

# RUGGEDIZED CONNECTIVITY SOLUTIONS

For Harsh Environments



IF IT'S CRITICAL, IT'S L-COM

## L-com Delivers Connectivity Solutions for Some of the Harshest Environments

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L-com has long been a leader in delivering connectivity solutions with the ability to withstand some of the harshest environments imaginable. L-com has been serving the needs of engineering professionals that require urgent access to wired and wireless connectivity solutions and offers excellent customer service and technical support.



### L-com Makes it Easy and Fast with Same-Day Shipping

Ordering is easy through the L-com website with high quality, off-the-shelf connectivity solutions with a commitment to in stock availability and same-day shipping.



### Custom Capabilities

We offer quality customized solutions across our wired and wireless connectivity products with short lead times to meet the needs of our customers. Our capabilities include fiber optic, coax and Ethernet cable assemblies as well as adapters, antennas, weatherproof NEMA enclosures and more. Custom orders require minimum order quantities and lead times will vary based on project scope.

### Applications and Markets for Ruggedized Solutions

L-com's ruggedized solutions are designed for many types of applications across many industries.

Ruggedized cabling and interconnectivity components must withstand conditions such as extreme temperatures, moisture, corrosive chemicals, heavy vibration and more when used in harsh industrial settings.

Communication systems for use in military operations are exposed to similar harsh conditions. Many of the voice, video and data systems used by the military are mobile and designed for rapid deployment where similar temperature extremes, shock, vibration, dust and moisture are prevalent.

Other potential hazards encountered in these applications include heavy electromagnetic interference (EMI) and radio frequency interference (RFI) which also create connectivity problems in these environments.

#### Applications:

- Weatherproofing and Waterproofing
- Climate and environmental protection
- Operations in both hot and cold temperature extremes
- Outdoor and indoor applications
- Protection for electric and/or electronic equipment
- Designed to withstand shock, vibration and corrosive material

#### Markets/Industries:

- Military
- Aerospace/Avionics
- Industrial Applications and Process Control
- Factory Automation
- Medical/Healthcare
- Security Monitoring
- Transportation
- Test and Measurement
- Data Storage

## Case Study:

# L-com Provides Connectivity Solutions for NJ Transits Light Rail Car Deployment

### Challenge

Kinki Sharyo was awarded a \$30 million contract from NJ Transit for sixty new trains for the Jersey City, Hoboken, Newark and Hudson County NJ light rail vehicle line. The new car design will utilize DVI, Cat 5e and USB cabling to enable onboard video and LED lighting systems. The existing connectivity method uses heavy gauge cables bundled together and terminated to a large 60 pin Canon connector. The train cars are articulated with 3 to 5 cars connected to each other. Due to the constant flexing of the cables, they frequently wear and experience failures at the friction points.

Kinki Sharyo's challenge was to find a more robust cabling system that would not wear down over time due to the constant movement of the articulated cars.



### Solution

L-com sales provided Kinki Sharyo engineers samples of its ruggedized crushproof USB cables as well as right angle DVI and Cat 5e Ethernet cables as space is limited on the rail cars. After testing the cables Kinki Sharyo found that the cable assemblies met all of the requirements for the new rail car design. Furthermore L-com's cables were available, off the shelf, with Low Smoke Zero Halogen (LSZH) jackets and connector over molds which was also a requirement of Kinki Sharyo in order to protect people and equipment in the event of a fire.

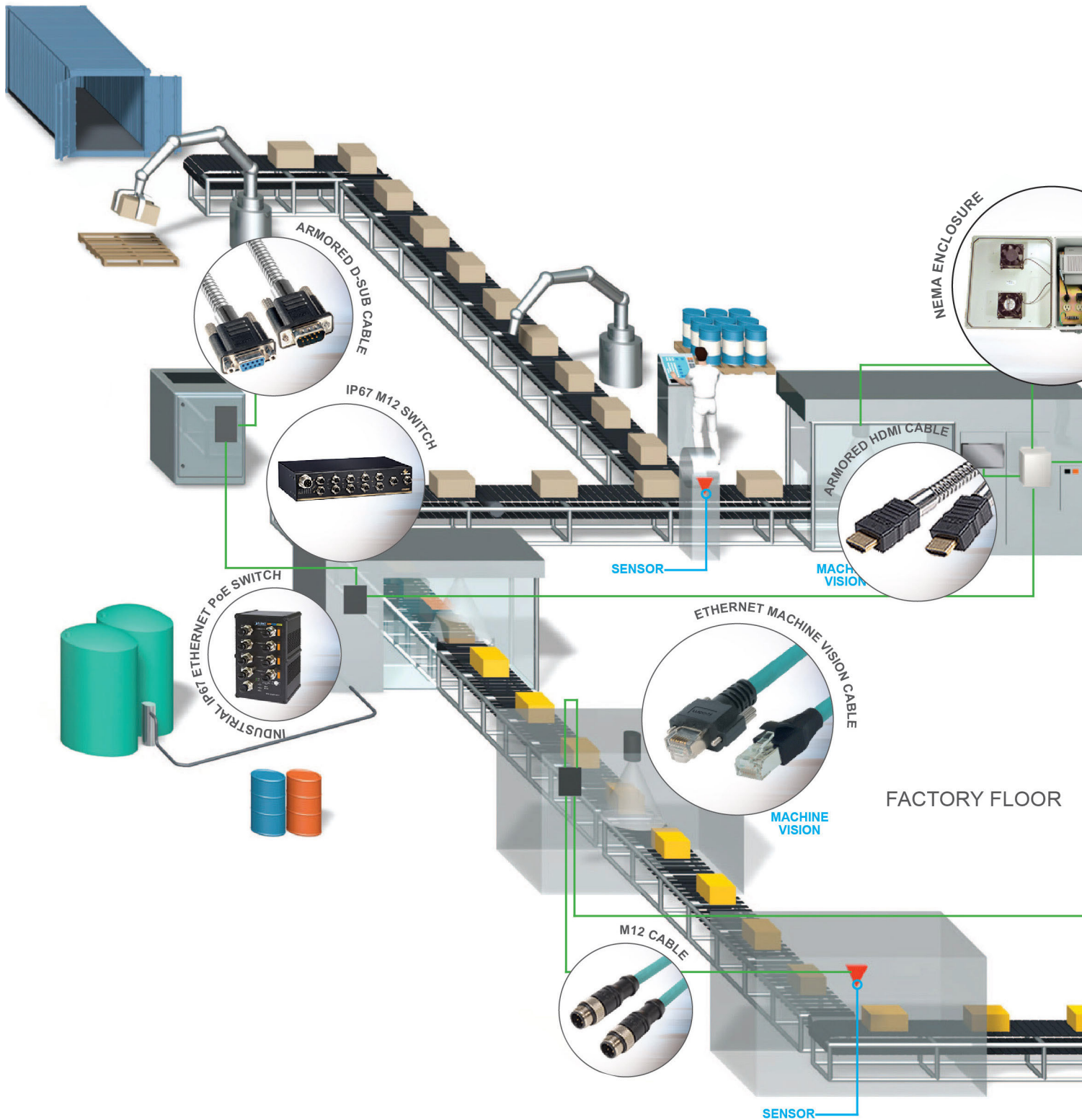


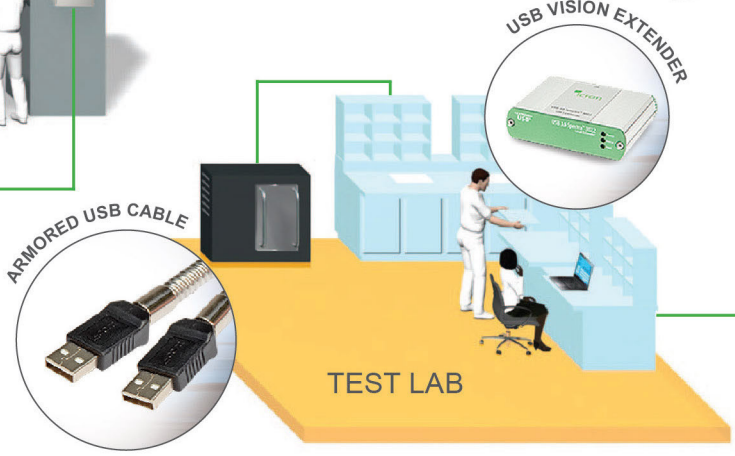
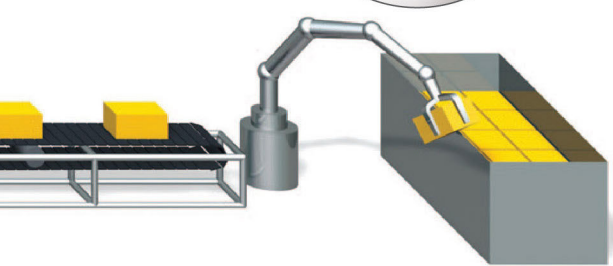
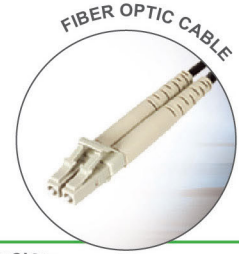
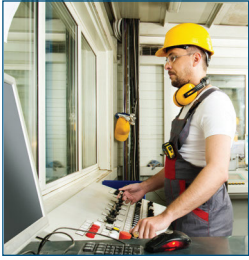
### Results

L-com's off the shelf cabling solutions met Kinki Sharyo's requirements for a robust, high performance video display and LED lighting system for the NJ Transits new light rail car deployment.



# L-com Product Applications for Industrial Connectivity





## L-com's Ruggedized Solutions Have You Protected

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### Ethernet Cable Assemblies



#### Industrial Strength, Double Shielded M12 Cables

L-com's M12 cable assemblies withstand the most demanding applications and environments. Built with high flex, outdoor CMX rated, double shielded, FR-TPE cable and IP67 M12 connectors, these cables are available with both Category 5e or Category 6a ratings. Options now include right angle assemblies.



#### Shielded GigE Machine Vision

Ideal for continuous motion, factory automation and robotics applications. Designed with a tinned copper braid shield to protect against EMI/RFI interference and lockdown GigE RJ45 connectors.



#### Cat 5e Shielded, High Flex, Right Angle

L-com's patented right angle, braid-shielded patch cables maintain a right-angle bend while maintaining true Category 5e performance. An overall braid shield limits EMI and RFI interference while high-flex cable construction with flex cycles in the millions makes these assemblies ideal for continuous motion applications.



#### Cat 5e/Cat 6 Shielded, Waterproof

These cables can be used with IP rated receptacles for a watertight seal and can also mate with standard jacks. Additional features include a foil shield to protect against EMI/RFI interference, a tethered dustproof cap for the waterproof shroud and a UL CMX outdoor burn rating.



#### Cat 5e and Cat 6a Hi-Temp, Double Shielded, Aerospace Cables

L-com's high temperature Ethernet assemblies are ideal for general military, avionics and aerospace use. All cables are double shielded for maximum EMI and RFI protection. The FEP jacket is rated for a robust temperature range of -55° to +150°C and features flame properties qualified for Boeing, Airbus and FAR regulations.

### USB Cable Assemblies



#### USB 3.0/2.0 Metal/Plastic Armored

Featuring stainless-steel crush resistant armor over our premium USB 3.0 cable for applications where standard cables would be damaged due to excessive force. Crush resistance is 1500 PSI.



#### Waterproof

Waterproof cables can prevent costly repairs caused when contaminants, water and dust destroy standard USB connectors.

## L-com's Ruggedized Solutions Have You Protected

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### Audio / Video



#### DVI with Metal Shell

These cables offer high quality construction and support high bandwidth video and HDTV resolutions. Features low smoke zero halogen cable jacketing and metal housing on the DVI connector.



#### Waterproof HDMI

These unique cables feature waterproof coupling that allow the HDMI connectors to survive harsh environments and prevent exposure to water and dust that can destroy standard HDMI cables.

### Connectors



#### Transversely Sealed Connectors

All of L-com's ruggedized RJ45 jam nuts, flanges and in-line receptacles are transversely sealed and waterproof. The parts meet or exceed an IP68 rating with or without dust covers or mated connectors engaged with the receptacle. Made of machined aluminum, these connectors are among the toughest on the market.

### Antennas



L-com offers ruggedized outdoor base station RF antenna solutions providing simple, reliable and cost-effective deployment. From simple multi-band and WiFi to cellular and PCS our broad selection of directional and omni directional antennas will deliver the reliable performance you expect when using in rugged, outdoor harsh environments.

### Enclosures, Racks and Cabinets



Our industrial NEMA-rated enclosures are used in industrial automation, municipal/public works, oil and gas, mining, transportation, irrigation systems, and more. Suitable for indoor and the harshest outdoor environments, these enclosures provide high value and exceptional performance. Configurable designs offer a wide range of options, including heat, cooling, AC or DC power, and Power over Ethernet (PoE) interfaces

### Trusted Supplier of Quality Industrial Grade Connectivity Solutions

L-com products are engineered and tested for superior reliability in the harshest industrial environments.

# Ruggedized Connectivity Solutions for Harsh Environments

Our Experts are Here to Help:



Secure Online Ordering  
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**INFINITE**<sup>®</sup>  
ELECTRONICS, INC.

## ABOUT INFINITE ELECTRONICS

Infinite Electronics powers a global portfolio of specialized connectivity companies delivering reliable engineered solutions worldwide. Built as a unified platform for speed, scale and reliability, the company combines shared infrastructure, best-in-class logistics and deep engineering expertise to support mission-critical connectivity needs. Through scalable global operations and rapid development capabilities, Infinite helps customers accelerate innovation and bring new ideas to market.

Learn more at [www.infiniteelectronics.com](http://www.infiniteelectronics.com).