

BULLETIN

To suit your CCTV/Surveillance installation needs, Belden offers Banana Peel® Composite cables for pan/tilt/zoom (PTZ) cameras and a wide range of single coaxes, coaxial/twisted pair composites and unshielded multi-conductor constructions for fixed cameras.



Belden Extends Its CCTV Camera Cable Line With An Innovative New Design: New Generation® Banana Peel® PTZ Composite Cables

Wherever you look today – our offices and public spaces such as hospitals, airports, amusement parks, retail establishments, universities, casinos, sports stadiums and correctional facilities all have a surveillance system in place to monitor the people visiting their facilities and the people working within them.

But whatever the type of equipment used, the objective of these systems is clear: protect the people involved with the facility and the facility's assets.

Surveillance System Camera Technology

Although traditional analog cameras are frequently used in security systems, the use of Digital Signal Processed (DSP) cameras is trending upwards – in part because they produce high quality images and they are better able to handle diverse or extreme lighting conditions. Also, camera users typically have more control setting options, plus DVRs (digital video recorders) enable users to quickly sort through their recorded images, while requiring less storage space than videotapes. Both DSP and DVRs could be handled with existing coax technology.

From an applications standpoint, there are two types of security cameras available: Fixed and PTZ (pan/tilt/zoom). If you consider a CCTV set-up in a casino, the fixed cameras would be appropriate for high-risk, fixed areas – entrances and exits, cash registers, etc. The PTZ cameras would be more appropriate for the gaming tables since the cameras must be made to move or zoom in on a particular exchange at the table or a particular customer.

New Generation Banana Peel Composite Cables For PTZ Installations

For both riser and plenum PTZ applications, Belden offers composite cables that feature its revolutionary new Banana Peel design. Banana Peel PTZ cables offer the following:

- > No overall jacket – Banana Peel cables feature a patent-pending design that affixes the individual cables to a center spline, eliminating the need for an overall jacket.
- > The absence of the overall jacket eliminates a whole step in the termination process: the stripping of the jacket.

- > Reduces installation time by requiring less set-up, pulling and termination time with the Banana Peel® versus individual cables
- > Short circuits, caused by contact with the center conductor while stripping off the outer jacket can be prevented.
- > The individual cables are color-coded for easy identification.
- > Eliminates the need for pulling several individual components by using an all-in-one Banana Peel cable (reducing installation costs and time).

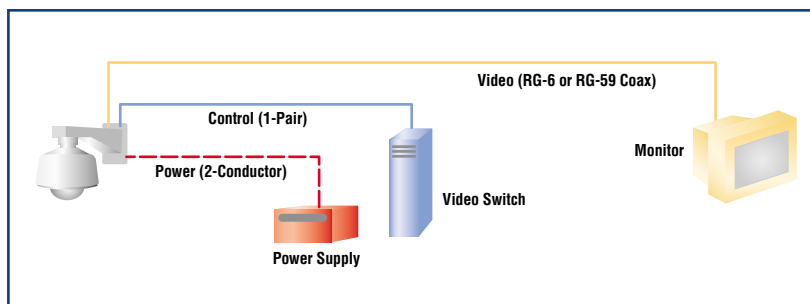
New Generation® PTZ Banana Peel composite cables are comprised of the following components in order to accommodate control encoding schemes or protocols such as Manchester, Sensornet and RS-422:

- > Coax (*video*): 1 RG-59
- > 1-pair (*power*): 18 AWG
- > UTP or STP (*control*): 23 AWG UTP, 22 or 18 AWG STP

New Generation Cables For Fixed-Camera Installations

Belden's full line of New Generation cables includes individual coaxes (including Limited Combustible coax cables) and a composite cable line for video, video/power or control, or video/data fixed-camera applications.

PTZ Banana Peel Layout



PTZ Camera Manufacturers Cross-Reference*

Manufacturer	Belden Part No.	Video	Power	Control
Sony, Toshiba, GE Interlogix	500PTZ and 600PTZ	RG-59	2c x 18 AWG	1 UTP, 23 AWG
Pelco, American Dynamics	501PTZ and 601PTZ	RG-59	2c x 18 AWG	1 STP, 22 AWG (8761-type)
Bosch, American Dynamics	502PTZ and 602PTZ	RG-59	2c x 18 AWG	1 STP, 18 AWG (8760-type)

*Always use cables recommended by the camera manufacturer. Check their specs to determine recommended power AWG size and control configuration.

Non-Plenum Coaxes:

- > Mini RG-59, RG59, RG-6 and RG-11 Types
- > Solid or stranded bare copper conductors
- > Foam polyolefin insulation
- > 95% bare copper braid shields
- > Black PVC jackets
- > Water-blocked versions (Types RG-59 and RG-6)

Plenum-Rated Coaxes:

- > Mini RG-59, RG-59, RG-6 and RG-11 Types
- > Bare copper or copper-covered steel conductors
- > Foam FEP insulations
- > 95% bare copper braid shields
- > Primarily Natural Flamarrest® jackets

Limited Combustible Coaxes

- > RG-59 and RG-6 Types

Non-Plenum Coax plus Twisted Pair (Siamese) Composites:

- > Mini RG-59, RG-59 and RG-6 Types
- > Coax: bare copper conductor, foam polyolefin insulation, 95% bare copper braid shield, black PVC jacket
- > Pair: stranded bare copper conductor, PVC insulation, PVC jacket

Plenum-Rated Coax plus Twisted Pair (Siamese) Composites:

- > Mini RG-59, RG-59 and RG-6 Types
- > Coax: bare copper conductor, foam FEP insulation, 95% bare copper braid shield, Natural Flamarrest jacket.
- > Pair: stranded bare copper conductor, Halar® insulation, Natural Flamarrest jacket

Non-Plenum Unshielded Multi-Conductor (2-pair) Cables:

- > 18, 16 and 14 AWG bare copper stranded conductors
- > PVC insulation
- > Gray PVC jacket with rip cord

Plenum-Rated Unshielded Multi-Conductor (2-pair) Cables:

- > 18, 16 and 14 AWG bare copper stranded conductors
- > Flamarrest insulation
- > Conductors cabled
- > Natural Flamarrest jacket with rip cord

Availability

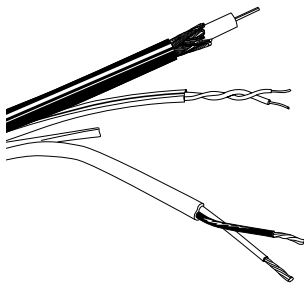
Belden offers a wide range of New Generation cables for fixed and pan/tilt/zoom camera applications that meet all your installation needs – whether large or small in scope. All New Generation cables are offered in both Plenum-Rated and Non-Plenum versions.

PTZ Camera Cable

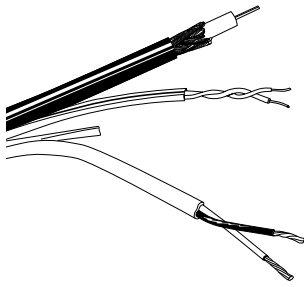
Banana Peel® Composite Cables, Plenum and Riser-Rated
The Cable Without a Jacket®

Description	Part No.	UL NEC/ C(UL) CEC Type	Standard Lengths		Standard Unit Weight		Overall Nom. OD		Component Descriptions	Application Shielding Material	Insulation Material & Color Code	Component Jacket Material & Colors	Component Nom. OD	
			Ft.	m	Lbs.	kg	Inch	mm					Inch	mm

Composite • (1) RG-59/U Coax and (2) Multi-Conductors (NEC CMR and CEC CMG FT4)

Individual Riser-Rated PVC Jackets • No Overall Jacket														
	500PTZ	CMR/CMG Vertical Shaft UL 1666	500 1000	152.4 304.8	38.5 71.0	17.5 32.3	.411	10.4	(1) Coax: RG 59/U 20 AWG (solid) Bare Copper Cond.	Video 95% Bare Copper Braid	Foam PE	PVC Black	.227	5.77
									(1) 1-Pair 23 AWG (solid) Bare Copper Cond.	Control 1-Pair Unshielded	Polyolefin White/Blue Stripe & Blue	PVC Blue	.118	3.00
									(1) 2 Cond. 18 AWG Unshielded (stranded) Bare Copper Cond.	Power 2 Cond. Unshielded	PVC Red, Black	PVC White	.171	4.34

Composite • (1) RG-59/U Coax and (2) Multi-Conductors (NEC CMP and CEC CMP FT6)

Individual Plenum-Rated Flamarrest® Jackets • No Overall Jacket														
	600PTZ	CMP NFPA 262 Plenum	500 1000	152.4 304.8	38.5 70.0	17.5 31.8	.350	8.9	(1) Coax: RG 59/U 20 AWG (solid) Bare Copper Cond.	Video 95% Bare Copper Braid	Foam Teflon®	Flamarrest Black	.193	4.90
									(1) 1-Pair 23 AWG (solid) Bare Copper Cond.	Control 1-Pair Unshielded	FEP White/Blue Stripe & Blue	Flamarrest Blue	.116	2.95
									(1) 2 Cond. 18 AWG Unshielded (stranded) Bare Copper Cond.	Power 2 Cond. Unshielded	Flamarrest Red, Black	Flamarrest White	.158	4.01

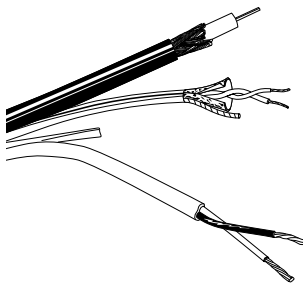
DCR = DC Resistance • F-R = Flame-retardant

PTZ Camera Cable

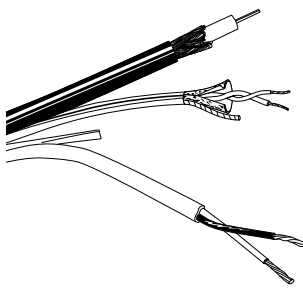
Banana Peel® Composite Cables, Plenum and Riser-Rated
The Cable Without a Jacket®

Description	Part No.	UL NEC/ C(UL) CEC Type	Standard Lengths		Standard Unit Weight		Overall Nom. OD		Component Descriptions	Application Shielding Material	Insulation Material & Color Code	Component Jacket Material & Colors	Component Nom. OD	
			Ft.	m	Lbs.	kg	Inch	mm					Inch	mm

Composite • (1) RG-59/U Coax and (2) Multi-Conductors (NEC CMR and CEC CMG FT4)

Individual Riser-Rated PVC Jackets • No Overall Jacket																	
	601PTZ	CMR/CMG Vertical Shaft UL 1666	500	152.4	42.0	19.1	.419	10.6	(1) Coax: RG 59/U 20 AWG (solid) Bare Copper Cond.	Video 95% Bare Copper Braid	Foam PE	PVC Black	.227	5.77			
			1000	304.8	78.0	35.5											
															(1) 1-Pair 22 AWG Shielded (stranded) Bare Copper Cond.	Control AL/Polyester Shielded w/20 AWG Drain Wire 8761 Type	Polyolefin White/Blue Stripe & Blue
												(1) 2 Cond. 18 AWG Unshielded (stranded) Bare Copper Cond.	Power 2 Cond. Unshielded	PVC Red, Black	PVC White	.171	4.34

Composite • (1) RG-59/U Coax and (2) Multi-Conductors (NEC CMP and CEC CMP FT6)

Individual Plenum-Rated Flamarrest® Jackets • No Overall Jacket																	
	601PTZ	CMP NFPA 262 Plenum	500	152.4	40.0	18.2	.350	8.9	(1) Coax: RG 59/U 20 AWG (solid) Bare Copper Cond.	Video 95% Bare Copper Braid	Foam Teflon®	Flamarrest Black	.193	4.90			
			1000	304.8	73.0	33.2											
															(1) 1-Pair 22 AWG Shielded (stranded) Bare Copper Cond.	Control AL/Polyester Shielded w/22 AWG Drain Wire 82761 Type	FEP Blue/White Stripe & Blue
												(1) 2 Cond. 18 AWG Unshielded (stranded) Bare Copper Cond.	Power 2 Cond. Unshielded	Flamarrest Red, Black	Flamarrest White	.158	4.01

AL = Aluminum • DCR = DC Resistance • F-R = Flame-retardant



PTZ Camera Cable

Banana Peel® Composite Cables, Plenum and Riser-Rated
The Cable Without a Jacket®

Description	Part No.	UL NEC/ C(UL) CEC Type	Standard Lengths		Standard Unit Weight		Overall Nom. OD		Component Descriptions	Application Shielding Material	Insulation Material & Color Code	Component Jacket Material & Colors	Component Nom. OD	
			Ft.	m	Lbs.	kg	Inch	mm					Inch	mm

Composite • (1) RG-59/U Coax and (2) Multi-Conductors (NEC CMR and CEC CMG FT4)

Individual Riser-Rated PVC Jackets • No Overall Jacket																
	502PTZ	CMR/CMG Vertical Shaft UL 1666	500	152.4	50.0	22.7	.451	11.5	(1) Coax: RG 59/U 20 AWG (solid) Bare Copper Cond.	Video 95% Bare Copper Braid	Foam PE	PVC Black	.227	5.77		
			1000	304.8	93.0	42.3	(1) 1-Pair 18 AWG Shielded (stranded) Bare Copper Cond.	Control AL/Polyester Shielded w/20 AWG Drain Wire 82760 Type					Polyolefin White/Blue Stripe & Blue	PVC Blue	.219	5.56
															(1) 2 Cond. 18 AWG Unshielded (stranded) Bare Copper Cond.	Power 2 Cond. Unshielded

Composite • (1) RG-59/U Coax and (2) Multi-Conductors (NEC CMP and CEC CMP FT6)

Individual Plenum-Rated Flamarrest® Jackets • No Overall Jacket																
	602PTZ	CMP NFPA 262 Plenum	500	152.4	45.5	20.7	.363	9.2	(1) Coax: RG 59/U 20 AWG (solid) Bare Copper Cond.	Video 95% Bare Copper Braid	Foam Teflon®	Flamarrest Black	.193	4.90		
			1000	304.8	85.0	38.6	(1) 1-Pair 18 AWG Shielded (stranded) Bare Copper Cond.	Control AL/Polyester Shielded w/20 AWG Drain Wire 82760 Type					FEP White/Blue Stripe & Blue	Flamarrest Blue	.150	3.81
															(1) 2 Cond. 18 AWG Unshielded (stranded) Bare Copper Cond.	Power 2 Cond. Unshielded

AL = Aluminum • DCR = DC Resistance • F-R = Flame-retardant

Fixed-Camera Cable

Siamese Cables for Cameras, Plenum-Rated and Non-Plenum

Series Type	AWG Size	Stranding	Non-Plenum			Plenum		
			Part No.	Rating	Shield/Braid Coverage	Part No.	Rating	Shield/Braid Coverage
Mini RG-59 (1) Twisted Pair*	25 20	Solid +7	579945 new	CM	95% Bare Copper + Unshielded	679948 new	CMP	95% Bare Copper + Unshielded
RG-59 (1) Twisted Pair*	20 18	Solid +7	549945	CM	95% Bare Copper + Unshielded	649948	CMP	95% Bare Copper + Unshielded
RG-6/U (1) Twisted Pair*	18 18	Solid +7	539945	CM	95% Bare Copper + Unshielded	639948	CMP	95% Bare Copper + Unshielded

*Twisted pair for power or control.

Coaxial Cables, Plenum-Rated and Non-Plenum

Series Type	AWG Size	Stranding	Non-Plenum			Plenum		
			Part No.	Rating	Shield/Braid Coverage	Part No.	Rating	Shield/Braid Coverage
RG-59/U	20	Solid	543945	CM	95% Bare Copper	643948	CMP	95% Bare Copper
RG-59/U	22	7	551945	CM	95% Bare Copper	—	—	—
RG-59/U (Water-Blocked)	20	Solid	5439W5	CM	Duofoil® + 95% TC	—	—	—
RG-6/U (Schlage)	18	Solid	5399B5	CM	Duobond® + 60% AL	—	—	—
RG-6/U (Water-Blocked)	18	Solid	5339W5	CM	Duofoil + 60% AL	—	—	—
RG-6/U	18	Solid	533945	CM	95% Bare Copper	633948	CMP	95% Bare Copper
RG-11/U	14	Solid	513945	CM	95% Bare Copper	613948	CMP	95% Bare Copper

AL = Aluminum • TC = Tinned Copper

Limited Combustible Coaxial Cables

Series Type	AWG Size	Stranding	Part No.	Rating	Shield/Braid Coverage
RG-59/U	20	Solid	7986LC new	NEC: Limited Combustible FHC 25/50 CMP	95% Bare Copper
RG-6/U	18	Solid	7985LC new	NEC: Limited Combustible FHC 25/50 CMP	95% Bare Copper

Multi-Conductor Cables, Riser and Plenum-Rated for Powering Cameras

Type	AWG Size	Stranding	Riser				Plenum			
			Part No.	Rating	Nominal OD		Part No.	Rating	Nominal OD	
					Inch	mm			Inch	mm
Unshielded, 2 Conductor (Bare Copper)	18	7	5300UE	CMR	.161	4.09	6300UE	CMP	.157	3.99
Unshielded, 2 Conductor (Bare Copper)	16	19	5200UE	CMR	.184	4.67	6200UE	CMP	.180	4.57
Unshielded, 2 Conductor (Bare Copper)	14	19	5100UE	CMR	.234	5.94	6100UE	CMP	.222	5.64

For More Information:

www.belden.com

Belden Electronics Division Technical Support 1-800-BELDEN-1 or 1-800-BELDEN-3