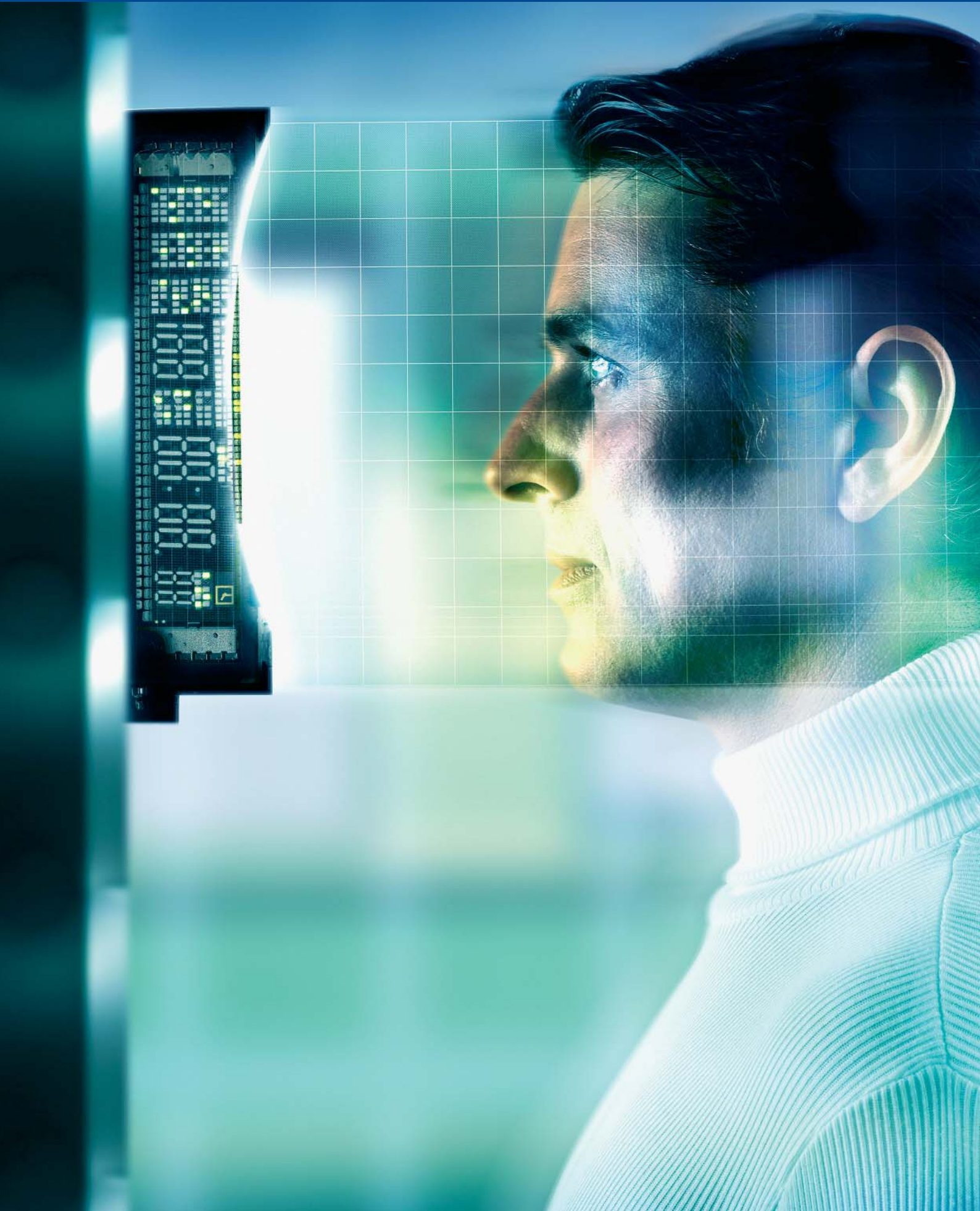


## Effective Solutions for Security Applications



**Fully integrated solutions, combining copper cable, fiber, wireless technology, connectors, switches and active components to bring voice, video and data to mission critical applications.**

**BELDEN**  
SENDING ALL THE RIGHT SIGNALS





## Belden® for the Best Security Solutions in the World

Belden designs, manufactures and markets high-speed electronic cables, connectivity products and related items for the specialty electronics and data networking markets. The company focuses on segments of the worldwide cable and connectivity market that require highly differentiated, high-performance products, adding value through design, engineering, excellence in manufacturing, product quality and customer service.

### Total Connectivity Solutions Supplier

Belden is a total connectivity solutions provider, with a portfolio that includes the full range of Belden® cables, Hirschmann™ connectors and switches and Lumberg Automation™ connectors, all supported by a strong and experienced team of experts.

### Well Established and with More Choice Than Ever

Belden has long been committed to the development of high quality solutions and is the top choice for the world's most prominent security system designers and integrators. They know that they can trust Belden to deliver solutions that perform reliably to industry standards, day in and day out.

The Belden team integrates copper cable, fiber, wireless technology, connectors, switches and active components to bring voice, video and data to any mission-critical security application. Belden offers a complete line of value-added CCTV, access control, intruder detection and fire alarm cables. In short, Belden offers the security industry more choices than ever before.

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### Table of Reference (additional documentation to the products mentioned in this brochure)

Product	Additional Information	Page
<b>CCTV Cables</b>	<b>Belden Master Catalog, Chapter 20</b>	<b>4</b>
<b>Banana Peel®</b>	<b>NP 256 Composite Surveillance Monitoring Cables</b>	<b>4</b>
<b>Compression Connectors</b>	<b>NP 313 Compression Connectors and Tools</b>	<b>5</b>
<b>Connector to Cable</b>	<b>Cross Reference Guide</b>	<b>5</b>
<b>FX Brilliance Connectors</b>	<b>NP 308E FiberExpress® Brilliance® Field-Installable Connectors</b>	<b>7</b>

## CCTV Coaxial

Belden reduces installation time by requiring less set-up, pulling and termination time.

### Analogue

Belden offers a range of CCTV cables that provides security installers and/or system integrators in particular with readily available, cost effective alternatives that perform to the highest industry standards. These cables are designed for CCTV applications, where they deliver competitive price/performance when compared to cables of a similar construction.

Key features and benefits include:

- Coaxial cable with solid copper conductor for low attenuation and easier termination
- True 75 ohm impedance – ensures no impedance mismatches for optimum whole-system performance, quality signal transmission over long distances
- Sequential marking – for usage tracking during installation
- A whole step in the termination process is eliminated – thanks to Banana Peel® sleeveless cable design

Part Number	Distance	Description
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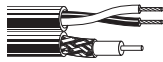
#### Coaxial Cables



573945*	200 m	Mini RG-59
543945*	300 m	RG-59
533945*	500 m	RG-6
513945*	700 m	RG-11
551945*	200 m	RG-59 (stranded conductor)
5439W5*	300 m	RG-59 (water blocked)
5339W5*	500 m	RG-6 (water blocked)

#### Coaxial Cables plus auxiliary pairs

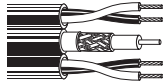
To carry a DC power supply, transmit audio and/or control



579945*	150 m	Mini RG-59 + 0.8 mm
549945*	300 m	RG-59 + 1.0 mm pair
539945*	500 m	RG-6 + 1.0 mm pair

#### Coaxial Cables plus four wires

Two wires for control and two wires for power

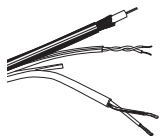


SEC0002	300 m	RG-59 + 2 x 0.5 mm + 2 x 1.5 mm wire
SEC0004	300 m	RG-59 + 2 x 0.5 mm + 2 x 0.22 mm wire

#### Coaxial Cables plus four wires

BananaPeel® – The Cable without a jacket

Two wires for control and two wires for power



500PTZ	300 m	RG-59 + 2 x 1.2 mm + 2 x 0.6 mm wire
501PTZ	300 m	RG-59 + 2 x 1.2 mm + 2 x 0.8 mm wire
502PTZ	300 m	RG-59 + 2 x 1.2 mm + 2 x 1.2 mm wire
503PTZ	300 m	RG-59 + 2 x 1.6 mm + 2 x 1.2 mm wire
504PTZ	300 m	RG-59 + 2 x 1.6 mm + 2 x 0.8 mm wire

\* Also available with a halogen-free jacket. If you would like to order the halogen-free version, please replace the first digit, number 5, with a 4.

For example:  
573945 – PVC jacket  
473945 – halogen-free jacket



## HDcctv

Belden continues to be at the forefront of video technology. HDcctv\* is derived from HD-SDI, the broadcast standard. The HDcctv specification includes:

- Bi-directional audio;
- Up-the-cable transmission of control and power;
- Long Reach mode (in the near future draft version 2) for 300 m transmission over conventional RG-59 cable;
- Video formats up to 20 megapixels per frame;
- HD transmission of 720P and 1080P video over coaxial cable uncompressed and non-packetized (version1, according SMPTE 292M);
- No latency, compression or video delay – much faster than IP-based CCTV solutions;

Belden joined the HDcctv Alliance as we recognize both the value of HDcctv in the video surveillance market and the importance of having interoperability standards. Delivering high-resolution video images, this new camera connection technology allows for higher performing systems, with a lower installation learning curve and a significantly lower cost of entry.



Part Number	Description
543945	RG-59, "gold standard", transmit 1.5 GB/s over 150 m
533945	RG-6, 200 m single run at 1.5 GB/s

\* HDcctv Alliance® is the global security industry consortium established to manage and promote technical standards for HDcctv equipment interoperability.

## Compression Connectors

Built to Belden's exacting standards, Belden Connectors and Tools, combined with Belden coaxial cables, provide maximum signal reliability and performance, which means enhanced customer satisfaction and profitability for you.

Key features and benefits include:

- Belden 360-degree compression
- Viewed entry point with pop-up pin
- Custom compression tools
- Easy dispensing tubes
- Connector warranty

Part Number	Cable Type
-------------	------------

### Connectors

F Series	
BBRG59F	RG-59
BBRG66F	RG-6
BNC Series	
BBRG59B	RG-59
BBRG66B	RG-6
BBMINIB	22–24 AWG
BB2426B	22–26 AWG
RCA Series	
BBRG59R	RG-59
BBRG66R	RG-6
BBMINIR	22–24 AWG
BB2426R	22–26 AWG



Part Number	Description	Quantity
-------------	-------------	----------

### Accessories

Strip Tools		
BBRGST	59/6 for RG-59 or RG-6 Cable	1
BBRGBST	RGB for Mini RGB Cable 22–26 AWG	1
Compression Tool		
BBCOMT	For BB Series F, RCA and BNC Connectors	1

**CCTV**  
IP-based Solutions

**Cables**

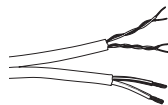
Belden's data products – designed and manufactured exclusively for video, sound and security system integrators – offer a cost-effective digital solution for demanding applications.

Belden provides superior performance both before and after the cable's installation.

**Copper**

Key features and benefits include:

- 4-pair unshielded twisted pair (UTP) cables provide both signal transmission and Power over Ethernet (PoE) capabilities in a single cable, eliminating the need for an external power source.
- Belden UTP data cables feature patented Bonded-Pair construction – a unique advantage ensuring consistently high Installable Performance® both before and after installation.
- Improved attenuation ensures stronger signal power.
- Available in Spool-in-Box packaging for ease of installation, handling and inventory management.



Part Number	Description
<b>Networking Cables</b>	
<b>Category 5e</b>	
5663U5*	U/UTP
1633E	F/UTP
1633ES	SF/UTP
<b>Category 6</b>	
5663U6*	U/UTP
7860ENH	F/UTP
7860ENS	SF/UTP
<b>Category 6a</b>	
24818095	U/UTP
<b>Category 7</b>	
1885ENH	S/FTP
<b>2-Pair UTP + 2 wire</b>	
5284US*	2 x 1.5 mm + 2 x 0.5 mm
5284UE*	2 x 1.5 mm + 2 x 0.6 mm
<b>Category 5e + 2 wire</b>	
5288US*	2 x 1.5 mm + 4 x 0.5 mm

\* Also available with a halogen-free jacket. If you would like to order the halogen-free version, please replace the first digit, number 5, with a 4.

For example: 5663U5 – PVC jacket, 4663U5 – halogen-free jacket

**Fiber**

Belden offers a complete product range of optical fiber cables with:

- Single-mode fibers
- Multimode fibers 62.5/125 and 50/125 (OM2, OM2+, OM3, OM4)



Part Number	Description
<b>Fiber Cables</b>	
GIPS_1	Simplex, I-K(ZN)H
GIPS_2	Duplex, I-K(ZN)
GIBT	Breakout, I-V(ZN)HH, 2–24 fibers
GUMT	Mini-Breakout, A/I-V(ZN)H, 2–24 fibers
GOSB	Central-Loose-Tube, A-DQ(ZN)2Y, 2–24 fibers
GBAM	Multi-Loose-Tube, A-DQ(ZN)2Y, 4–216 fibers



## FiberExpress® Brilliance® Field-Installable Connectors

Belden's FiberExpress Brilliance Field-installable Connectors ensure reliable network performance by virtue of their superior design and manufacture. Quality of this kind enables Belden to provide a 100% installation yield guarantee – even when the connectors are used in environments with temperatures ranging from -40°C to +75°C.

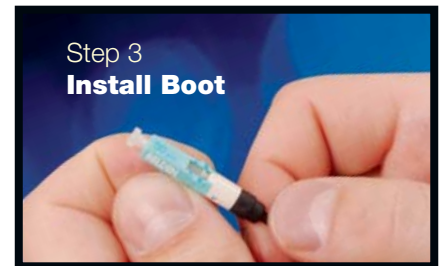
The FiberExpress Brilliance Connector is the only fiber optic connector in the marketplace to overcome the key challenges of connector

installation in the field and it provides a quick and greatly simplified tool-less fiber termination process and the ability to quickly and reliably verify the termination once it's made.

These features positions the connector as the industry's best solution for the challenges of field connectorization of optical fiber networks. It is also the connector of choice for high-speed optical networks such as 10G Ethernet and the more challenging 40G/100G networks of the future.

Belden's FiberExpress Brilliance Field-installable Connectors are available in 900 µm tight buffered single-mode and multimode (OM1, OM2, OM3/OM4) LC, SC and ST Connectors. They exhibit a typical insertion loss of 0.2 dB. The 2 and 3 mm jacketed options and APC versions will become available in 2011.

### Fool-Proof Termination in Three Simple Steps... Now That's Brilliance



## Switches

Belden offers a range of Hirschmann™ industrial switches for use in CCTV Systems, especially suited for outdoor use.

Key features and benefits include:

- Robust Design:
  - Standard operating temperature 0°C to 60°C
  - Extended operating temperature -40°C to 85°C + conformal coating
- Fan-less:
  - Hirschmann™ high performance circuitry generates less heat. This means that there is no dependence on a fan for cooling and that the circuits have an extremely high MTBF (Mean Time Before Failure) while being able to operate at temperatures as high as 85°C.
  - Higher MTBF because of no fans (first device who fails is a fan) – no noise
  - No vacuuming of dust.
- Easy to Configure:
  - Managed switches feature built-in (password protected) web interface. Configuration via SNMP and command line interface (CLI) is also available. Remote configuration and monitoring is possible through the network.
  - Easy to configure via the web interface, all Hirschmann™ switches have the same management interface. If you know one you know all.
- Fast Replacement:
  - Fast switch replacement/MTR (Mean Time To Repair) using copy-cat and/or configuration archiving using USB drive.
  - The ACA (Auto Configuration Adapter) makes it possible to store the configuration of the switch and load it back to an identical device, in the event of a replacement. Therefore, no trained employee is necessary which reduces the cost of a replacement.



Belden's industrial switches are constructed for maximum performance and reliability. They are the perfect choice for rugged and harsh environments.



**Switches (continued)**

- **IT-Compatible:**  
Fully IT-compatible managed switch functionality with SNMP and RMON. Compatible with industry standard network management tools and other brands of switches for configuration and monitoring.
- **Media Redundancy Options:**  
Hiper-Ring allows simplified redundant network topologies which will recover from media failure within 50 ms (Gigabit ring) or 300 ms (100 Mbps ring) – no software configuration is required.
- **RSTP (Rapid Spanning Tree) and trunking/link aggregation redundancy is also available.**
- **Fault Contact(s):**  
97% of the switches in the market include at least one configurable fault contact that can provide indication of lost power supply, lost redundancy, temperature out of limits, etc. Hirschmann™ industrial switches guarantee 100% fault-free tested contacts ensuring maximum uptime. This feature is not available for office switches.
- **Broad Product Line:**  
Managed and unmanaged switches (4-48 ports in an almost limitless copper/fiber mix), Layer 3 routers, media converters, wireless, firewalls with VPN tunneling and network management software.
- **Service:**  
Belden offers global service and consulting, as well as training and certification programs for it's Hirschmann™ product range.

**Switches**

**BAT54**

Wireless LAN Access Points/Clients with IEEE 802.11a/b/g/h/i

**BAT300**

Wireless LAN Access Points/Clients with IEEE 802.11n

**MACH100**

Switches with 10/24 ports

**MACH1000**

Switches with 16/20 ports

**MACH4000**

Backbone switches/router up to 48 GBit/s ports and 3x10 GBit/s ports

**RS20/30**

Robust DIN Rail switches with 8/10 ports

**SPIDER**

Unmanaged Standard Rail switches with 2/10 ports





## Access Control

### Banana Peel® Saves Time and Money

Belden Access Control Banana Peel Composites feature a patented design that affixes the individual cables to a center spline, eliminating the need for an overall jacket.

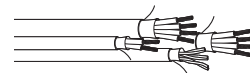
Key features and benefits include:

- A whole step in the termination process is eliminated - no overall jacket.
- The Banana Peel composite has a smaller OD than traditional composites. This improves the cable's overall bend radius for faster, easier installation. A smaller OD also means a smaller size conduit.
- Eliminates the need for pulling several individual components by using an all-in-one Banana Peel cable (reducing installation costs and time).
- The individual cable components are all instantly identifiable, they are color-coded by application, they have the application printed on the individual jackets, and they are ready for termination.
- Experience and studies have shown installing one cable instead of four saves time and money. In one Belden-sponsored study involving Belden unjacketed Banana Peel Composites, the savings equalled or exceeded 31% for labor and 14% in end-user costs.
- Breakout versatility is assured since the individual cables can be connected to the junction box or can be rerouted to the point of termination.

Part Number	Description
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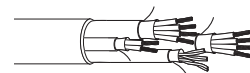
#### Banana Peel™ – The Cable without a jacket.

Lock + Reader + Door + Spare	
558AFS	4 x 1.2 mm + 3P x 0.8 mm + 2 x 0.8 mm + 4 x 0.8 mm
558GMS	4 x 1.2 mm + 6 x 0.8 mm + 4 x 0.8 mm + 4 x 0.8 mm
558GFS	4 x 1.2 mm + 3P x 0.8 mm + 2 x 0.8 mm + 3P x 0.8 mm
538AFS	4 x 1.5 mm + 3P x 1.2 mm + 2 x 1.2 mm + 4 x 1.2 mm



#### Combination Cables

Lock + Reader + Door + Spare	
558AFJ	4 x 1.2 mm + 3P x 0.8 mm + 2 x 0.8 mm + 4 x 0.8 mm



## Intruder Detection

### Safeguarding and Protecting Your Business

The quality of the systems depends on the performance of all individual components and the way they interact. Belden offers the most comprehensive, economical and up-to-date range of reliable cable products on the market today, to ensure that your security systems stay on the go.

Key features and benefits include:

- Top of the line shielded and unshielded cables that allow the use of the total network length.
- Belden shielded cables feature patented innovative, high performance Beldfoil® shield, for unique performance and utmost reliability.
- Multi pair configurations allow maximum flexibility in designing your network.
- Different versions, PVC, LSNH, FEP are available as standard items fit for purpose.

Belden's cable range offers one of the largest, most economical and up-to-date selections of reliable multi-conductor products in the market today.

Application	Description	Part Number		
		PVC	LSNH	SWA
Data	22 AWG-2P Individual Shield	8723	8723NH	8723LS
DMP Weigland Module 733	18 AWG-6C STR Unshielded	8489	-	-
RS422 Data 4 Wire Extended Distance	24 AWG-2P (4C) STR OS Low CAP	8102	-	-
Reader	22 AWG-3P STR Individual Shield	8777	8777NH	8777LS
Reader	20 AWG-3P STR Individual Shield	9873	8777NH	8777LS
Reader	18 AWG-3P STR Individual Shield	9773	-	-
Lock Power-EDR	20 AWG-1P STR Unshielded	8205	8205NH	-
Power Extended Load/Distance	16 AWG-2C STR Unshielded	8471	8471NH	8471LS
RS232 Data/General Purpose	24 AWG-1P STR Overall Shield	9501	9501NH	-
RS232 Data/General Purpose	24 AWG-2P STR Overall Shield	9502	9502NH	9502LS
RS232 Data/General Purpose	24 AWG-4P STR Overall Shield	9504	9504NH	-
REX-Alarm Points-Glass Break	18 AWG-1P STR Overall Shield	8760	8760NH	8706LS
Door Switch-Button-Alarm Points	22 AWG-1P STR Overall Shield	8761	8761NH	-
High Performance CCTV Coax	RG-59 Coax	8241	-	8241LS



## Fire Alarm

### Designed for Easy Installation to Save Time and Labor Costs

When a fire occurs, there is no time for hesitation and every second counts. It is critical that fire detection, warning and alarm circuits continue to operate even under the most extreme conditions of fire, smoke and heat. There is nothing more important than the safety and evacuation of personnel and the fire alarm system must not fail.

Belden's New Generation® range features cables specifically designed for use during severe fires where a low-smoke, zero-halogen cable is required to maintain circuit integrity.

These cables are ideal for fire detection systems, emergency lighting, video surveillance and public address systems.

Key features and benefits include:

- High-performance alarm circuits
- Uninterrupted operation during severe fires

Part Number	Description
<b>Unshielded Multiconductor</b>	
<b>Solid, PVC Jacket</b>	
55xxUL	22 AWG, 0.6 mm, 4, 6 conductors
53xxUL	18 AWG, 1.0 mm, 2, 4, 6, 8, 10, 12 conductors
52xxUL	16 AWG, 1.3 mm, 4, 6 conductors
51xxUL	14 AWG, 1.6 mm, 2, 4 conductors
50xxUL	12 AWG, 2.1 mm, 2, 4 conductors
<b>Solid, Halogen-free Jacket</b>	
45xxUL	22 AWG, 0.6 mm, 4, 6 conductors
43xxUL	18 AWG, 1.0 mm, 2, 4, 6, 8, 10, 12 conductors
42xxUL	16 AWG, 1.3 mm, 4, 6 conductors
41xxUL	14 AWG, 1.6 mm, 2, 4 conductors
40xxUL	12 AWG, 2.1 mm, 2, 4 conductors
<b>Shielded Multiconductor</b>	
<b>Solid, PVC Jacket</b>	
55xxFL	22 AWG, 0.6 mm, 4, 6 conductors
53xxFL	18 AWG, 1.0 mm, 2, 4, 6, 8, 10, 12 conductors
52xxFL	16 AWG, 1.3 mm, 4, 6 conductors
51xxFL	14 AWG, 1.6 mm, 2, 4 conductors
50xxFL	12 AWG, 2.1 mm, 2, 4 conductors
<b>Solid, Halogen-free Jacket</b>	
45xxFL	22 AWG, 0.6 mm, 4, 6 conductors
43xxFL	18 AWG, 1.0 mm, 2, 4, 6, 8, 10, 12 conductors
42xxFL	16 AWG, 1.3 mm, 4, 6 conductors
41xxFL	14 AWG, 1.6 mm, 2, 4 conductors
40xxFL	12 AWG, 2.1 mm, 2, 4 conductors



## GLOBAL LOCATIONS

Customer Service: +31 (0) 77 3875 414

See [www.beldensolutions.com](http://www.beldensolutions.com) for a complete listing of Belden locations.



## EUROPE / AFRICA / MIDDLE EAST

### The Netherlands Division Headquarters – Europe, Middle East, Africa

Visiting address:  
Edisonstraat 9  
5928 lo  
The Netherlands  
Postal address:  
P.O. Box 9  
5900 AA Venlo  
The Netherlands  
**Phone: +31-77-3878-555**  
Fax: +31-77-3878-488  
[venlo.salesinfo@belden.com](mailto:venlo.salesinfo@belden.com)

### France

Immeuble le Cesar  
20, Place Louis Pradel  
69001 Lyon  
France  
**Phone: +33-472-109-990**  
Fax: +33-478-298-409  
[lyon.salesinfo@belden.com](mailto:lyon.salesinfo@belden.com)

### Italy

Centro Direzionale Colleoni  
C.D. Colleoni, Pal. Sirio, Ing. 2  
Viale Colleoni, 9  
20041 Agrate Brianza (MB)  
Italy  
**Phone: +39-039-596-5250**  
Fax: +39-039-596-5255  
[info.milano@belden.com](mailto:info.milano@belden.com)

### Russia

Zemlyanoy Val 9  
Business Centre  
Regus Citydel Moscow  
105064 Moscow  
Russia  
**Phone: +7-495-287-1391**  
Fax: +7-495-967-9700  
[info@belden.ru](mailto:info@belden.ru)

### Spain

C/Anabel Segura, 10  
Edificio Fiteni IX  
28108 Alcobendas  
Madrid  
Spain  
**Phone: +34-91-746-1730**  
Fax: +34-91-746-1735  
[lyon.salesinfo@belden.com](mailto:lyon.salesinfo@belden.com)

### Sweden

Carlsgatan 12 A  
SE-211 20 Malmö  
Sweden  
**Phone: +46-40-699-8860**  
Fax: +46-40-699-8861  
[venlo.salesinfo@belden.com](mailto:venlo.salesinfo@belden.com)

### United Kingdom

Manchester International  
Office Centre, Suite 13  
Styal Road  
Manchester M22 5WB  
United Kingdom  
**Phone: +44-161-498-3749**  
Fax: +44-161-498-3762  
[manchester.salesinfo@belden.com](mailto:manchester.salesinfo@belden.com)

### Africa / Middle East

Dubai Internet City  
Building One, Office 216  
P.O. Box 500158  
Dubai  
United Arab Emirates  
**Phone: +971-4-391-0490**  
Fax: +971-4-391-8775  
[dubai.salesinfo@belden.com](mailto:dubai.salesinfo@belden.com)