



Description:

RG-59/U type, 20 AWG solid .032" bare copper conductors, gas-injected foam HDPE insulation, Duofoil® + tinned copper braid shield (95% coverage), overall PVC jacket.

Physical Characteristics (Overall)

Conductor

AWG:

| # Coax | AWG | Stranding | Conductor Material | Dia. (in.) |
|--------|-----|-----------|--------------------|------------|
| 5 | 20 | Solid | BC - Bare Copper | .032 |

Insulation

Insulation Material:

| Insulation Material | Dia. (in.) |
|---|------------|
| Gas-injected FHDPE - Foam High Density Polyethylene | .145 |

Inner Shield

Inner Shield Material:

| Layer # | Inner Shield Trade Name | Type | Inner Shield Material | Coverage (%) |
|---------|-------------------------|-------|--|--------------|
| 1 | Duofoil® | Tape | Aluminum Foil-Polyester Tape-Aluminum Foil | 100 |
| 2 | | Braid | TC - Tinned Copper | 95 |

Inner Jacket

Inner Jacket Material:

| Inner Jacket Material | Nom. Dia. (in.) |
|--------------------------|-----------------|
| PVC - Polyvinyl Chloride | .235 |

Inner Jacket Color Code Chart:

| Number | Color |
|--------|--------|
| 1 | Red |
| 2 | Green |
| 3 | Blue |
| 4 | White |
| 5 | Yellow |

Outer Jacket

Outer Jacket Material:

| Outer Jacket Material |
|--------------------------|
| PVC - Polyvinyl Chloride |

Overall Cabling

Overall Nominal Diameter: 0.790 in.

Mechanical Characteristics (Overall)

Operating Temperature Range: -35°C To +75°C

UL Temperature Rating: 60°C

Non-UL Temperature Rating: 75°C

Bulk Cable Weight: 238 lbs/1000 ft.

Max. Recommended Pulling Tension: 360 lbs.

Min. Bend Radius (Install)/Minor Axis: 8 in.

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

| | |
|---------------------------------------|------------|
| NEC/(UL) Specification: | CMR |
| CEC/C(UL) Specification: | CMG |
| EU CE Mark: | Yes |
| EU Directive 2000/53/EC (ELV): | Yes |
| EU Directive 2002/95/EC (RoHS): | Yes |
| EU RoHS Compliance Date (mm/dd/yyyy): | 01/01/2004 |
| EU Directive 2002/96/EC (WEEE): | Yes |
| EU Directive 2003/11/EC (BFR): | Yes |
| CA Prop 65 (CJ for Wire & Cable): | Yes |
| MII Order #39 (China RoHS): | Yes |
| RG Type: | 59/U |

Flame Test

| | |
|----------------|-----------------------|
| UL Flame Test: | UL1666 Vertical Shaft |
|----------------|-----------------------|

Suitability

| | |
|------------------------|-----|
| Suitability - Indoor: | Yes |
| Suitability - Outdoor: | Yes |

Plenum/Non-Plenum

| | |
|---------------|----|
| Plenum (Y/N): | No |
|---------------|----|

Electrical Characteristics (Overall)

Nom. Characteristic Impedance:

| |
|-----------------|
| Impedance (Ohm) |
| 75 |

Nom. Inductance:

| |
|--------------------|
| Inductance (µH/ft) |
| 0.107 |

Nom. Capacitance Conductor to Shield:

| |
|---------------------|
| Capacitance (pF/ft) |
| 16.2 |

Nominal Velocity of Propagation:

| |
|--------|
| VP (%) |
| 83 |

Nominal Delay:

| |
|---------------|
| Delay (ns/ft) |
| 1.22 |

Nom. Conductor DC Resistance:

| |
|--------------------------|
| DCR @ 20°C (Ohm/1000 ft) |
| 10.0 |

Nom. Inner Shield DC Resistance:

| |
|--------------------------|
| DCR @ 20°C (Ohm/1000 ft) |
| 3.8 |

Nom. Attenuation:

| Freq. (MHz) | Attenuation (dB/100 ft.) |
|-------------|--------------------------|
| 1 | 0.3 |
| 3.6 | 0.6 |
| 10 | 0.9 |

| | |
|------|------|
| 71.5 | 2.1 |
| 135 | 2.7 |
| 270 | 3.8 |
| 360 | 4.4 |
| 540 | 5.5 |
| 720 | 6.4 |
| 750 | 6.5 |
| 1000 | 7.6 |
| 1500 | 9.4 |
| 2500 | 12.4 |
| 3000 | 13.8 |

Max. Operating Voltage - UL:

| |
|----------------|
| Voltage |
| 300 V RMS |

Other Electrical Characteristic 1: Impedance tested in accordance with ASTM D-4566 paragraph 43.2, option 2 using a 75 Ohm fixed bridge and termination.

Other Electrical Characteristic 2: Return Loss Tested in Accordance With ASTM D-4566 Paragraph 45.3, Using a 75 Ohm Fixed Bridge and Termination.

Minimum Return Loss:

| Start Freq. (MHz) | Stop Freq. (MHz) | Min. RL (dB) |
|-------------------|------------------|--------------|
| 5 | 560 | 23 |
| 560 | 645 | 15 |
| 645 | 850 | 23 |
| 851 | 3000 | 15 |

Sweep Test

Sweep Testing: Sweep tested 5 MHz to 3 GHz.

Put Ups and Colors:

| Item # | Putup | Ship Weight | Color | Notes | Item Desc |
|---------------|----------|-------------|--------------|-------|-------------------------------|
| 7796A B591000 | 1,000 FT | 299.000 LB | BLACK, MATTE | C | 5 #20 PE/GIFHDPE SH FRPVC PVC |
| 7796A B59500 | 500 FT | 153.000 LB | BLACK, MATTE | C | 5 #20 PE/GIFHDPE SH FRPVC PVC |

Notes:
C = CRATE REEL PUT-UP.

Introduction



Broadcast — there is perhaps no other industry which values performance so highly, for the lack of broadcast performance has immediate, far-reaching, and embarrassing results.

That's why the broadcast industry prefers Belden® cable. From major network events such as the Olympics, space launches, and presidential news conferences to everyday audio and video applications, Belden is the local, regional, and national choice. The overwhelming reason? Performance.

In broadcast, cable performance means ensured product quality, absolute signal integrity, and no system downtime. Belden products provide performance for both critical field applications (where cable is dragged, crunched, trod, and tread upon) and permanent studio installations (where the long run is all important). Belden products are an important link in network and cable broadcasts (NBC Nightly News, Lifetime Cable Network, CNN News, and CNN Headline News), film studios (Lucasfilm) and corporate broadcasting (USA Today, Merrill Lynch).

Watch television last night or listen to the radio this morning? Chances are the link was made with Belden cable. And with dedication to development and innovation, the chance the link will be Belden increases.

Committed to Product Innovation and Technical Excellence

Belden's commitment to product innovation and technical excellence in the broadcast industry has resulted in a line of dependable audio and video cabling products called Brilliance®. Named for the sound and picture brilliance obtainable through new product innovations and improved signal integrity, Brilliance encompasses all Belden Audio/Video products. The line includes:

- High-Conductivity Microphone Cables
- Analog/Digital Audio Cables
- Speaker Cables
- Precision Analog/Digital Video Cables
- Triaxial Cables
- Audio/Video Composite Cables
- RGB & Component Video Cables
- Multimedia Cables
- Fiber Optic Cable
(See Fiber Optic Section)

Most of our Brilliance cables are available from stock. Many of these are available off the shelf from distributors. If you have a new or unusual application or you cannot find Brilliance cable in this catalog section that meets your technical requirements, contact Technical Support at 1-800-BELDEN-1.

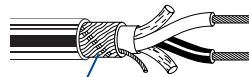
Performance Features

Innovative Shielding

Belden shielded cable ensures signal integrity and provides confidence in audio and video transmissions, preventing downtime and maintaining sound and picture clarity. Among the shield types available are: braid shields, foil shields, combination shields and Belden's patented "French Braid" shield.

"French Braid" Shields

Belden's patented "French Braid" shield is a double spiral (double serve bare copper shield) with the two spirals tied together by one weave. This construction provides improved flex life over standard spiral shields, improved flexibility over conventional braid shields, and lower levels of microphonic or triboelectric noise than either spiral or conventional braid shields. The "French Braid" is easier to terminate than a standard braid since it is not fully woven. It also provides for a lower DC loop resistance than a single spiral braid for improved performance.



French Braid

Special Noise/Interference Problems in Broadcasting

Triboelectric noise is generated by mechanical motion of a cable, causing movement in the cable's shield. Belden detects and measures triboelectric noise through the use of Low Noise Test equipment. Belden developed the test procedure and the equipment based on a combination of three low noise standards: NBS, ISA-S, and MIL-C-17.

Mechanically induced noise is a critical and frequent concern in the use of guitar cords and microphone cables. Belden rigorously employs the properties of special conductive tapes and insulations to prevent these noise problems.

Insulations

Belden formulates its own insulations to provide superior performance under a variety of broadcast environment conditions while meeting the electrical requirements of specific applications. Belden cables are available in a number of UL Listed and CSA Approved insulation compounds. Insulation materials include polyethylene, polypropylene, PVC, fluorinated ethylene-propylene (FEP) and Belden's Datalene® — a crush-resistant, lightweight insulation that provides a low dielectric constant and dissipation factor that's well suited to high-speed, low-distortion data handling.

Jackets

Belden broadcast cables are manufactured in a wide selection of standard jacketing materials. Special compounds and variations of standard compounds are used to meet critical broadcast application requirements and unusual environmental conditions. Proper matching of cable jackets to their working environment can prevent deterioration due to intense heat and cold, sunlight, mechanical abuse, impact and crowd or vehicle traffic. Jacket materials offered include PVC (in standard and matte finishes), polyethylene, FEP, Neoprene, Hypalon®, silicone rubber and natural rubber.

For more detailed information and assistance in selecting the correct cable component features for your needs, please refer to the Technical Information section of this catalog.

Hypalon is a DuPont trademark.

VideoFLEX® Snake Cable for Precision Digital and Analog

Bundled Miniature and RG-59/U Type



19 • Brilliance® Broadcast

| Description | Part No. | UL NEC/ C(UL) CEC Type | No. of Cond. | Standard Lengths | | Standard Unit Weight | | Conductor (stranding) Diameter Nom. DCR | Nominal Core OD | | Shielding Materials Nom. DCR | Nominal OD | | Nom. Imp. (Ω) | Nom. Vel. of Prop. | Nominal Capacitance | | Nominal Attenuation | |
|-------------|----------|------------------------|--------------|------------------|---|----------------------|----|---|-----------------|----|------------------------------|------------|----|---------------|--------------------|---------------------|------|---------------------|-------------|
| | | | | Ft. | m | Lbs. | kg | | Inch | mm | | Inch | mm | | | pF/Ft. | pF/m | MHz | dB/ 100 Ft. |

Miniature • 23 AWG Solid .023" Bare Copper Conductors • Duofoil® (100% Coverage) + Tinned Copper Braid Shield (95% Coverage)

Gas-injected Foam HDPE Insulation • Overall Matte Black PVC Jacket (Color Code: See chart below)

| | | | | | | | | | | | | | | | | | | | | |
|---|--------------|---------|----|------|-------|-------|-------|---|------|------|--|------|-------|----|-----|------|------|------|------|------|
| SDI/HDTV Digital Video 75°C/60°C (UL) (1855A Bundled) | 7787A | NEC: | 3 | 500 | 152.4 | 47.5 | 21.6 | 23 AWG (solid) .023" BC 20.1Ω/M' 65.9Ω/km | .102 | 2.55 | Duofoil + 95% TC Braid 7.6Ω/M' 24.9Ω/km | .432 | 10.97 | 75 | 83% | 16.5 | 54.1 | 1 | .4 | 1.3 |
| | | CEC: | | 1000 | 304.8 | 94.0 | 42.7 | | .159 | 4.03 | | 3.6 | .8 | | | | | 2.6 | | |
| | | CMR: | | | | | | | | | | | | | | | | 10 | 1.2 | 3.9 |
| | | CEC: | | | | | | | | | | | | | | | | 71.5 | 3.1 | 10.0 |
| | | CMG FT4 | | | | | | | | | | | | | | | | 135 | 3.8 | 12.5 |
| | | | | | | | | | | | | | | | | | | 270 | 5.4 | 17.7 |
| | | | | | | | | | | | | | | | | | | 360 | 6.2 | 20.3 |
| | | | | | | | | | | | | | | | | | | 540 | 7.7 | 25.3 |
| | | | | | | | | | | | | | | | | | | 720 | 9.1 | 29.8 |
| | | | | | | | | | | | | | | | | | | 750 | 9.5 | 31.2 |
| | | | | | | | | | | | | | | | | | | 1000 | 10.5 | 34.4 |
| | | | | | | | | | | | | | | | | | | 1500 | 13.0 | 42.6 |
| | | | | | | | | | | | | | | | | | | 2500 | 16.9 | 55.4 |
| | | | | | | | | | | | | | | | | | | 3000 | 18.5 | 60.7 |
| | 7788A | NEC: | 4 | 1000 | 304.8 | 110.0 | 49.9 | same | .102 | 2.55 | same | .481 | 12.22 | | | | | | | |
| | | CMR: | | | | | | | as | | | | | | | | | | | |
| | | CEC: | | | | | | above | .159 | 4.03 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |
| | 7789A | NEC: | 5 | 500 | 152.4 | 73.0 | 33.1 | same | .102 | 2.55 | same | .539 | 13.69 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 142.0 | 64.4 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .159 | 4.03 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |
| | 7790A | NEC: | 6 | 500 | 152.4 | 88.5 | 40.2 | same | .102 | 2.55 | same | .597 | 15.16 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 176.0 | 79.8 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .159 | 4.03 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |
| | 7791A | NEC: | 10 | 500 | 152.4 | 155.5 | 70.5 | same | .102 | 2.55 | same | .796 | 20.22 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 304.0 | 137.9 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .159 | 4.03 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |
| | 7792A | NEC: | 12 | 500 | 152.4 | 178.5 | 81.0 | same | .102 | 2.55 | same | .825 | 20.96 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 367.0 | 166.5 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .159 | 4.03 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |

Sweep tested 5 MHz to 3 GHz.

RG-59/U Type • 20 AWG Solid .032" Bare Copper Conductors • Duofoil (100% Coverage) + Tinned Copper Braid Shield (95% Coverage)

Gas-injected Foam HDPE Insulation • Overall Matte Black PVC Jacket (Color Code: See chart below)

| | | | | | | | | | | | | | | | | | | | | |
|---|--------------|---------|----|------|-------|-------|-------|---|------|------|--|-------|-------|----|-----|------|------|------|------|------|
| SDI/HDTV Digital Video 75°C/60°C (UL) (1505A Bundled) | 7794A | NEC: | 3 | 500 | 152.4 | 94.5 | 43.0 | 20 AWG (solid) .032" BC 10.0Ω/M' 32.8Ω/km | .145 | 3.68 | Duofoil + 95% TC Braid 3.8Ω/M' 12.5Ω/km | .631 | 16.03 | 75 | 83% | 16.2 | 53.1 | 1 | .3 | 1.0 |
| | | CEC: | | 1000 | 304.8 | 187.0 | 84.8 | | .235 | 5.97 | | 3.6 | .6 | | | | | 1.8 | | |
| | | CMR: | | | | | | | | | | | | | | | | 10 | .9 | 2.9 |
| | | CEC: | | | | | | | | | | | | | | | | 71.5 | 2.1 | 6.9 |
| | | CMG FT4 | | | | | | | | | | | | | | | | 135 | 2.7 | 8.9 |
| | | | | | | | | | | | | | | | | | | 270 | 3.8 | 12.5 |
| | | | | | | | | | | | | | | | | | | 360 | 4.4 | 14.4 |
| | | | | | | | | | | | | | | | | | | 540 | 5.5 | 18.0 |
| | | | | | | | | | | | | | | | | | | 720 | 6.4 | 21.0 |
| | | | | | | | | | | | | | | | | | | 750 | 6.5 | 21.3 |
| | | | | | | | | | | | | | | | | | | 1000 | 7.6 | 24.9 |
| | | | | | | | | | | | | | | | | | | 1500 | 9.4 | 30.8 |
| | | | | | | | | | | | | | | | | | | 2500 | 12.4 | 40.7 |
| | | | | | | | | | | | | | | | | | | 3000 | 13.8 | 45.3 |
| | 7795A | NEC: | 4 | 500 | 152.4 | 116.5 | 53.0 | same | .145 | 3.68 | same | .706 | 17.93 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 237.0 | 107.7 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .235 | 5.97 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |
| | 7796A | NEC: | 5 | 500 | 152.4 | 153.0 | 69.4 | same | .145 | 3.68 | same | .790 | 20.07 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 299.0 | 135.6 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .235 | 5.97 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |
| | 7798A | NEC: | 10 | 500 | 152.4 | 319.5 | 145.2 | same | .145 | 3.68 | same | 1.166 | 29.62 | | | | | | | |
| | | CMR: | | | 1000 | 304.8 | 625.0 | 284.1 | as | | | as | | | | | | | | |
| | | CEC: | | | | | | above | .235 | 5.97 | above | | | | | | | | | |
| | | CMG FT4 | | | | | | | | | | | | | | | | | | |

Sweep tested 5 MHz to 3 GHz.

BC = Bare Copper • DCR = DC Resistance • HDPE = High-density Polyethylene • TC = Tinned Copper

Color Code Chart

| Cond. | Color | Cond. | Color | Cond. | Color |
|-------|-------|-------|--------|-------|--------|
| 1 | Red | 5 | Yellow | 9 | Purple |
| 2 | Green | 6 | Brown | 10 | Black |
| 3 | Blue | 7 | Orange | 11 | Pink |
| 4 | White | 8 | Gray | 12 | Tan |

