TRAFFIC PRODUCT CATALOG

EVERYTHING YOU NEED IN THE INTERSECTION... AND MORE
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.
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.

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.

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 addition to the above, Multicom is also a sustaining member and/or affiliated with multiple associations and communities in the industry including these, and more:
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1 WIRE & CABLE PAGE 5
Our solutions meet or exceed industry standards for aerial, underground, commercial and residential applications.

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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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3 FIBER OPTICS PAGE 22
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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<td>POCKET REFERENCE CARD</td>
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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 distributor 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.
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.

### Signal Cable

<table>
<thead>
<tr>
<th>Spec 19-1 and 20-1 Signal Cable</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductors</td>
<td>Solid or Stranded, bare copper</td>
</tr>
<tr>
<td>Insulation</td>
<td>Polyethylene</td>
</tr>
<tr>
<td>Color code</td>
<td>Per specification</td>
</tr>
<tr>
<td>Conductor configuration</td>
<td>Cabled conductors</td>
</tr>
<tr>
<td>Shield</td>
<td>None</td>
</tr>
<tr>
<td>Jacket</td>
<td>Spec 19-1 - PVC, Spec 20-1 - Black PE</td>
</tr>
<tr>
<td>Operation mode</td>
<td>Full auto, semi-auto, manual</td>
</tr>
</tbody>
</table>

### Loop Detector Wire

<table>
<thead>
<tr>
<th>Spec 51-1 / 51-3</th>
<th>Specification</th>
</tr>
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<tr>
<td>Conductors</td>
<td>Solid or Stranded, bare copper</td>
</tr>
<tr>
<td>Insulation</td>
<td>Spec 51-1 - PVC / Nylon, Spec 51-3 - Black cross-linked polyethylene</td>
</tr>
<tr>
<td>Conductor config</td>
<td>Single conductor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spec 51-5 / 51-7</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductors</td>
<td>Stranded, bare copper</td>
</tr>
<tr>
<td>Insulation</td>
<td>Spec 51-5 - PVC / Nylon, Spec 51-7 - Black cross-linked polyethylene</td>
</tr>
<tr>
<td>Conductor config</td>
<td>Single conductor</td>
</tr>
<tr>
<td>Outer jacket</td>
<td>Black PVC or polyethylene tube</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spec 50-2</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductors</td>
<td>Solid or Stranded, tinned copper</td>
</tr>
<tr>
<td>Insulation</td>
<td>Polyethylene</td>
</tr>
<tr>
<td>Color code</td>
<td>Black / Natural</td>
</tr>
<tr>
<td>Conductor config</td>
<td>Twisted pair</td>
</tr>
<tr>
<td>Shield</td>
<td>Aluminum / Mylar tape</td>
</tr>
<tr>
<td>Outer jacket</td>
<td>Black low-density polyethylene</td>
</tr>
</tbody>
</table>
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**

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

- 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

**Multi-Conductor Camera Cable**

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

- Specification - Coax
  - Conductors - 20 AWG Solid BC .032
  - Braid - 95% BC
  - Jacket - PVC .224 Nominal
- Specification - Multi-Conductors
  - Component 1 - 16 AWG BC
  - Insulation - PVC
  - Color Code - Black, White, Red, Brown, Blue

**Precision Video Cable**

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

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.
  • 600 Volt, Copper conductor
  • High-heat, moisture, and sunlight resistant
  • All size variations available

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.
  • 600 Volt, Copper Conductor
  • High-heat, moisture, and sunlight resistant
  • All size variations available

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

STRAND WIRE

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

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/

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

### Electrical Characteristics

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<th>Parameter</th>
<th>Specification</th>
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<tr>
<td>Rated Temperature</td>
<td>75 °C (167°F)</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>300V</td>
</tr>
<tr>
<td>Flammability Test</td>
<td>IEC-332-1</td>
</tr>
<tr>
<td>Product Standard Certification</td>
<td>CMX</td>
</tr>
<tr>
<td>Conductor</td>
<td>Solid Bare Copper</td>
</tr>
<tr>
<td>Size</td>
<td>24 AWG (0.51mm)</td>
</tr>
<tr>
<td>Insulation</td>
<td>PE</td>
</tr>
<tr>
<td>Average Thickness (mm)</td>
<td>0.208</td>
</tr>
<tr>
<td>Insulation Diameter (+0.005mm)</td>
<td>0.91</td>
</tr>
<tr>
<td>Twisted Pair Diameter (+0.01)</td>
<td>1.92</td>
</tr>
<tr>
<td>Assembly Diameter</td>
<td>3.80</td>
</tr>
<tr>
<td>Inner Jacket (Gray)</td>
<td>PVC</td>
</tr>
<tr>
<td>Average Thickness (mm)</td>
<td>0.40</td>
</tr>
<tr>
<td>Min. Point Thickness (mm)</td>
<td>0.36</td>
</tr>
<tr>
<td>Outer Diameter (+0.10mm)</td>
<td>4.80</td>
</tr>
<tr>
<td>Aluminum Foil</td>
<td>Yes</td>
</tr>
<tr>
<td>Drain Wire (Tinned Cooper)</td>
<td>7/0.16</td>
</tr>
<tr>
<td>Outer Jacket (Black)</td>
<td>LSZH (UV)</td>
</tr>
<tr>
<td>Average Thickness (mm)</td>
<td>0.60</td>
</tr>
<tr>
<td>Min. Point Thickness (mm)</td>
<td>0.54</td>
</tr>
<tr>
<td>Outer Diameter (+0.10mm)</td>
<td>6.40</td>
</tr>
<tr>
<td>Rip Cord</td>
<td>Yes</td>
</tr>
<tr>
<td>Color of Pairs</td>
<td>Pair 1: Blue,White-Blue</td>
</tr>
<tr>
<td></td>
<td>Pair 2: Orange,White-Orange</td>
</tr>
<tr>
<td></td>
<td>Pair 3: Green,White-Green</td>
</tr>
<tr>
<td></td>
<td>Pair 4: Brown,White-Brown</td>
</tr>
</tbody>
</table>

### Mechanical Characteristics

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<tr>
<th>Test Object</th>
<th>Jacket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Material</td>
<td>LSZH (UV)</td>
</tr>
<tr>
<td>Before - Tensile Strength (Mpa)</td>
<td>&gt;=13.8</td>
</tr>
<tr>
<td>Aging - Elongation (%)</td>
<td>&gt;=100</td>
</tr>
<tr>
<td>Aging Condition (*Cxhrs)</td>
<td>100 x 168</td>
</tr>
<tr>
<td>After - Tensile Strength (Mpa)</td>
<td>&gt;=85% of unaged</td>
</tr>
<tr>
<td>Aging - Elongation (%)</td>
<td>&gt;=50% of unaged</td>
</tr>
<tr>
<td>Cold Bend (-20+2° Cx4hrs)</td>
<td>No Crack</td>
</tr>
</tbody>
</table>

**Color of Pairs**

- Pair 1: Blue,White-Blue
- Pair 2: Orange,White-Orange
- Pair 3: Green,White-Green
- Pair 4: Brown,White-Brown

**WIRE & CABLE**
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.
Traffic & Pedestrian Signals, housings & Accessories

McCain

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:
- 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...
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 / 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

**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.
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

- Cable Suspension Bolt
- Machine Bolt
- Thimbleye Bolt
- Angled Thimbleye Bolt
- Double Arming Bolt
- Oval Eye Bolt
- Thimbleye Nut
MacLean Power Systems is a leading manufacturer of Pole Line Hardware and connection products, as well as insulation and protection products. Multicom stocks a wide range of MPS products, including:

**POLE LINE HARDWARE**

**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 Tripeye 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 galvanized, 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.
Multicom provides Traffic Signal and Pedestrian Crossing Hardware that meets the needs of the traffic industry by providing the highest quality products from the industry’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.
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

**Mast-arm Clamp Kit**
- Stainless cable mount
- Aluminum

**Mast-arm EZ Attachment**
- Adapter
- Aluminum

**Retroreflective 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

**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.

**Sign Mounts**

**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.
CONDUX From Fiber Optic Cable Blowers to Pullers, and Everything in Between

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.

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.

800-423-2594 - Full Spec Sheets & Much More Available Online at www.multicominc.com
TRAFFIC ACCESSORIES

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.

PRO-MARK
UTILITY SUPPLY INC.

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

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.

SIGNALS & SIGNAL HARDWARE

ETCO
ETCO Specialty Products, Inc.

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

Single E-Loc & Compression Coupling

The Ecto 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.
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.

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™ 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
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.

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-bury 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.
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.

**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 Polyethylene (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).
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.
FIBER OPTICS

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

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

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

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
- Length: 350 or 600 Ft. Span
- SM: Single Mode, MM: Multimode
- 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
- 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=Messenger/Tone Wire
- Sheath Color: B-Black, W-White, G-Gray, U-Blue
- Type: SM: G.657A1 Single Mode, MM: Multimode
- Number of Fibers (1-6)
- 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

800-423-2594 - Full Spec Sheets & Much More Available Online at www.multicominc.com
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

**Singlemode Fiber with FC, ST & SC Connectors**

<table>
<thead>
<tr>
<th>Contact Mode</th>
<th>PC</th>
<th>UPC</th>
<th>APC</th>
<th>PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss (dB)</td>
<td>≤0.2</td>
<td>≤0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Grade</td>
<td>OS1, OS2</td>
<td>OM1, OM2, OM3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>-40 to +80</td>
<td>-40 to +80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability (dB)</td>
<td>≤0.1</td>
<td>≤0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interchange (dB)</td>
<td>≤0.2</td>
<td>≤0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>≥45</td>
<td>≥50</td>
<td>≥65</td>
<td>≥35</td>
</tr>
<tr>
<td>Cable Diameter</td>
<td>2mm, (0.9mm and 3mm also available)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferrule Material</td>
<td>Zirconia Ceramic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Multi-mode Fiber**

<table>
<thead>
<tr>
<th>First Connector Type</th>
<th>Second Connector Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOJ-2M-SM-SC/APC-S-SC/APC</td>
<td>S = Simplex, D = Duplex</td>
</tr>
<tr>
<td></td>
<td>First Connector Type</td>
</tr>
<tr>
<td></td>
<td>SM = Singlemode, MM = Multi-Mode</td>
</tr>
<tr>
<td></td>
<td>xM = Length in Meters, xFT = Length in Feet</td>
</tr>
<tr>
<td></td>
<td>FOJ = Fiber Optic Jumper, FOPF = Fiber Optic Pigtail</td>
</tr>
</tbody>
</table>

**DID YOU KNOW?**

Multicom uses only Corning fiber-based fiber optic passives

**MATING SLEEVES**

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

**ATTENUATORS**

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

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

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

- **Connector Type**
  - S=Singlemode, M=Multi-mode
- **Number of Splits** (1x2, 1x4, 1x8, etc.)
- **60%/40% of Split**, or **E=Even**
FIBER OPTICS

FIELD-INSTALLABLE FIBER OPTIC CONNECTORS

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)

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

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
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
- Quick-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

**FUSION SPICER**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average splicing time</td>
<td>7 seconds - Fast Mode</td>
</tr>
<tr>
<td>Average heating time</td>
<td>9 seconds - Fast mode</td>
</tr>
<tr>
<td>Warranty</td>
<td>3 Yrs Domestic / 1 Yr International</td>
</tr>
<tr>
<td>Applications</td>
<td>SM (Single mode) - 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</td>
</tr>
<tr>
<td>Splice loss</td>
<td>SM - 0.02dB, MM - 0.01dB, DS - 0.04dB, NZDS - 0.04dB</td>
</tr>
<tr>
<td>Return loss</td>
<td>&gt; 60dB</td>
</tr>
<tr>
<td>Operation mode</td>
<td>Full auto, semi-auto, manual</td>
</tr>
<tr>
<td>Fiber aligning method</td>
<td>Core, clad, manual alignment</td>
</tr>
<tr>
<td>Fiber diameter</td>
<td>Cladding diameter: 90 ~ 150μm, coating diameter: 125 ~ 1000μm</td>
</tr>
<tr>
<td>Fiber cleaved length</td>
<td>10 ~ 16mm (coating diameter: &lt;250μm), 16mm (coating diameter: 250 ~ 1000μm)</td>
</tr>
<tr>
<td>Lens magnification</td>
<td>200x, 400x</td>
</tr>
<tr>
<td>Display</td>
<td>5&quot; Color High Definition LCD</td>
</tr>
<tr>
<td>Battery capacity splice-heat cycles</td>
<td>260 typical</td>
</tr>
<tr>
<td>Battery full charge time</td>
<td>3 hours - Unit is able to operate/ splice during charging process</td>
</tr>
<tr>
<td>Battery life</td>
<td>300 ~ 500 charging cycles, quick-change lithium</td>
</tr>
<tr>
<td>Power display</td>
<td>Real-time remaining power is displayed on screen</td>
</tr>
<tr>
<td>Electrode life</td>
<td>3,500 splice cycles typical, easily replaceable electrodes (included)</td>
</tr>
</tbody>
</table>
The hand-held Optical Time Domain Reflectometer 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.

### 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

### Specification

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

**OPTICAL POWER METER & VISUAL FAULT LOCATOR**

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**

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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength range</td>
<td>800 to 1700nm</td>
</tr>
<tr>
<td>Connectors</td>
<td>SC, FC, ST</td>
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<tr>
<td>Measurement range</td>
<td>-70 to +10dBm</td>
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<tr>
<td>VFL wavelength</td>
<td>650nm</td>
</tr>
<tr>
<td>VFL power</td>
<td>&gt;1mW</td>
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<tr>
<td>Detector type</td>
<td>InGaAs</td>
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<tr>
<td>Uncertainty</td>
<td>±5%</td>
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</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>2 to 4Hz</td>
</tr>
<tr>
<td>Wavelength</td>
<td>650 ±10nm</td>
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<tr>
<td>Power output</td>
<td>0.6mW typical</td>
</tr>
<tr>
<td>Distance range</td>
<td>5Km</td>
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<tr>
<td>Operation modes</td>
<td>Continuous Wave (CW)/Off/Pulse</td>
</tr>
<tr>
<td>Laser class</td>
<td>1</td>
</tr>
</tbody>
</table>
HIGH PRECISION FIBER OPTIC CLEAVER

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-200

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-150

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

MUL-FO-CLEAV-100

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Parameter | MUL-FO-CLEAV-200 Specifications | MUL-FO-CLEAV-150 Specifications | MUL-FO-CLEAV-100 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 SHEARS

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

FIBER OPTIC CLEANER - CASSETTE

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

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