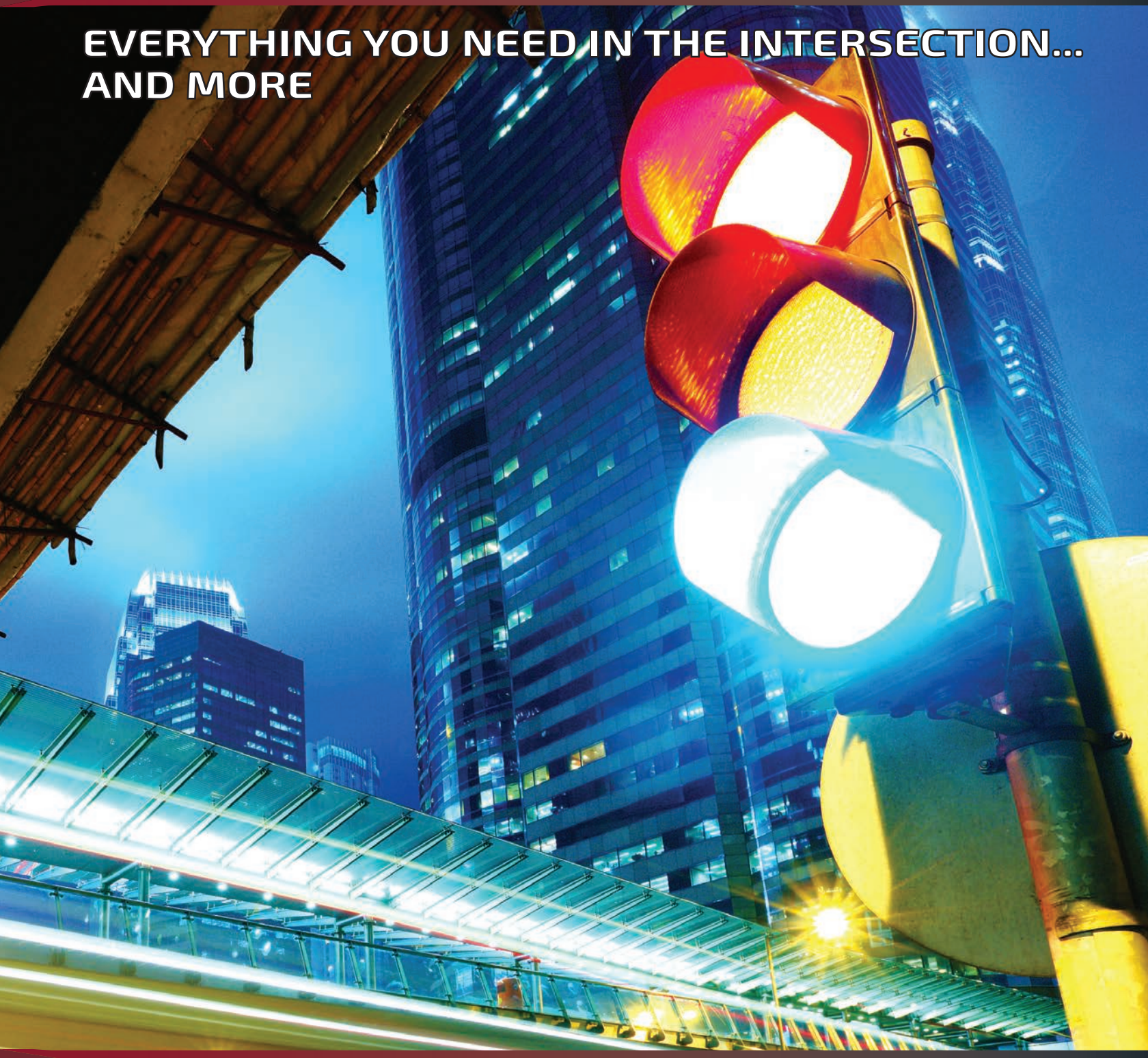
TRAFFIC PRODUCT CATALOG

MULTICOM®
SINCE 1982

EVERYTHING YOU NEED IN THE INTERSECTION... AND MORE



www.multicominc.com 800-423-2594 407-331-7779 ISSUE 2

WELCOME

1982 was a significant year for Sherman Miller, Multicom's founder and president. It was that year that he started Multicom, Inc. – an event marked by the opening of the garage door of his home.

Entrepreneurs understand that unless you know your clients' problems, unless you identify their pain, you can't provide viable, desirable solutions.

Multicom, a Service Disabled Veteran Owned Small Business (SDVOSB), now reaches around the world providing innovative solutions since 1982. In that time, Multicom has grown to be a cohesive team of experienced technicians, engineers, administrators and sales people with decades of experience under their belt – many of our staff have worked at Multicom for more than a decade.

Multicom strives not only to develop and deliver the latest technology, but our products are designed to accommodate the constant evolution of new technology.

Multicom offers from one source, multiple lines of products to completely build and maintain communication systems at cost effective prices.

Sherman Miller

Sherman G. Miller

Multicom Founder, President and CEO

MULTICOM® SINCE 1982

ABOUT MULTICOM

Multicom is a full-line Stocking Distributor of Traffic Signal Cable and Equipment based in central Florida for over thirty five years.

Same-day shipping or delivery is provided from our two local warehouses which stock over 19,000 products from more than 380 of the world's major manufacturers including a full line of Traffic Signal Hardware and Equipment as well as building wire and fiber optic, coax and composite camera cable - and all of the associated accessories.

Our goal has always been to create and distribute reliable, high-quality and innovative products for a fair price - and keeping customer service our #1 priority.

At Multicom, we are keenly mindful of local APL and DOT regulations. We only represent manufacturers that produce the highest quality local, state and federally approved and compliant products, made from materials that will stand the test of time. This is our commitment to you, and we stand behind it everyday.

IMSA®

Your Partner in PUBLIC SAFETY

SUSTAINING MEMBER Since 2001

Multicom is the Proud to be a Sustaining Member of the IMSA Since 2001

The International Municipal Signal Association (IMSA) is dedicated to providing quality certification programs for the safe installation, operation and maintenance of public safety systems.

MADE IN THE USA

Multicom is the Proud Recipient of the President's 'E' Award for Outstanding Contributions to the Export Expansion Program of the U.S.A.

The President's 'E' Award was created by Executive Order of the President on December 5, 1961, to afford suitable recognition to persons, firms, or organizations which contribute significantly in the effort to increase United States exports.

U.S. COMMERCIAL SERVICE
United States of America Department of Commerce

THE SPIRIT OF ENTERPRISE U.S. CHAMBER OF COMMERCE

ORLANDO, INC.
Orlando Regional Chamber of Commerce

Sherman Miller, President and CEO of Multicom, is an executive board member of the Orlando Regional Chamber of Commerce - a 5-Star Chamber. The ORCC is specifically focused on regional entrepreneurship, serving the growing needs of businesses and entrepreneurs by 'Connecting our Members to Success', throughout Central Florida.

In additon to the above, Multicom is also a sustaining member and/or affiliated with multiple associations and communities in the industry including these, and more:

FTTH FIBER TO THE HOME COUNCIL

NSCA® YOUR VOICE • RESOURCE • ADVISOR
National Systems Contractors Association

WORLD TRADE CENTER® ORLANDO

Service Disabled Veteran Owned Small Business SDVOSB CVE

NCTC
National Cable Television Cooperative

SCTE Society of Cable Telecommunications Engineers

SBCA
Satellite Broadcasting and Communications Association

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Our solutions meet or exceed industry standards for aerial, underground, commercial and residential applications.

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VIDEO DETECTION CABLE 7

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2 **SIGNALS & SIGNAL HARDWARE** PAGE 10

For over 35 years, we've served municipalities and contractors throughout the country - providing a comprehensive range of products from underground to overhead. We offer same-day-shipping and delivery, along with the expertise to ensure that you receive exactly what you need when you need it - first time, every time.

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Public and private networks are continually being upgraded, using more and more optical fiber for video, data and voice transmission. Fiber-based communications networks have clear advantages over other media in cost, reliability, and capacity, spurring increased deployment on high-capacity networks. Multicom manufactures and stocks only the highest-quality and most cost-effective fiber optic products.

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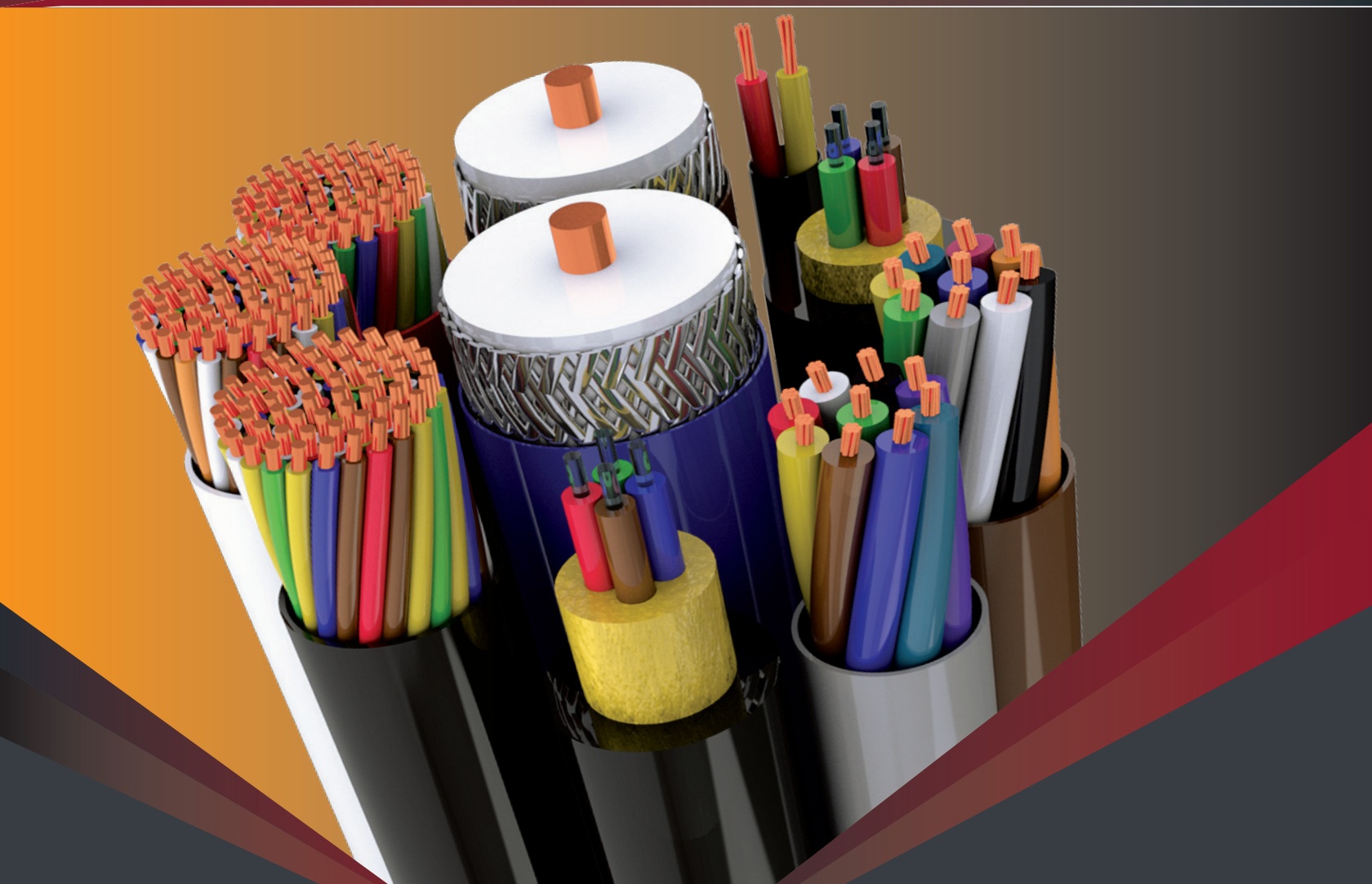
THIS CATALOG CAN BE DOWNLOADED FROM THE MULTICOM WEBSITE AT: WWW.MULTICOMINC.COM/TRAFFIC
THE FULL MULTICOM PRODUCT CATALOG CAN BE DOWNLOADED AT: WWW.MULTICOMINC.COM/CATALOG



TRAFFIC SIGNAL WIRE & CABLE

Trusted by agencies across the nation to safely connect people and places everyday. Multicom is your reliable source for Traffic Signal Wire & Cable - In Stock and Made in the USA.

Multicom stocks a wide range of Traffic Signal Wire & Cable for nearly every application in our warehouses in central Florida. All configurations of Traffic Signal Wire & Cable among the manufacturers' products we carry have jackets rated to 90°C for both wet and dry locations. In addition, these cables are resistant to the effects of being outdoors, including fading and degradation that occurs because of moisture and sunlight. These Traffic Signal Wire & Cable products are compliant with UL Standards for overall cable construction and cold bend capabilities.

Disaster Recovery: Multicom is proud to be the go-to cable stocking distributer for government agencies, municipalities, system operators and cable companies - providing instant access to our huge inventory of cable where it's needed, when it's needed, in times of natural disaster. When hurricanes hit, we are open for business 24/7, ready to assist in any way possible.

Most variations of Traffic Signal Wire & Cable that Multicom stocks can be custom-cut to any length depending on your unique application needs.

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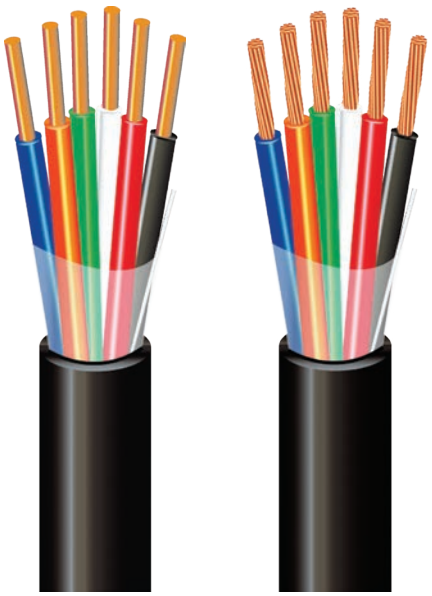
IMSA CABLE

Wire And Cable For:

- Video Detection
- Loop Detection
- Traffic Signals
- Street Lighting



19-1 & 20-1 Signal Cable with Solid or Stranded Conductors

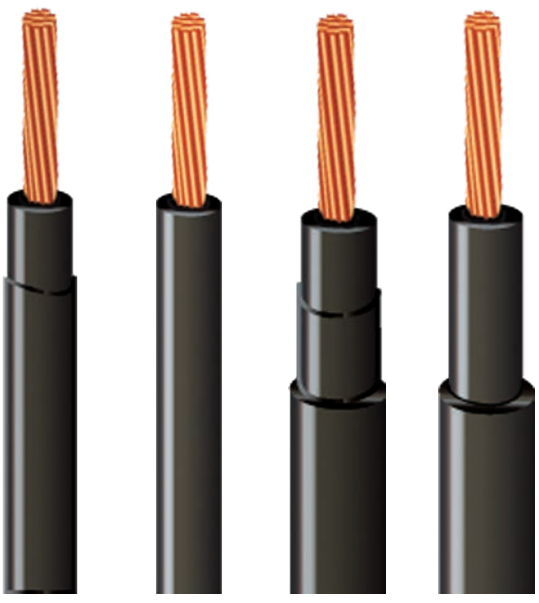
Multicom is a proud Sustaining Member of the IMSA Since 2001. We offer a wide range of products for various municipal transportation applications: Traffic Communication, Inductive Loop Detection and Traffic Signal Control.

Manufactured in ISO-certified facilities, Multicom stocks **state-specific cable** of unsurpassed quality and reliability to ensure product consistency for every specification.

IMSA®
Your Partner in PUBLIC SAFETY

Signal Cable

Spec 19-1 and 20-1 Signal Cable	Specification
Conductors	Solid or Stranded, bare copper
Insulation	Polyethylene
Color code	Per specification
Conductor configuration	Cabled conductors
Shield	None
Jacket	**Spec 19-1 - PVC** **Spec 20-1 - Black PE**
Operation mode	Full auto, semi-auto, manual



51-1 51-3 51-5 51-7

Loop Detector Wire

Spec 51-1 / 51-3	Specification
Conductors	Solid or Stranded, bare copper
Insulation	Spec 51-1 - PVC / Nylon Spec 51-3 - Black cross-linked polyethylene
Conductor configuration	Single conductor

Spec 51-5 / 51-7	Specification
Conductors	Stranded, bare copper
Insulation	Spec 51-5 - PVC / Nylon Spec 51-7 - Black cross-linked polyethylene
Conductor configuration	Single conductor
Outer jacket	Black PVC or polyethylene tube

Spec 50-2	Specification
Conductors	Solid or Stranded, tinned copper
Insulation	Polyethylene
Color code	Black / Natural
Conductor configuration	Twisted pair
Shield	Aluminum / Mylar tape
Outer jacket	Black low-density polyethlene

50-2

VIDEO DETECTION CABLE

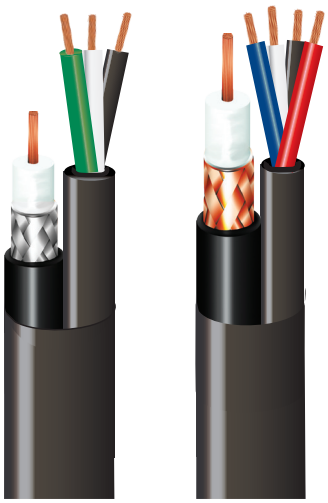
Multicom is a leader in custom designed cable manufacturing and special wire construction. If a standard cable won't work for your application, we can design a cable customized to match your exact specifications. Whether you need a custom coaxial cable, special power cables or a completely new cable designed from scratch, we can provide a custom cable to fit your needs.

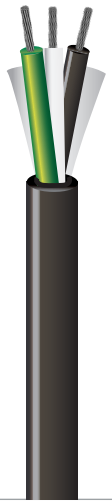
Composite Camera Cable

Specification - Element 1	Specification - Element 2
One Component 23 AWG 4 UTP Cat 6	**14 / 16 AWG 3C Shielded Cable**
Jacket - PVC	Component 1 - 14 / 16 AWG 19 Strands Class C
Diameter - 0.23"	Material - Annealed BC
Ripcord - Nylon	Conductor Count - 3 Conductors
Color - Blue with standard UL print	Color Code - Black, White, Red

- Save Time and Money: Pull only one cable to camera locations
- Power Options: Use the CAT6 (POE) or the shielded power cable
- Capable of volume control, audio/video, data transfer, networking
- Sunlight resistant and riser rated
- For security cameras and other applications
- Made in the USA

Specification - Coax	Specification - Multi-Conductors
Conductors - 20 AWG Solid BC	Component 1 - 16 AWG BC
Braid - 2 x 98% TC	Insulation - PVC .030 Nominal
Jacket - LDPE .304 Nominal	Jacket - PVC .030 Nominal
	Color Code - Black, White, Green
Specification - Coax	**Specification - Multi-Conductors**
Conductors - 20 AWG Solid BC .032	Component 1 - 16 AWG BC
Braid - 95% BC	Insulation - PVC
Jacket - PVC .224 Nominal	Jacket - PVC .030 Nominal
	Color Code - Black, White, Red, Brown, Blue





Multi-Conductor Camera Cable

Specification
Conductors - Stranded Tinned Copper
Insulation - 16 / 18 AWG
Jacket - PE / PVC
Fillers - Nylon
Voltage Rating - 600 V
Temperature Rating - 90° C
Color Code - Black, White Green

Precision Video Cable

Specification - Coax
Conductors - 20AWG Solid Bare Copper
Braid - 2 x 98% TC
Jacket - PE
Color Code - Black

BUILDING WIRE

MADE IN THE USA

RHH/RHW-2 - XLP USE-2

Description: Single conductor, 90°C Wet/Dry. Insulated with chemically cross-linked polyethylene insulation.

Applications: Appropriate for use in general purpose wiring for lighting and power - residential, commercial, and industrial buildings. Suitable for applications that require superior flame retardance.

Construction: Conductors: 14AWG - 500 MCM fully annealed stranded bare copper per ASTM B3. Class B Stranding per ASTM B8.

- 600 Volt, Copper conductor
- High-heat, moisture, and sunlight resistant
- All size variations avaliable

DID YOU KNOW?

Multicom can help you pull or blow this wire through conduit? See **Condux on page 17** for more information.

XHHW / XHHW-2

Description: Single conductor, 90°C Wet/Dry. Insulated with chemically cross-linked polyethylene insulation.

Applications: Appropriate for use in general purpose wiring for lighting and power - residential, commercial, and industrial buildings. Suitable for use in low leakage circuits requiring a dielectric constant of 3.5 or less.

Construction: Conductors: 14AWG - 500 MCM fully annealed stranded bare copper per ASTM B3. Class B Stranding per ASTM B8.

- 600 Volt, Copper Conductor
- High-heat, moisture, and sunlight resistant
- All size variations avaliable

THHN / THWN-2

Description: Single conductor stranded bare copper, with a PVC insulation and Nylon Jacket

Applications: Appropriate for use in general purpose wiring for lighting and power - residential, commercial, and industrial buildings. Suitable for use with machine tool and appliance wiring.

Construction: Conductors: Uncoated fully annealed stranded bare copper per ASTM B3. Class B Stranding per ASTM B8.

- Construction, machine tools & control circuits
- 600 Volts, Copper Conductor
- Heat, moisture, gasoline, and oil resistant

DID YOU KNOW?

Multicom has the Answers!
The Multicom website has two easy to read and understand articles: RHW, RHW-2, USE-2 and RHH Building Wire – Explained, and THHN vs. XHHW: What Is the Difference? See them on our Technical Resources page: **www.multicominc.com/training/technical-resources/**

STRAND WIRE

MADE IN THE USA

NATIONAL STRAND
A HEICO WIRE GROUP COMPANY

National Strand has built an unbeatable reputation among tough customers in the electric utilities and telecommunications industries, which demand the highest quality, most dependable galvanized steel strand. The superior qualities of National Strand's products provide exceptional reliability and long life for guy wires, overhead ground wires and messenger cables.

Product Offerings:
- Galvanized Steel Strand
- Structural Bridge Strand
- Stainless Steel Strand
- Galfan Coated Steel Strand
- Guard Rail Cable
- Barrier Strand

TRAFFIC CAMERA / SENSOR CABLE

NEW IN THIS ISSUE!

CAT5E Direct Burial STP (Waterproof) CMX

Description: Category-5E Direct Burial, STP w/Drain Wire, 8-Conductor, Waterproof Outdoor Jacket, 24AWG Solid-Bare Copper. This cable that is rated for direct burial applications and is designed to be buried directly beneath the ground without any additional protection, piping, or sheathing. Direct burial cable is built to tolerate heat, moisture, and other hazards that present themselves when cable is buried underground.

Features:

- High-Performance Data Communications Cable
- 350MHz Bandwith for Data Applications, Fast Ethernet and 155Mbps TP-PMD/CDDI
- Category-5E Shielded Twisted Pair
- Easily Identified Color-Striped Pairs
- 24AWG Solid Copper Conductors
- Exceeds TIA/EIA-568B.2, ISO/IEC 11801
- CAN/CSA -C22.2 No. 214
- Direct Burial (Waterproof)
- ETL Listed

Parameter	Specification
Rated Temperature	75° C (167°F)
Rated Voltage	300V
Flammability Test	IEC-332-1
Product Standard Certification	CMX
Conductor	**Solid Bare Copper**
Size	24 AWG (0.51mm)
Insulation	**PE**
Average Thickness (mm)	0.208
Insulation Diameter (±0.005mm)	0.91
Twisted Pair Diameter (±0.01)	1.92
Assembly Diameter	**3.80**
Inner Jacket (Gray)	**PVC**
Average Thickness (mm)	0.40
Min. Point Thickness (mm)	0.36
Outer Diameter (±0.10mm)	4.80
Aluminum Foil	Yes
Drain Wire (Tinned Cooper)	7/0.16
Outer Jacket (Black)	**LSZH (UV)**
Average Thickness (mm)	0.60
Min. Point Thickness (mm)	0.54
Outer Diameter (±0.10mm)	6.40
Rip Cord	Yes
Color of Pairs	
Pairs	Pair 1: Blue,White-Blue Pair 2: Orange,White-Orange Pair 3: Green,White-Green Pair 4: Brown,White-Brown
Mechanical Characteristics	
Test Object	Jacket
Test Material	LSZH (UV)
Before - Tensile Strength (Mpa)	>=13.8
Aging - Elongation (%)	>=100
Aging Condition (°Cxhrs)	100 x 168
After - Tensile Strength (Mpa)	>=85% of unaged
Aging - Elongation (%)	>=50% of unaged
Cold Bend (-20±2° Cx4hrs)	No Crack

Electrical Characteristics	
1.0-100.0MHz Impedance (Ohms)	100±15
1.0-350.0MHz Delay Skew (ns/100m)	<=45
Pair-to-Ground Capacitance Unbalance (pF/100m)	<=330
Max. Conductor DC Resistance 20°C (ohms/km)	88.5
Resistance Unbalance (%)	<=5

Freq.	Ret. Loss (Min dB)	Att Max (db/100m)	Next (ns/100m)	PSNext (Min dB)	ELFEXT Min (dB/100m)	PSELFEXT Min (dB/100m)
1	20.0	2.0	68.3	62.3	63.8	60.8
4	23.0	4.1	59.3	53.3	51.7	48.7
8	24.5	5.8	54.8	48.8	45.7	42.7
10	25.0	6.5	53.3	47.3	43.8	40.8
16	25.0	8.2	50.3	44.3	39.7	36.7
20	25.0	9.3	48.8	42.8	37.7	34.7
25	24.3	10.4	47.3	41.3	35.8	32.8
31.25	23.6	11.7	45.9	39.9	33.9	30.9
62.5	21.5	17.0	41.4	35.4	27.8	24.8
100	20.1	22.0	38.3	32.3	23.8	20.8
200	18.0	32.4	33.8	27.8	17.7	14.7
300	16.8	41.0	31.2	25.2	14.2	11.2
350	16.3	44.9	30.1	24.2	12.9	9.9

RoHS Compliant

Intertek

SIGNALS & SIGNAL HARDWARE
EVERYTHING YOU NEED IN THE INTERSECTION - AND MORE

It is our mission to Stock. Let us know what we can stock for you.

At Multicom, our people, our philosophy and our commitment to customer service is the difference that allows us to provide our customers with comprehensive solutions to their traffic equipment needs.

For over 35 years, we've served municipalities and contractors throughout the country - providing a comprehensive range of products from underground to overhead. We offer same-day-shipping and delivery on your urgent requests, along with the expertise to ensure that you receive exactly what you need when you need it - first time, every time. Our manufacturers and the products they produce, have earned a strong reputation for quality and reliability.

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TRAFFIC & PEDESTRIAN SIGNALS, HOUSINGS & ACCESSORIES

McCain®

Multicom stocks a wide range of McCain products - Advanced transportation solutions, trusted by agencies across the nation to safely connect people and places everyday.

Traffic Signals Housings

Built to last in any environment, McCain offers an extensive signal portfolio for most applications. The full line of solutions includes traffic signals, pedestrian signals, and signal accessories.

Traffic Signal Housings provide a durable and low-maintenance housing for standard LED modules as well as incandescent optical assemblies. Housings are compliant with the Institute of Transportation Engineers (ITE), Caltrans, and most state Departments of Transportation.

McCain Traffic Signal Housing Features:

- Poly and Aluminum
- Increase product durability in extreme or high-wind conditions
- Corrosion resistant and low maintenance
- Modular sections, one-piece, injection molded or cast
- 72-tooth serrated boss and reinforcing ribs, top and bottom
- Housings have a cast boss for mounting a 5 or 6-position terminal block; one side of terminal block with fast-on terminals, the other side with screw terminals

Pedestrian Signal Housings

- Poly and Aluminum
- Superior strength and durability
- Increase visibility and impact protection
- Use in any environment
- Remove, reverse or permanently attach door-hinge hardware
- Stainless steel hardware
- Terminal block

Multicom Stocks McCain Products, Including:

- Pedestrian Signal Housings
- Traffic Signal Housings
- Backplates
- Tunnel Visors
- and more...

ECONOLITE®

At the front line of any signalized intersection, Econolite's products increase safety for all roadway users, and are designed to meet or exceed the Institute of Transportation Engineers (ITE) standards. Econolite's Intelligent Transportation System (ITS) solutions ease traffic congestion, provide safer mobility and improves quality of life.

Econolite Traffic Signal Housing Features:

- Poly & Aluminum
- Tested to ITE required wind loading on single-point attachment
- Reversible door - left side standard, right side optional
- Doors equipped with two latches
- Provisions for one five-position and one six-position terminal block in each housing

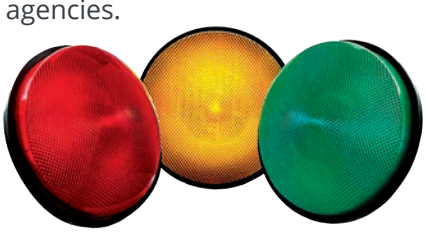
Econolite Products also Include:

- Traffic Signal Housings
- Backplates
- Tunnel Visors
- and more...

TRAFFIC & PEDESTRIAN SIGNALS, HOUSINGS & ACCESSORIES

DURALIGHT

Duralight has been manufacturing LED traffic signal and commercial products since 1993. The LED signal modules not only meet the specifications of ITE and many states/local government agencies, but also are certified by ISO9001 Quality Control System. LED traffic signal modules exceed the highest level of specifications set forth by federal, state, and local government agencies.



LED Traffic Signals
- Compliance with latest ITE specifications
- Low power consumption & long operating lifetime LEDs
- Retrofit design & UV stabilized lens
- Full compatibility with NEMA controllers/conflict monitors
- Uniform incandescent appearance

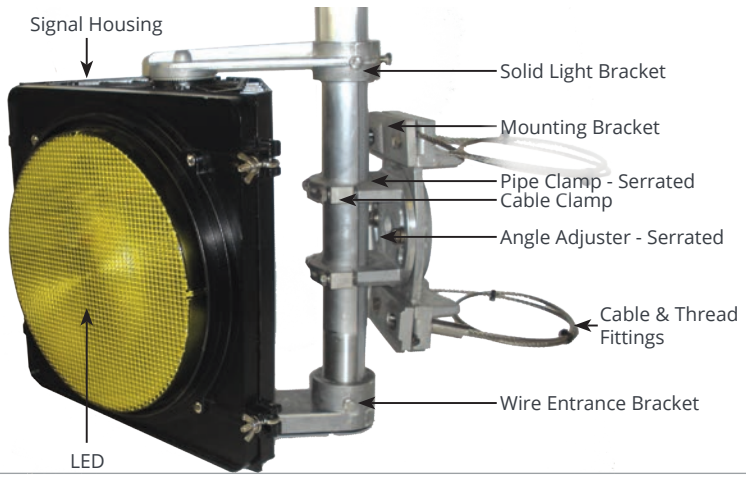
Pedestrian Countdown Lamps
- Compliant with the latest ITE specifications
- Retrofit design & UV stabilized lens
- Fully compatible with NEMA controllers/conflict monitors
- Conforms to standards specified in ITE LED Pedestrian Signal Modules

pelco PELCO PRODUCTS, INC.

ENGINEERED CASTINGS

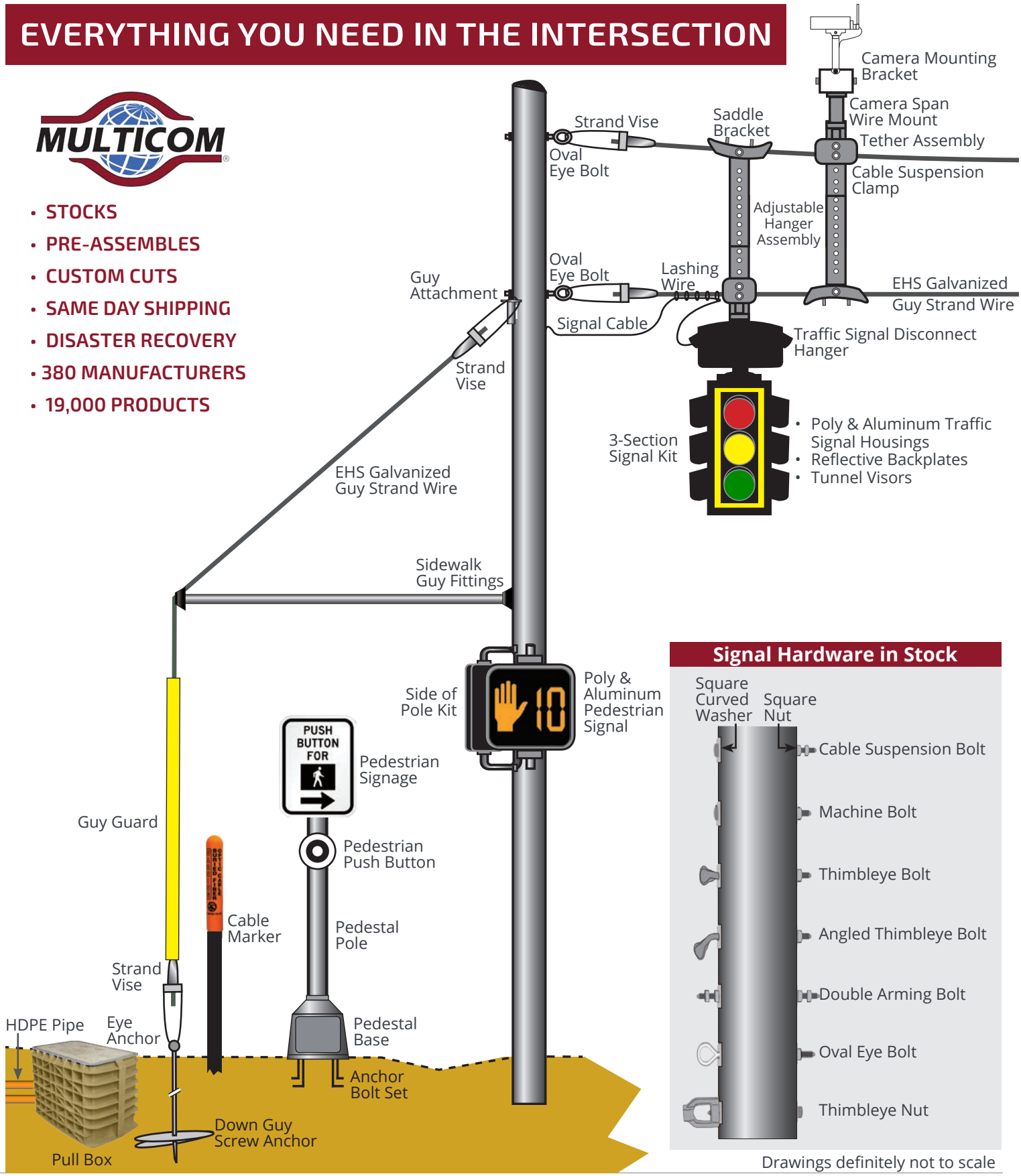
Multicom Stocks Engineered Casting by Pelco - Adding Engineered Castings products to its extensive product line, Pelco Products has expanded to encompass all types of mounting hardware, including rigid and free-swinging signal and sign mounts, traffic parts, sign brackets, lighting, flasher cabinets, push buttons, copper theft deterrent products, and much more.

Pelco / Engineered Castings Products also Include:
- Astro-Brac Signal Mountings
- Free-Swinging Signal Mountings
- Rigid Side-of-Pole
- Rigid Post Top
- Sign Mountings
- Pedestrian Push Buttons
- Cabinets
- Backplates
- Poles & Bases
- Poles
- Traffic Accessories
- Lighting & Pole Solutions



EVERYTHING YOU NEED IN THE INTERSECTION

- STOCKS
- PRE-ASSEMBLES
- CUSTOM CUTS
- SAME DAY SHIPPING
- DISASTER RECOVERY
- 380 MANUFACTURERS
- 19,000 PRODUCTS



Signal Hardware in Stock

Drawings definitely not to scale

POLE LINE HARDWARE

MacLean Power Systems is a leading manufacturer of Pole Line Hardware and and connection products, as well as insulation and protection products. Multicom stocks a wide range of MPS products, including:

Strandvise®

For deadend applications with overhead or down guy wire. Rated to hold a minimum of 90% of RBS of the strand used.

Bolts, Oval Eye

Double Arming Eyebolts are forged in a one piece design and are fully threaded the entire bolt length except for 2 inches under the eye.

No-wrench Screw Anchors

An integral forged eye anchor with a helix welded to the shaft and for manual or machine installation.

Cable Suspension Clamps

With curved ends to prevent damage to the messenger strand when turning small angles.

Eyenuts

Hot Dip Galvanized, the Thimbleye, Twineye and Tripleye are all used with PH-style anchor rods.

Guy Strain Insulators

Can be installed anywhere on the guy wire. Helps protect against stray current.

Crosby Clamps

A strong economical means of securing down guys and wire ropes. The steel U-bolt and malleable iron base are both hot dipped galvanized.

Cable Rings & Cable Ring Saddles

Designed to support heavy cables. Available in various materials and sizes depending on application.

Square Nuts & Washers

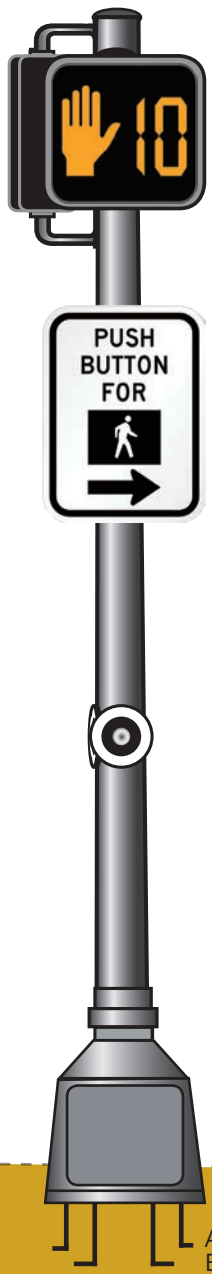
Hot-dip galvanazied, locks securely into place with little effort, making removal or displacement difficult.

Pulling Grips from Lewis Manufacturing are Wire Mesh Grips that have been a popular and effective means of pulling power cables, fiber optics cables, and ropes overhead or underground and stress free suspension of power and data cables.

Lewis **Split Grip Model LSR** - Designed for all phases of suspension or pulling, where neither end of the conductor is available and 'middle of the run' application of the grip is desired.

PEDESTRIAN CROSSING HARDWARE

Multicom provides Traffic Signal and Pedestrian Crossing Hardware that meets the needs of the traffic industry by providing the highest quality products from the iindustry's most respected manufacturers. Innovative designs lead the way with products that withstand the dynamic effects of nature, while adding value to any project. Multicom is dedicated to meeting the needs of our customers while adhering to regulatory requirements based on quality management principles.



Side of Pole Kit

Side-of-Pole assemblies are designed to mount traffic and pedestrian signals on the side of traffic signal poles with an upper and lower arm.

Push Button

State-of-the-art, impact and vandal-resistant with high strength die cast construction.

Stud Closure

Close-out for pedestrian and signal housings.

Collar Assembly

Reinforcement collar to stabilize pedestal pole.

Pole Cap Assembly

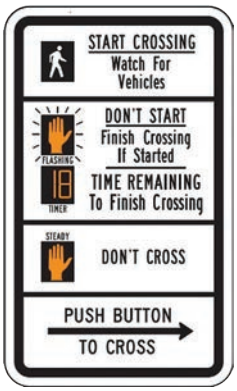
Close-out for top of pole.

Slip Fitter Assembly

Post Top Slip Fitters are available in aluminum, 1-1/2" NPS, tri-bolt or tri-stud.

Pedestrian Pole Base Kit

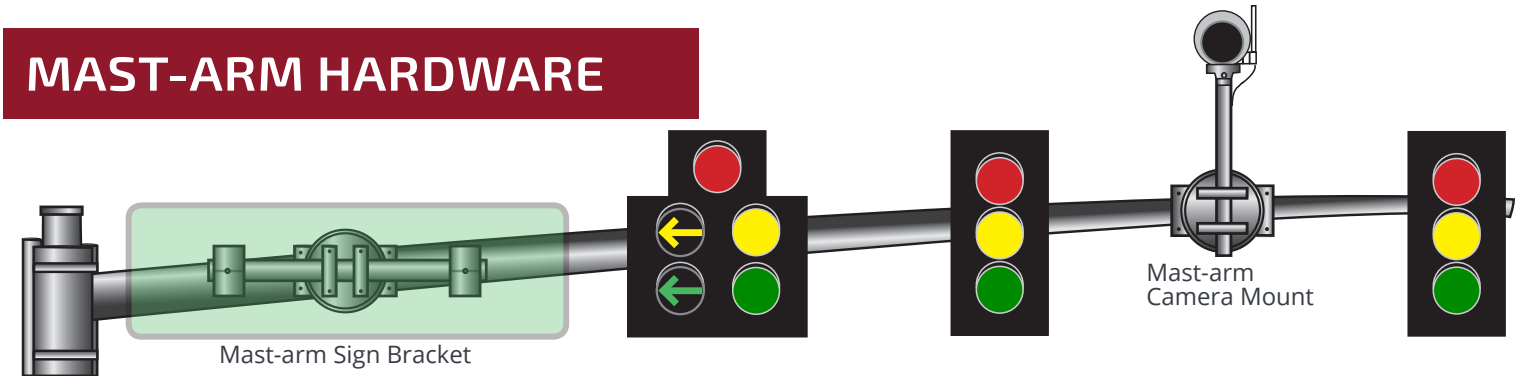
Includes:
- Pole
- Base
- Anchors



Pedestrian Signage

Provide advisory information for pedestrians using full-color text, symbols and pictures.

MAST-ARM HARDWARE



Pelco's Mast-arm mounting systems are used for signs, cameras, sensors and virtually any size or combination of signals, to mast arms and poles. The Mast-arm bracket is fitted with cables or bands and can rotate 360 degrees. Post Top, Side-of-Pole, Span Wire, or Mast Arm mounts in aluminum, iron, or bronze can provide the solution to any traffic mounting application while meeting municipalities standard specifications.

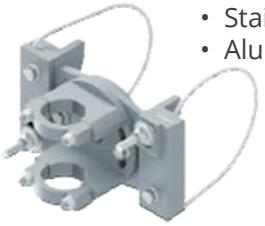
Mast-arm Bracket Assembly

- 1-way stainless cable mount
- Aluminum

Sign Mounts

Camera Brackets

Multicom stocks adjustable brackets for cameras, sensors and antennas that can mount a variety of traffic industry devices. Video Detection camera brackets are available for mast arm, post top, span wire or side-of-pole applications.



Mast-arm Clamp Kit

- Stainless cable mount
- Aluminum

Mast-arm EZ Attachment

- Adapter
- Aluminum

Retroflective Backplates

Backplates with Retroreflective Borders are more visible in daytime and nighttime conditions than standard backplates, particularly for older and colorblind drivers. The Federal Highway Administration approved the use of retroreflective tape after a seven-year safety study showed that the use of retroreflective backplate borders reduced total crashes at intersections by 15% to 24%.

- Improve safety at signalized intersections
- Boost signal visibility in daytime & nighttime conditions
- Reduce crashes
- Use on most standard signals

Free Swinging Mast-arm Sign Brackets

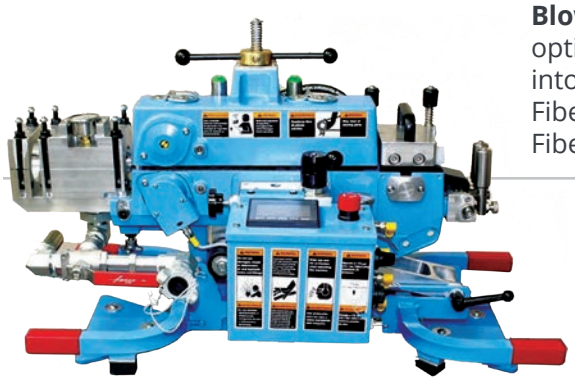
Sign brackets in rigid and free-swinging mounts for both flat and internally illuminated signs. Most sign-bracs are available with a cable, band, or tenon mount clamp kit.

TRAFFIC ACCESSORIES

Condux International the premier manufacturer of underground and overhead cable installation tools and equipment for the telecoms and electric power markets. Condux machines allow safe, quick and easy installation of fiber optic cable and power cables.

CONDUX

From Fiber Optic Cable Blowers to Pullers, and Everthing in Between



The Condux Gulfstream™ 400 **Fiber Optic Cable Blower** is designed for the installation of fiber optic cables with diameters from 0.23" to 1.13" into microduct. The Condux Gulfstream™ 400 Fiber Optic Cable Blower is ideal for "Last Mile" Fiber Installations.

The Condux **Fiber Optic Cable Puller** sets new standards for safe, accurate pulling of fiber optic cables. Only the Condux puller can offer load cell torque input for the most accurate tension measuring available.

Duct Rodders combine ease of operation and reliable performance to help increase the efficiency of your rodding operations. Cages have been designed to be lighter weight for easy handling in the field.

The **Power Dart Blower** provides a method to install Pull String or Pull Tape into longer duct runs without the need for an air compressor. Utilizing three independent, high volume blower motors, this unit delivers enough to blow 1/2" pull string or pull tape 2000' into conduit up to 6" in diameter.

The **TurboSlitter™** from Condux can easily split HDPE pipe with wall thicknesses ranging from 0.097 to 0.216 inches. Available in two styles, pneumatic and cordless drill attachment. The cordless drill attachment quickly adjusts to fit almost any rechargeable drill, 14-volt and larger.

Designed to meet common dimensional specifications, the **Champion Swivels** are designed for underground and overhead cable pulling applications. Clevis pin is easily replaceable. Versatile clevis provides efficient link for several applications. Stainless steel construction with 10,000 lbs. (44,480 N) load capacity.

Champion Swivels

Rope to Rope/Grip Clevis

TRAFFIC ACCESSORIES

PRO-MARK Cable and Pipeline Markers

PRO-MARK® UTILITY SUPPLY INC.

A leading manufacturer of Pipeline Markers, Utility Signs and Marker Posts with over 25 years of experience in identifying and marking buried utilities. Products are made from formulated engineered resins to perform in harsh weather conditions to identify, prevent damage and dangerous accidents.

ETCO Specialty Products, Inc.

ETCO is a manufacturer of specialty fittings for the traffic and utility industries

Single E-Loc & Compression Coupling

The Etco E-Loc® Coupling is a compression coupling used to provide a watertight / airtight connection in buried or restrained applications. The ability to join dissimilar materials, such as, PVC, HDPE, fiberglass, or metal makes the E-Loc® a versatile coupling for traffic control, telephone, electrical, and cable industries. E-Loc® Couplings are available to fit conduit sizes from ½" through 8". Couplings are watertight to 200 psi restrained on smooth wall, ribbed and corrugated duct.

SCHONSTEDT INSTRUMENT COMPANY

Schonstedt stands apart as manufacturer of rugged and dependable underground locators. Schonstedt's Heliflux® magnetic sensor technology is unsurpassed for its environmental stability and ability to detect ferrous objects to extreme depths.

The 'Maggie' combines the best features of two flagship Schonstedt products: the sensitivity and precision of the GA-52Cx, and the single-handed operation of the GA-92XT.

- Ergonomic & Durable
- Dust & Water Resistant (Rated IP54)
- Easy access battery removal
- HeliFlux® sensors
- 7-year warranty

Maggie Magnetic Locator - Highest Sensitivity & Most Versatile

HDPE CONDUIT

WL PLASTICS
The Ideal Piping Solution

WL Plastics is the ideal producer of polyethylene pipe in North America. HDPE pipe provides durability to avoid the high cost of replacement or rehabilitation. WL Plastics best-in-class manufacturing processes and experienced production personnel help make WL one of the most efficient producers of HDPE pressure pipe in the industry.

HDPE CONDUIT & ACCESSORIES

Milliken™

Vis™ Divide – Segmented HDPE Rigid Conduit

Divide and conquer! Vis™ Divide is a segmented HDPE rigid conduit that provides dedicated pathways for the placement of more than one cable in a single conduit. Vis Divide's first-in-class innovation includes a fabric divider molded directly into the conduit that optimizes the network infrastructure space and provides deployment flexibility.

Features & Benefits:

- Increases cable capacity leading to less wasted space
- Fewer conduits needed AND also reduces handling, storage and transportation costs
- Protects cables ensuring no cable over cable damage
- Improves construction productivity
- Provides more cabling options for the design professional, leading to reduced costs
- Facilitates futureproofing

Specifications:

- Meets ASTM F2160 and D3350 industry standards
- Available in Dimensional Ratio: DR11
- Nominal Sizes: 1½" and 2"
- Supplied with 1250 lb Vis™ Pull Tape in each cell
- Standard HDPE conduit reel configurations
- Available configurations:
  - 1½" 2-cell
  - 2" 2-cell
  - 2" 3-cell

Applications:

- Directional Drilling
- Trenching
- Plowed
- Direct Bury

Vis Divide Segmented HDPE Rigid Conduit and Vis Pull Tape

Vis™ Tape – Pull Tape

Vis™ Pull Tape for cable with Mprint™ technology, made of low friction, high tenacity – abrasion resistant yarns is a powerful new pull tape that offers unmatched levels of accuracy, legibility, softness and durability. Vis pull tape improves productivity and reduces total cost by eliminating rework and scrap. The unique Mprint process increases print durability and ensures print length accuracy while our production process ensures a softer feel.

Available in 1130/1250/1800/2500 lb. options and in Standard, Detectable, and Color-coded options.

Features & Benefits:

- Extraordinary print legibility and durability
- 99% print length accuracy
- Increased softness for easier knotting
- Specialty tape offered with a colored thread for easy identification when pulling cable into multiple cells
- Specialty tape offered with a 22ga detectable wire

Specifications:

- Tensile Strength 1130/1250/1800/2500 lb. (Min)
- Working Load 1130/1250/1800/2500 lb.
- Color White
- Print Color Black
- Pre-lubricated with silicone
- Printed with sequential foot markings
- Packaging: UV resistant white plastic wrap
- VTDET: Detectable wire is a 22ga solid tinned copper conductor, 23 ohms per mile resistance
- VTID: Color coded threads for easy identification -Available colors: blue or orange
- Palletized and shrink wrapped

DIAMOND PRODUCTS

Heavy Duty Orange Cured Concrete Diamond Blades

- Wide variety of diamond depths
- Various segment depths and diamond concentrations
- Fast cutting blades that work well with a wide range of high or low HP saws
- Combines long life performance while maximizing your blade dollars

SEALANT & LOOP ACCESSORIES

DURANT PERFORMANCE COATINGS

STAT-A-FLEX® is a two part polyester resin loop sealant formulated for encapsulating and sealing traffic signal wire in road surfaces. STAT-A-FLEX® product can be made to resemble cement coloring as well as black for the desired circumstances. STAT-A-FLEX® is easily mixed and applied. It cures quickly and produces a tough weather and chemical resistant seal. STAT-A-FLEX® provides maximum protection of all embedded signal wire. STAT-A-FLEX is approved for use in most state DOT's for public roadway applications.

3M Science. Applied to Life.™

bondo®

We also stock V-style Squeegees and replacement blades

Bondo® Traffic, P-606 Flexible Loop Sealer with Hardener is highly durable and remains permanently flexible. This loop sealant can withstand the corrosive effect of road salts, automotive fluids, jet fuel, gasoline and extreme weather conditions. Bondo has been engineering and manufacturing professional products for the traffic control industry for over 37 years. During this time Bondo has remained committed to understanding customers' needs and then developing products that meet and exceed those needs.

3M™ DBR/Y-6 Series Direct Bury Splice Kit electrically connects 2 or more pre-stripped copper wires and moisture seals the connection for direct-burial applications. The flame-retardant kit seals the wiring that is rated up to 600V. It is suitable for water-intensive applications such as golf courses, irrigation controls and outdoor lighting. The kit consists of a 3M™ Spring Connector R/Y+ and a high impact, UV-resistant tube prefilled with moisture-resistant grease. UL-listed for direct bury and rated for 600V.

PULL BOXES

Strength, performance and quality have been hallmarks of all Hubbell underground enclosure brands for more than 40 years. The industry leader for applications in non-deliberate traffic areas, these enclosures provide rugged and cost-effective protection for a variety of electric utility, commercial & industrial, communications, water and gas equipment while meeting the specific demands of our industry.

Polymer concrete cover and base

Polymer concrete cover

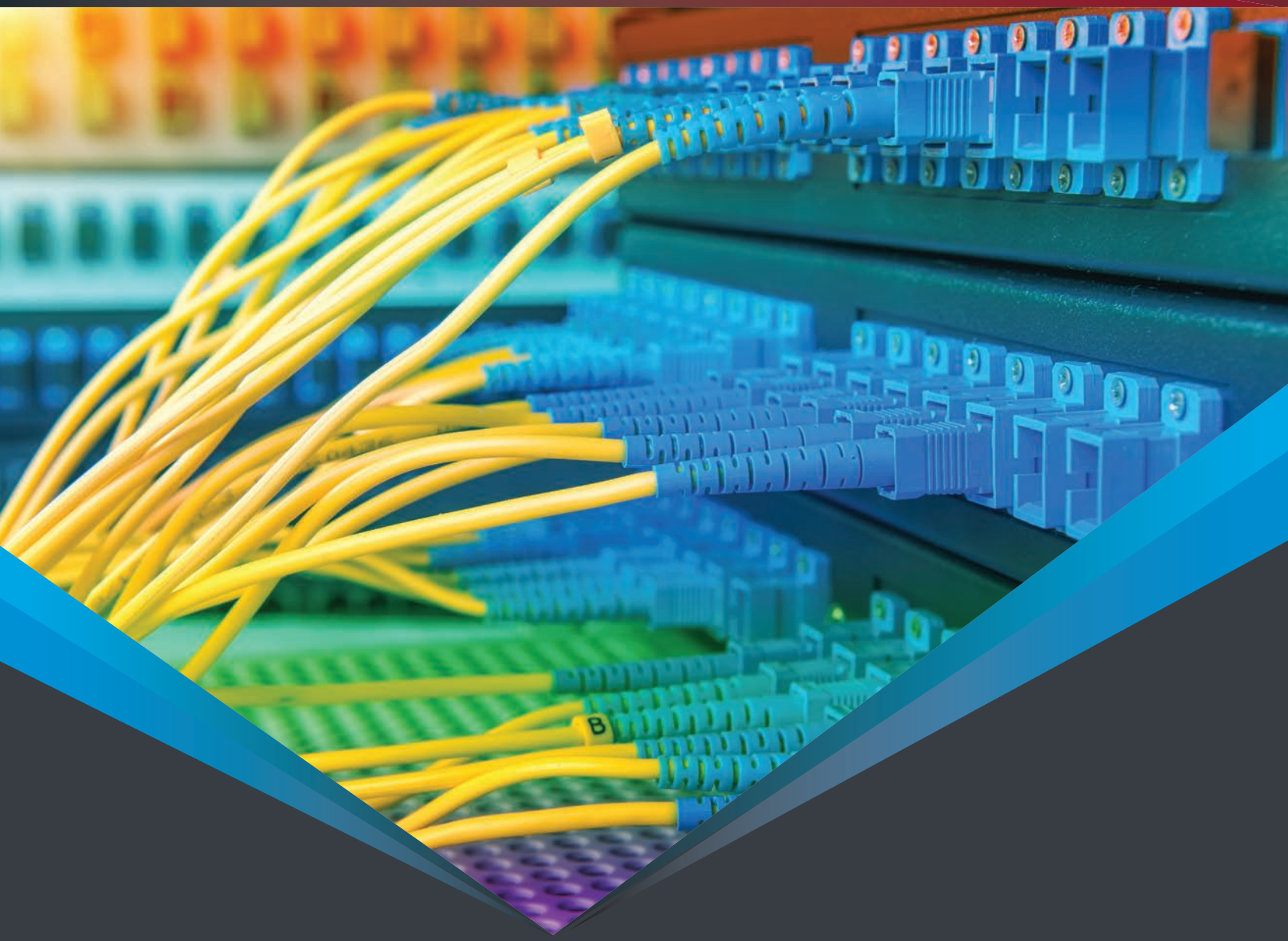
Light weight HDPE Base

Hubbell Quazite Pull Boxes employ a Polymer concrete made from select-grade aggregates in combination with a polymer resin system. When combined through a process of mixing, molding, and curing, an extremely powerful cross-linked bond is formed. Precast polymer concrete is reinforced with fiberglass to give it additional strength and rigidity.

Pencell Pull Boxes use structural foam molded High Density Polyethelyne (HDPE), a **light weight**, high strength plastic molding process that provides outstanding structural integrity and durability. HDPE enclosures are mated with covers made from a variety of materials: HDPE, polymer concrete or steel. This combination creates a highly versatile choice for underground utility enclosures where low weight and high strength are necessary.

Martin Enterprises manufactures underground utility enclosures utilizing both fiberglass reinforced polymer and polymer concrete technologies. They employ an extensive quality control criteria insuring that all of the applicable performance standards are adhered to during every step of the manufacturing process. Superior product quality and service are the cornerstones of their Organization. Martin Enterprises feels very strongly in its support of enterprises that embrace the "Buy American" philosophy.

Martin Enterprises Polymer Concrete Boxes consists of polymer concrete body incorporating a polymer concrete reinforced ring and cover. Each cover allows easy access to the box via standard or lockable hardware (optional) with a stainless steel lifting pin(s).



FIBER OPTICS

Today's ultra-high tech networks provide the foundation necessary for delivering a wide spectrum of advanced interactive services to consumers. Multicom's fiber optic products offer flexibility, scalability and manageability, giving them timeless value and cost-effectiveness to adapt to an ever-evolving market.

Public networks for video, data and voice are using more and more optical fiber. Fiber-based communications networks have clear advantages over other media in cost, reliability, and capacity, spurring increased deployment on high-density, high capacity networks. Smart public network applications are making wide-spread and growing use of fiber optics. This growth means that millions of fibers are terminating in Central Offices (COs) and cable-TV operation centers. Multicom stocks a full line of fiber optic networking and termination products for every application - large or small.

Product	Page
Fiber Optic Cable	23
Fiber Optic Passives	24
Fiber Optic Accessories	26
Fiber Optic Tools & Test Equipment	27

FIBER OPTIC CABLE

Future-proof fiber optic cable engineered for today's super high-speed and high-performance networks

Easy Cable Entry & Preparation
- 12 fibers per tube construction up to 144 fiber designs allow easy termination and mid-span fiber access
- Flexible buffer tubes enhance mid-entry

Versatile Installation & Use
- Tailored designs span distances
- Easy mid-entry is ideal for FTTx distribution applications

Flexible Routing & Customization
- Flexible buffer tubes simplify routing, storage and prep
- Available in singlemode fiber, loose tube

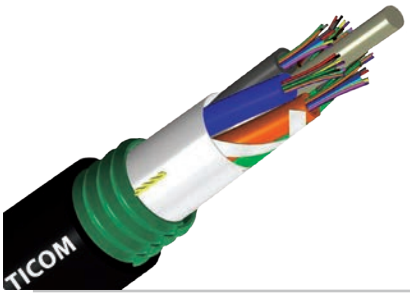
Reliable Lifetime Performance
- Custom engineered for operation under full load
- Guaranteed standards-based performance

ADSS

Multicom's All-Dielectric Self-Supporting (ADSS) Loose Tube Fiber Optic Cable is the best choice for aerial cable spans. This cable's low-cost installation, compact size and specialized design make it the ideal, cost-effective cabling solution for Fiber-to-the-Home (FTTH) and self-supporting aerial applications.

MADSS012SM-XXX

- XXX: Length: 350 or 600 Ft. Span
- SM: Single Mode, MM: Multimode
- 012: Fiber Count: 12, 24, 48, 96, 144

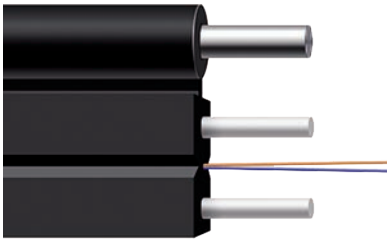


Armored

Highly durable and reliable for underground and lashed aerial installations as well as general outside plant installations, including direct buried in harsh environments.

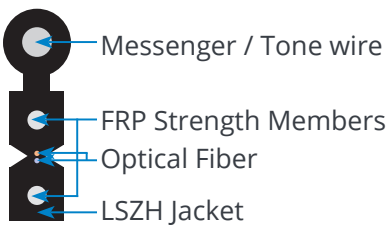
MARMLT012SM

- SM: Single Mode
- 012: Fiber Count: 12, 24, 48, 96, 144



Fiber Optic Drop Cable

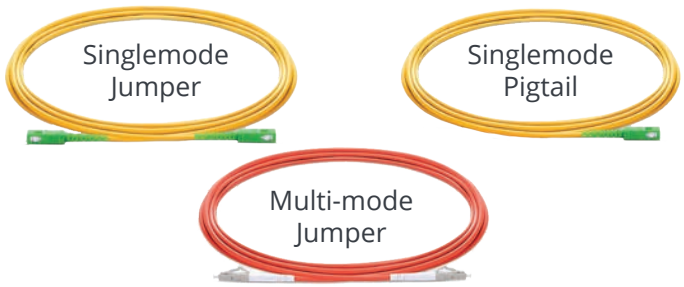
Multicom's Fiber Optic Drop Cable uses special low-bend-sensitivity fiber B6 (G.657A1), providing greater bandwidth and excellent communication transmission properties. Two parallel strength members (non-metallic FRP), ensures the optical fibers are protected. The low smoke zero halogen (LSZH) flame-retardant jacket allows for safety and environmental protection. The cable is light weight with a flute design which can be easily be stripped and spliced, simplifying installation and maintenance. The messenger enhances the overall tensile strength of the cable.



MFTTXA-2-SMA-B-M

- M: M=Messenger/Tone Wire
- B: Sheath Color: B-Black, W-White, G-Gray, U-Blue
- SMA: Quality Designation
- 2: Type: SM: G.657A1 Single Mode, MM: Multimode
- 2: Number of Fibers (1-6)
- A: Cfg A: Fiber(s) center, 2 FRP strength members (1@side, 0.5mm diameter)
- Cfg B: Fiber(s) center, 2 Steel strength members (1@side)
- Cfg C: Fiber(s) center, Armored

JUMPERS & PIGTAILS



Singlemode Fiber with FC, ST & SC Connectors				Multi-mode Fiber
Contact Mode	PC	UPC	APC	PC
Insertion Loss (dB)	≤0.2			≤0.3
Fiber Grade	OS1, OS2			OM1, OM2, OM3
Temperature (°C)	-40 to +80			-40 to +80
Repeatability (dB)	≤0.1			≤0.1
Interchange (dB)	≤0.2			≤0.2
Return Loss (dB)	≥45	≥50	≥65	≥35
Cable Diameter	2mm, (0.9mm and 3mm also available)			
Ferrule Material	Zirconia Ceramic			

Multicom manufactures a large selection of singlemode and multi-mode fiber optic jumpers and pigtails with a selection of industry standard connectors.

Features:

- Corning fiber used in all jumpers and pigtails
- Custom lengths
- 2mm jacket for more flexibility and capacity in tight spaces
- Meets all standard panel interfaces
- All cables serialized and test results are recorded
- High bandwidth, high tensile strength, small bend radius

Applications:

- Trunking lines direct to telecommunication closets
- Fiber patch panel within communication closets
- Links between electronic equipment and adapter panel

DID YOU KNOW? **CORNING**
Multicom uses only Corning fiber in our fiber optic cables

FOJ-2M-SM-SC/APC-S-SC/APC

- FOJ = Fiber Optic Jumper, FOPF = Fiber Optic Pigtail
- xM = Length in Meters, xFT = Length in Feet
- SM = Singlemode, MM = Multi-Mode
- First Connector Type
- S = Simplex, D = Duplex
- Second Connector Type

MATING SLEEVES

SC/APC to SC/APC | LC/UPC to LC/UPC | FC/UPC to FC/UPC

Mating Sleeves with high-precision sleeves enable reliable mating of the ferrule diameters, ensuring low insertion and return loss. All connector types available.

FOMS-XX/XXX-X

- Connector Type
- S=Simplex, D=Duplex

ATTENUATORS

SC | LC | FC

Fixed-value Attenuators reduce the signal level without appreciably distorting the waveform. Available in 1dB increments. All connector types available.

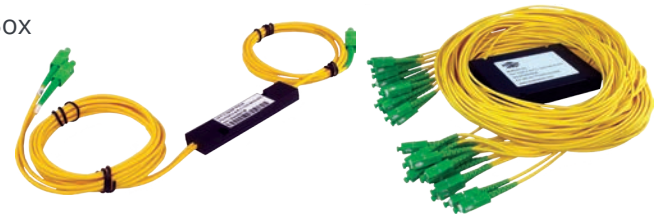
FOATT-XX/XXX-XDB

- Connector Type
- Decibels (dB)

PLC OPTICAL SPLITTERS

Tube

Box



LGX Cassette

1x2 1x32

Rack Mount

The Multicom fiber optic line of PLC Splitters include Tube, Box, LGX Cassette and Rack Mount configurations. They offer superior performance and field-proven reliability in harsh environments.

Our Planar Lightwave Circuit (PLC) splitters are fabricated using silica optical waveguide technology. Features include small size, high reliability and a wide operating wavelength. The PLC splitter is widely used in all fiber optic networks to realize optical signal power splitting. All products are GR-1221-CORE compliant.

Features:

- Corning fiber
- Low insertion Loss
- Even or various splitting ratios
- 1x2 through 1x64 configurations
- Bidirectional, compact
- Environmentally stable
- Wide wavelength range
- High uniformity
- Telcordia GR-1221-CORE compliant

Applications:

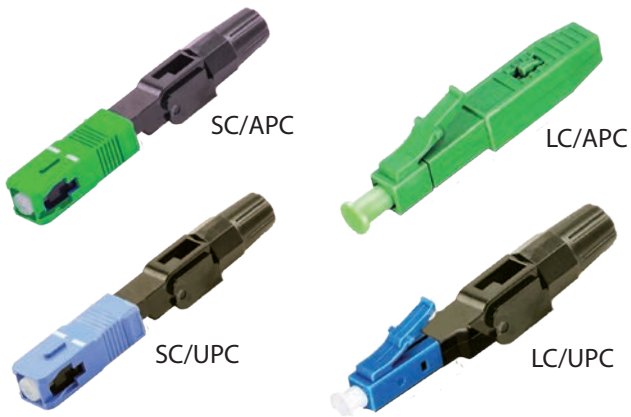
- Traffic control networks
- Long-haul tele/data communications
- Fiber optic equipment and systems
- CATV systems
- Local Area Network, PON, and FTTH
- Fiber sensors
- DWDM networks

Parameter	1x2	1x4	1x8	1x16	1x32	1x64
Operating Wavelength (nm)	1260-1650					
Insertion Loss Typical/Max (dB)	<4.0/4.2	<7.2/7.5	<10.5/11	<13.5/14	<16.5/17.5	<19.5/21
Loss Uniformity (dB)	<0.4	<0.6	<0.8	<1.2	<1.7	<2.0
Return Loss (dB)	>50					
Polarization Dependent Loss (dB)	<0.3					
Directivity (dB)	>55					
Wavelength Dependent Loss (dB)	0.3	0.3	0.3	0.5	0.5	0.5
Operating/Storage Temperature (°C)	-40 to 85					

FOSPLF-C-1/8-60/40-SM-SC/APC

- Connector Type
- S=Singlemode, M=Multi-mode
- 60%/40% of Split, or E=Even
- Number of Splits (1x2, 1x4, 1x8, etc.)
- T=Tube, B=Box, C=Cassette, RM=Rack Mount

FIELD-INSTALLABLE FIBER OPTIC CONNECTORS



Parameter	Specification
Connector Type	SC/LC/FC, Simplex
Cable Diameters	0.9, 2.0, 3.0mm
Fiber Mode	Singlemode / Multi-Mode
Polish	UPC / APC
Insertion Loss	UPC: ≤0.35dB, APC: ≤0.35dB
Return Loss	UPC: ≥45dB, APC: ≥50dB
Tension Test	≥50N
Operating Temperature	-40°C ~ +75°C
Compliance	Designed to Telcordia GR-20-CORE, GR-326 and TIA/EIA 568C, RoHS

The Multicom Field-Installable Fiber Optic Connectors feature a pre-polished ferrule (UPC/APC), that couples to the fiber being terminated by precision mechanical alignment, insuring low loss with a proprietary gel.

Offering convenience and stability, the assembly of the connector requires only normal fiber preparation tools and minimal space, making them easy to prepare in the field in minutes. Just strip the buffer, cleave and clean the fiber, and then insert the fixed-length fiber through the ferrule of the connector.

Features:

- No epoxy, fiber polishing, special tools or fusion splicer required
- Quick and easy fiber termination in less than two minutes
- Precision mechanical alignment insures low insertion loss
- Superior optical performance
- Durable components design for convenience and reusability
- Pre-installed fiber in ferrule for on-site assembly
- Uses proven, molded v-groove technologies
- Allow optical continuity to be verified by use of Visual Fault Locator (VFL)

M-FOCON-FI-SM-XX/YYY-F

- Fiber Diameter (mm) - 0.9, 2.0, 3.0
- Connector Type - XX=SC, FC, LC / YYY=UPC, APC
- SM=Singlemode, MM=Multi-Mode

SPLICE SLEEVES

The 60mm translucent plastic tube and stainless steel rod Fiber Optic Splice Sleeves are designed to prevent stress and protect fusion fiber optic splices in both field and factory operations.

Features:

- Provide protection and increased stability to splices
- 60mm, heat activated, translucent

MUL-FO-SP-SLEEVE

FUSION SPLICER

Parameter	Specification
Average splicing time	7 seconds - Fast Mode
Average heating time	9 seconds - Fast mode
Warranty	3 Yrs Domestic / 1 Yr International
Applications	SM (Singlemode) - ITU-T G.652 MM - (Multi-mode) - ITU-T G.651 DS - (Dispersion Shift) - ITU-T G.653 NZDS - (Non-Zero Dispersion Shift) - ITU -T G.655
Splice loss	SM - 0.02dB, MM - 0.01dB, DS - 0.04dB, NZDS - 0.04dB
Return loss	> 60dB
Operation mode	Full auto, semi-auto, manual
Fiber aligning method	Core, clad, manual alignment
Fiber diameter	Cladding diameter: 90 ~ 150µm, coating diameter: 125 ~ 1000µm
Fiber cleaved length	10 ~ 16mm (coating diameter: <250µm), 16mm (coating diameter: 250 ~ 1000µm)
Lens magnification	200x, 400x
Display	5" Color High Definition LCD
Battery capacity splice-heat cycles	260 typical
Battery full charge time	3 hours - Unit is able to operate/ splice during charging process
Battery life	300 ~ 500 charging cycles, quick-change lithium
Power display	Real-time remaining power is displayed on screen
Electrode life	3,500 splice cycles typical, easily replaceable electrodes (included)

The tough and rugged Multicom MUL-FSPLICE-200 Fiber Optic Fusion Splicer is drop/impact, dirt/dust and water resistant - and comes with a 3 year warranty. The splicer employs high-speed image processing and special positioning technology allowing the fusion splicing to be completed in a FAST 7 seconds and can heat shrink in an ULTRA-FAST 9 seconds. The splicer is compact in size, lightweight, and is ideal to work just about anywhere including harsh outdoor environments, dark and remote worksites.

Features:

- **FAST 7 Second Splicing** (optional)
- **ULTRA-FAST 9 Second Heat Shrinking** (optional)
- **Drop / Impact, Dirt / Dust and Water Resistant**
- **3 Year Warranty**
- State-of-the-art core-to-core fiber Profile Alignment System
- Fully-automatic, semi-automatic and manual operating modes
- Automatic detection of fiber cleaved face quality
- Automatic display of cleaved fiber and the offset angles
- Automatic analysis and estimation of splice loss
- Automatic detection of bad/faulty splice
- Automatic detailed data report record and memory storage for each splice up to 10,000 splices
- Automated 2N splice tension test
- Handy, easy-to-carry, solid and durable with shock-resistant design

Fiber Optic Fusion Splicer Kit Includes:

- MUL-FSPLICE-200 Fiber Optic Fusion Splicer
- Universal fiber holders
- Quck-change Lithium battery
- Precision optical fiber cleaver
- USB thumb drive with Operating Manual
- Fiber stripper
- Sheathing stripper
- Tweezers
- Spare electrodes
- Cleaning blower bulb
- Heat shrink cooling tray
- Heavy duty carrying case with workshelf
- AC adapter

MUL-FSPLICE-200

OPTICAL TIME DOMAIN REFLECTOMETER

The hand-held Optical Time Domain Refectometer MUL-OTDR-1000 and MUL-OTDR-1100 are a new generation of intelligent optical-fiber test equipment. OTDRs are widely used in the construction, maintenance, measurement, and emergency repair of optical-fiber communication networks as well as the development, manufacturing and measurement of optical fibers and optical cables.

Multicom's OTDRs are specially designed for tough outdoor jobs. Lightweight, easy operation, low-reflection LCD and 12 hours of battery life make it perfect for testing fiber optic cable in the field.

Specification	MUL-OTDR-1100	MUL-OTDR-1000
Wavelengths	1310 / 1550nm Singlemode	
Dynamic Range	35 / 33 dB	26 / 24 dB
Event Dead Zone	0.8m/1.5m (Typ)	
Attenuation Dead Zone	4m	
Distance Resolution	0.01m	
Testing Distance	100m, 500m, 2km, 5km, 10km, 20km, 40km, 80km, 120km, 160km, 200km	100m, 500m, 2km, 5km, 10km, 20km, 40km, 80km, 120km, 160km
Pulse Width	3ns, 5ns, 10ns, 20ns, 50ns, 100ns, 200ns, 500ns, 1µs, 2µs, 5µs, 10µs, 20µs	
Sampling Points (max)	128,000	
Distance Accuracy	± (1m + measuring distance x 3 x 10^{-5} + sampling resolution)M	
Visual Fault Locator	Included, 650nm, 10mW, Class III B	
Optical Light Source	1310nm, 1550nm	Not Included
Optical Power Meter	850, 1300, 1310, 1490, 1550, 1625, and 1650nm, input -60dBm to +5dBm	Not Included
Smart Network Analysis	Included	Not Included
Fiber Inspection	Software included, probe purchase required	
Display	7" TFT Touch Screen	
Languages	User-selectable English / Spanish / Portuguese / Others	
Bellcore SOR File Output	Yes (Issue 2, SR-4731)	
Data Storage	Internal memory: 4GB (about 40,000 test traces)	
Battery Life	~ 12 Hours	

Features:

- Auto/manual testing
- Integrated design with long battery life
- Outdoor enhanced, smart and rugged
- 7" anti-reflection LCD touch screen
- Support multi-language display and input
- Visual Fault Locator (VFL)
- The MUL-OTDR-1100 includes Light Source, Power Meter & Smart Network Analysis

Applications:

- FTTX test with PON networks
- CATV network testing
- Access network testing
- Live fiber troubleshooting

MUL-OTDR-1100

Models: 1000, 1100

OPTICAL POWER METER & VISUAL FAULT LOCATOR

Parameter	Specification
Wavelength range	800 to 1700nm
Connectors	SC, FC, ST
Measurement range	-70 to +10dBm
VFL wavelength	650nm
VFL power	>1mW
Detector type	InGaAs
Uncertainty	±5%

The MUL-OPM-VFL-1 Optical Power Meter (OPM) & Visual Fault Locator (VFL) is a handheld optical power meter which also conveniently incorporates a laser-based Visual Fault Locator - all in a single handheld unit. This ergonomically designed instrument uses advanced technology for outstanding functionality and durability.

The OPM uses microprocessor control and includes a variety of advanced features and user selectable settings. It is used for optical signal power measurement at a variety of wavelengths from 800-1700nm. The OPM can be used to inspect optical fiber and connectors for potential failures and issues when connected to an optical interface and/or with a singlemode or multi-mode optical fiber.

Features:

- Use with a wide variety of wavelengths from 800 to 1700nm
- 48 hours of operation (typical)
- Standard AA alkaline batteries
- Rugged and weather resistant
- Self-shutoff, backlight

MUL-OPM-VFL-1

VISUAL FAULT LOCATOR

Parameter	Specification
Operation	2 to 4Hz
Wavelength	650 ±10nm
Power output	0.6mW typical
Distance range	5Km
Operation modes	Continuous Wave (CW)/Off/Pulse
Laser class	1

The MUL-VFL-1MW is the easiest way to identify fibers from end to end and locate polished connector endfaces. The red laser shines through most yellow-jacketed fibers to help you precisely identify breaks, bends, faulty connectors, splices and other causes of signal loss. Reaching of up to 5 km, the MUL-VFL-1MW locates faults visually by creating a bright red glow at the exact location of the fault on both singlemode or multi-mode fibers.

Robust design: Due to its small size and durable yet lightweight design, this handy tool can accompany you to the most demanding environments. To ensure ruggedness, it features rubber seals, a fully enclosed laser head and a long-lasting operations switch. It has been tested to provide reliable operation under intensive use and harsh conditions.

Features:

- Bright red laser at 650 ±10nm
- Continuous Wave (CW)/Off/Pulse operation
- Batteries last 50 hours (typical)
- Standard AAA alkaline batteries
- Rugged and weatherproof
- 2.5mm universal connector

MUL-VFL-1MW

HIGH PRECISION FIBER OPTIC CLEAVER

MUL-FO-CLEAV-200

The High Precision MUL-FO-CLEAV-200 is ideal for single fiber and ribbon fiber FTTx applications. The 16-position blade yields 48,000 single-fiber cleaves, or 4,000 12-fiber ribbon cleaves before requiring replacement. The easy-to-use precision cleaver provides reliable, repeatable results and includes safety features to protect the operator and extend the life of the tool.

Features:

- Compact body and high precision design
- Applicable for single fiber and up to 12-count fiber ribbon
- For use on Singlemode and Multi-mode fiber
- 48,000 fiber cleaves life (1,000 cleaves x 3 heights x 16 positions)
- Includes hard carrying case and additional fiber holder

MUL-FO-CLEAV-150

The MUL-FO-CLEAV-150 is ideal for single fiber FTTx applications. The 16-position blade yields 48,000 single-fiber cleaves before requiring replacement. The easy-to-use precision cleaver provides reliable, repeatable results and includes safety features to protect the operator and extend the life of the tool.

Features:

- Compact body and high precision design
- Applicable for single fiber
- For use on Singlemode and Multi-mode fiber
- 48,000 fiber cleaves life (1,000 cleaves x 3 heights x 16 positions)
- Includes carrying case, fiber guide, hex tool, and fiber refuse collection bin

MUL-FO-CLEAV-100

The economical MUL-FO-CLEAV-100 is ideal for single fiber FTTx applications. The 16-position blade yields 36,000 single-fiber cleaves before requiring replacement. This easy-to-use precision cleaver provides reliable, repeatable results.

Features:

- Compact body and high precision design
- Applicable for single fiber
- For use on Singlemode and Multi-mode fiber
- 36,000 fiber cleaves life (1,000 cleaves x 3 heights x 12 positions)
- Includes soft carrying case and fiber guide tool

Parameter	MUL-FO-CLEAV-200	MUL-FO-CLEAV-150	MUL-FO-CLEAV-100
	Specifications	Specifications	Specifications
Fiber count	Single fiber, up to 12 ribbon fiber	Single fiber	Single fiber
Cleaving length	10-16mm	10-16mm	10-16mm
Fiber holder	Universal, interchangeable	Universal, interchangeable	Universal, interchangeable
Application fibers	Singlemode, Multi-mode	Singlemode, Multi-mode	Singlemode, Multi-mode
Bare fiber diameter	125µ (250-900mm coating)	125µ (250-900mm coating)	125µ (250-900mm coating)
Cleaving angle	0.5° with single fiber	0.5° with single fiber	0.5° with single fiber
Blade life	48,000 fiber cleaves	48,000 fiber cleaves	36,000 fiber cleaves
Blade positions	3 heights, 16 rotating positions	3 heights, 16 rotating positions	3 heights, 16 rotating positions

FIBER OPTIC CLEANER - CASSETTE

MUL-FO-CLEAN-CASS

The MUL-FO-CLEAN-CASS Fiber Optic Cleaner Cassette is the most effective high-end cleaning solution available. This cassette cleaner features a 25 foot densely-woven dry cloth reel which provides superior cleaning performance while minimizing static charge. The 25 feet cloth can be used over 500 times.

Features:

- Minimizes static attraction
- Ultra clean micro-fiber cloth captures debris and other contamination
- The cloth is robust, it does not fray or leave any fibrous materials behind

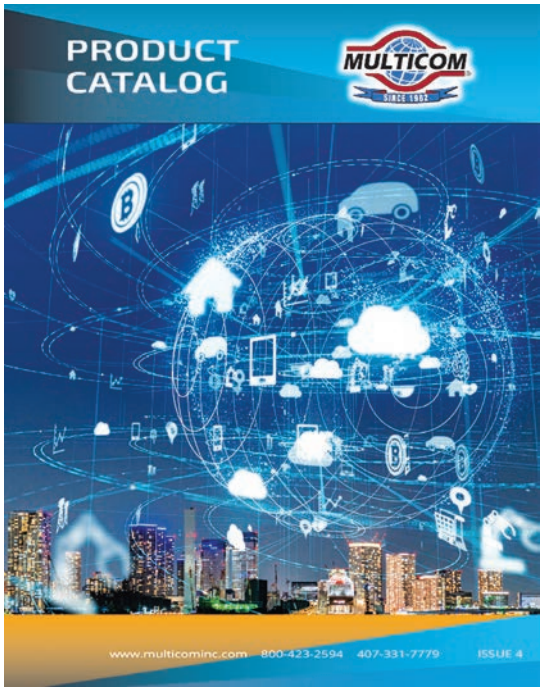
FIBER SHEARS

MUL-FO-SHEAR-K

The MUL-FO-SHEAR-K Fiber Optic Kevlar Cutters, or Shears, are specifically designed for cutting fiber optic kevlar. The cutting blades are micro-serrated, especially designed to avoid sliding or slipping when cutting kevlar. The handle is made from molded and durable plastic making these shears easy to grip and operate.

Features:

- Made of carbon steel
- Ergonomic handle



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PE INSULATED SIGNAL CABLE (NOT TWISTED PAIR)

Jacket	Spec#	Voltage Rating	Design Features
PVC Polyvinyl Chloride	19-1	600	Aerial (Lashed) & Duct
	19-3		Integrated ¼" Messenger (Figure 8), copper shielded
	19-5		PE inner jacket, direct burial
PE Poly-ethylene	20-1	600	Aerial (Lashed) & Duct
	20-3		Integrated ¼" Messenger (Figure 8), copper shielded
	20-5		PE inner jacket, direct burial

TWISTED PAIR, PE INSULATED SIGNAL / COMMUNICATION CABLE WITH COPPER SHIELD

Jacket	Spec#	Voltage Rating	Design Feature
PVC Polyvinyl Chloride	19-2	600	Aerial (Lashed) & Duct
	39-2	300	
	19-4	600	Int. ¼" Messenger (Figure 8)
	39-4	300	
	19-6	600	PE inner jacket, direct burial
	39-6	300	
PE Poly-ethylene	20-2	600	Aerial (Lashed) & Duct
	40-2	300	
	20-4	600	Int. ¼" Messenger (Figure 8)
	40-4	300	
	20-6	600	PE inner jacket, direct burial
	40-6	300	

FILLED, TWISTED PAIR, PE INSULATED SIGNAL/ COMMUNICATION CABLE W/COPPER SHIELD

Jacket	Spec#	Voltage Rating	Design Feature
PVC Polyvinyl Chloride	59-2	300	Aerial (Lashed) & Duct
	59-4		Int. ¼" Messenger (Figure 8)
	59-6		PE inner jacket, direct burial
PE Poly-ethylene	60-2	300	Aerial (Lashed) & Duct
	60-4		Int. ¼" Messenger (Figure 8)
	60-6		PE inner jacket, direct burial

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TRAFFIC DETECTOR CABLE & WIRE

Insu-lation	Type	Spec#	Voltage Rating	Design Feature	
PE	Loop Detector Lead-in Cable	50-2	600	Twisted Pair - PE Outer Jacket	
PVC	Loop Detector Wire	51-1	600	Clear Nylon over PVC	
		51-3		Cross-Linked PE	
		51-5		Same as 51-1	but loosely encased in PVC or PE duct tube
		51-7		Same as 51-3	

LINE WIRES, HARD-DRAWN COPPER

Insulation	Spec#	Conductor	Design Feature
Neoprene	26-2	Single	RED PVC Jacket
PVC	26-4		
High Density PE	26-3		
	29-1	2 Conductor Parallel 'C' wire	
	29-3		

LINE WIRES, COPPER-CLAD STEEL

Insulation	Spec#	Conductor	Conductivity	Design Feature
Neoprene	28-2	Single	30 or 40%	RED PVC Jacket
PVC	28-4			
High Density PE	28-3			
	29-2	2 Conductor Parallel 'C' wire	40%	
	29-4		30%	

BUILDING / SERVICE WIRE

XLP USE-2	RHH/RHW-2	THHN/THWN-2	XHHW

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HANDY CONVERSIONS	
1 Foot = 0.3048 Meters	1 Meter = 3.281 Feet
1 Km = 3,280.8 Feet, .062 Miles	1 Mile = 1,609.3 Meters, 1.6 Kms
Centigrade = (°F - 32) x 5/9	Fahrenheit = (°C x 9/5) + 32

LOOP SEALANT COVERAGE (1 gallon mixed sealer)
3/8" Width x 1" Depth = 51 Linear Feet
3/8" Width x 1.5" Depth = 35 Linear Feet

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