIA 606 Color			12 ft. (3.7 m)	=	012
									Red	=	12	13 ft. (4.0 m)	=	013
									Orange	=	13	14 ft. (4.3 m)	=	014
									Yellow	=	14	15 ft. (4.6 m)	=	015
									Green	=	15	20 ft. (6.1 m)	=	020
									Blue	=	16	25 ft. (7.6 m)	=	025
									Purple	=	17			

Pigtails Part Number Example:

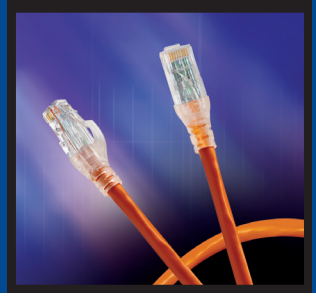
C601309025 is CAT6+ Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, CMR, T568B-Open, White, 25 ft (7.6 m)

Performance			Cable			Termination			Standard Color			Length		
10GX	=	CA	10GX Bonded-Pair, Solid, CMR	=	21	T568A-Open	=	2	Brown	=	01	15 ft. (4.6 m)	=	015
			10GX Bonded-Pair, Solid, CMP	=	22	T568B-Open	=	3	Red	=	02	20 ft. (6.1 m)	=	020
CAT6+	=	C6	C6/5 Bonded-Pair, Solid, CMR	=	01				Orange	=	03	25 ft. (7.6 m)	=	025
CAT5E	=	C5	C6/5 Bonded-Pair, Solid, CMP	=	02				Yellow	=	04	35 ft. (10.6 m)	=	035
									Green	=	05	50 ft. (15.2 m)	=	050
									Blue	=	06	75 ft. (22.9 m)	=	075
									Purple	=	07	100 ft. (30.5 m)	=	100
									Gray	=	08			
									White	=	09			
									Black	=	00			
									TIA 606 Color					
									Red	=	12			
									Orange	=	13			
									Yellow	=	14			
									Green	=	15			
									Blue	=	16			
									Purple	=	17			

Crossover Patch Cords Part Number Example:

C501502010 is CAT5E Patch Cord, Bonded-Pair, 4-pair, 24 AWG Solid, CMR, Crossover IEEE, Red, 10 ft (3.0 m)

Performance			Cable			Termination			Standard Color			Length		
10GX	=	CA	10GX Bonded-Pair, Solid, CMR	=	21	Crossover T568A-T568B	=	4	Red	=	02	1 ft. (0.3 m)	=	001
			10GX Bonded-Pair, Solid, CMP	=	22	Crossover IEEE	=	5	Yellow	=	04	2 ft. (0.6 m)	=	002
CAT6+	=	C6	C6/5 Bonded-Pair, Solid, CMR	=	01							3 ft. (0.9 m)	=	003
CAT5E	=	C5	C6/5 Bonded-Pair, Solid, CMP	=	02							4 ft. (1.2 m)	=	004
												5 ft. (1.5 m)	=	005
												6 ft. (1.8 m)	=	006
												7 ft. (2.1 m)	=	007
												8 ft. (2.4 m)	=	008
												9 ft. (2.7 m)	=	009
												10 ft. (3.0 m)	=	010
												11 ft. (3.4 m)	=	011
												12 ft. (3.7 m)	=	012
												13 ft. (4.0 m)	=	013
												14 ft. (4.3 m)	=	014
												15 ft. (4.6 m)	=	015
												20 ft. (6.1 m)	=	020
												25 ft. (7.6 m)	=	025



Ordering Information

10GX, CAT6+ and CAT5E Bonded-Pair Modular Cords

These tables provide ordering numbers for the most popular Bonded-Pair Patch Cords and Pigtails. Refer to configuration matrices to customize Bonded-Pair Patch Cord and Pigtail configurations and generate part numbers. For other configuration choices, contact our Customer Service Department for more information.

10GX Patch Cord, Bonded-Pair, 4-Pair, 24 AWG Solid, T568A/B-T568A/B, CMR

Length	Yellow	Green	Blue	Gray	White	Black
2 ft (0.6 m)	CA21104002	CA21105002	CA21106002	CA21108002	CA21109002	CA21100002
4 ft (1.2 m)	CA21104004	CA21105004	CA21106004	CA21108004	CA21109004	CA21100004
7 ft (2.1 m)	CA21104007	CA21105007	CA21106007	CA21108007	CA21109007	CA21100007
10 ft (3.0 m)	CA21104010	CA21105010	CA21106010	CA21108010	CA21109010	CA21100010
15 ft (4.6 m)	CA21104015	CA21105015	CA21106015	CA21108015	CA21109015	CA21100015
25 ft (7.6 m)	CA21104025	CA21105025	CA21106025	CA21108025	CA21109025	CA21100025

10GX Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, T568A-Open, CMR

Length	Yellow	Green	Blue	Gray	White	Black
15 ft (4.6 m)	—	—	CA21206015	CA21208015	CA21209015	—
25 ft (7.6 m)	—	—	CA21206025	CA21208025	CA21209025	—
35 ft (10.6 m)	—	—	CA21206035	CA21208035	CA21209035	—
50 ft (15.2 m)	—	—	CA21206050	CA21208050	CA21209050	—

10GX Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, T568B-Open, CMR

Length	Yellow	Green	Blue	Gray	White	Black
15 ft (4.6 m)	—	—	CA21306015	CA21308015	CA21309015	—
25 ft (7.6 m)	—	—	CA21306025	CA21308025	CA21309025	—
35 ft (10.6 m)	—	—	CA21306035	CA21308035	CA21309035	—
50 ft (15.2 m)	—	—	CA21306050	CA21308050	CA21309050	—

CAT6+ Patch Cord, Bonded-Pair, 4-Pair, 24 AWG Solid, T568A/B-T568A/B, CMR

Length	Yellow	Green	Blue	Gray	White	Black
2 ft (0.6 m)	C601104002	C601105002	C601106002	C601108002	C601109002	C601100002
4 ft (1.2 m)	C601104004	C601105004	C601106004	C601108004	C601109004	C601100004
7 ft (2.1 m)	C601104007	C601105007	C601106007	C601108007	C601109007	C601100007
10 ft (3.0 m)	C601104010	C601105010	C601106010	C601108010	C601109010	C601100010
15 ft (4.6 m)	C601104015	C601105015	C601106015	C601108015	C601109015	C601100015
25 ft (7.6 m)	C601104025	C601105025	C601106025	C601108025	C601109025	C601100025

CAT6+ Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, T568A-Open, CMR

Length	Yellow	Green	Blue	Gray	White	Black
15 ft (4.6 m)	—	—	C601206015	C601208015	C601209015	-
25 ft (7.6 m)	—	—	C601206025	C601208025	C601209025	-
35 ft (10.6 m)	—	—	C601206035	C601208035	C601209035	-
50 ft (15.2 m)	—	—	C601206050	C601208050	C601209050	-

CAT6+ Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, T568B-Open, CMR

Length	Yellow	Green	Blue	Gray	White	Black
15 ft (4.6 m)	—	—	C601306015	C601308015	C601309015	-
25 ft (7.6 m)	—	—	C601306025	C601308025	C601309025	-
35 ft (10.6 m)	—	—	C601306035	C601308035	C601309035	-
50 ft (15.2 m)	—	—	C601306050	C601308050	C601309050	-

CAT5E Patch Cord, Bonded-Pair, 4-Pair, 24 AWG Solid, T568A/B-T568A/B, CMR

Length	Yellow	Green	Blue	Gray	White	Black
2 ft (0.6 m)	C501104002	C501105002	C501106002	C501108002	C501109002	C501100002
4 ft (1.2 m)	C501104004	C501105004	C501106004	C501108004	C501109004	C501100004
7 ft (2.1 m)	C501104007	C501105007	C501106007	C501108007	C501109007	C501100007
10 ft (3.0 m)	C501104010	C501105010	C501106010	C501108010	C501109010	C501100010
15 ft (4.6 m)	C501104015	C501105015	C501106015	C501108015	C501109015	C501100015
25 ft (7.6 m)	C501104025	C501105025	C501106025	C501108025	C501109025	C501100025

CAT5E Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, T568A-Open, CMR

Length	Yellow	Green	Blue	Gray	White	Black
15 ft (4.6 m)	—	—	C501206015	C501208015	C501209015	—
25 ft (7.6 m)	—	—	C501206025	C501208025	C501209025	—
35 ft (10.6 m)	—	—	C501206035	C501208035	C501209035	—
50 ft (15.2 m)	—	—	C501206050	C501208050	C501209050	—

CAT5E Pigtail, Bonded-Pair, 4-Pair, 24 AWG Solid, T568B-Open, CMR

Length	Yellow	Green	Blue	Gray	White	Black
15 ft (4.6 m)	—	—	C501306015	C501308015	C501309015	—
25 ft (7.6 m)	—	—	C501306025	C501308025	C501309025	—
35 ft (10.6 m)	—	—	C501306035	C501308035	C501309035	—
50 ft (15.2 m)	—	—	C501306050	C501308050	C501309050	—

Accessories

Description	Part Number
Patch Cord Tool	AX102775
Velcro Cable Ties, 25 per Roll, Black, 8 in.	AX100783
Velcro Cable Ties, 25 per Roll, Black, 12 in.	AX100784
Wrap-around Labels, Gray, 48 Labels/Sheet (25 sheets per pack)	AX101555
Connecting Tool	AX100749
Termination Station	AX101852
Release Tool	AX101185
Cable Preparation Tool	1797B

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Bonded-Pair Patch Cords

10GX, CAT6+ and CAT5E Bonded-Pair Modular Cords

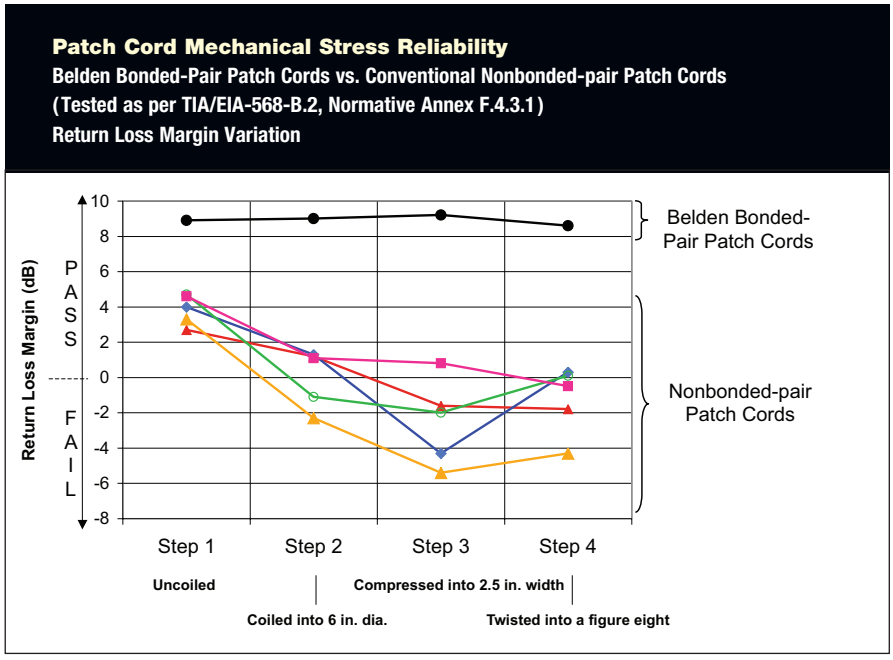
The Bonded-Pair Advantage in Modular Cords

A twisted-pair is comprised of two insulated conductors. The center-to-center distance of the copper within the two conductors of the pair, or its centricity, is a key parameter that influences the pair's electrical performance *(see Figure 1)*. Ideally, this distance should remain fixed and stable along the length of the twisted pair. Frequent handling stress applied to modular cords disturbs this relationship and therefore also affects the cable's electrical performance. The slightest manipulation of a nonbonded-pair can cause gaps between the two conductors of the pair.

Even minor disturbances in the spacing can have a significant impact on the electrical performance, particularly impedance, return loss and crosstalk. Since the two conductors of a Bonded-Pair cable are bonded together, gaps cannot form in between the conductors. The physical integrity of the pair is maintained, resulting in consistent electrical performance.

The stresses of routine modular cord handling will change the physical structure of a non-bonded-pair cable. When cords are squeezed and bent in pathways and cable managers, the majority of the stress is distributed to the pairs of the cable. The pairs must withstand this force despite being manipulated - while, ideally, maintaining a consistent centricity. Furthermore, any kink in the cord's cable also changes the relationship of the conductors of a pair. For these reasons, the electrical properties of a nonbonded-pair cord can degrade over time *(see Figure 2)*.

In comparison, because of the robust design of Bonded-Pair cords, concerns about stress and bend radius are virtually eliminated. Bonded-Pair Modular Cord cables boast significantly higher maximum pulling tensions and tighter bend radii over the recommended guidelines to accommodate real-world installation issues. Thus, the electrical performance of Bonded-Pair Modular Cords experiences few changes over time and use.



Only Belden Bonded-Pair Patch Cords maintain their Return Loss performance throughout each step of the mechanical stress test; providing an exclusive performance advantage.

The integrity of cabling systems and entire networks depends on the integrity of modular cords; they are the weakest link in the channel. When the performance of a simple cord in the network is compromised, overall system performance is jeopardized. Bonded-Pair Modular Cords maintain their physical integrity – and therefore their electrical performance – even when subjected to handling stresses in workstation outlets and patch panel installations. This means less trouble-shooting and downtime for the end-user.

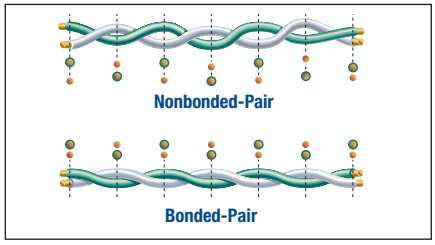


Figure 1: The distance between the conductors, or the conductor-to-conductor centricity, should remain fixed and stable along the length of the twisted pair.

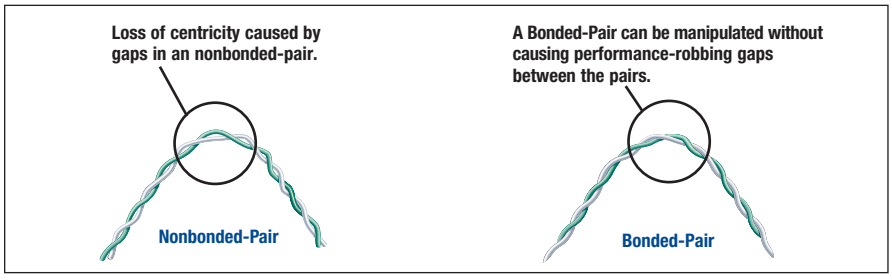


Figure 2: The slightest manipulation of a nonbonded-pair (left) can cause gaps between the conductors of the pair and impair electrical performance. Gaps cannot form between the conductors in a Bonded-Pair (right), resulting in consistent electrical performance.

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