

PERFORM BEYOND EXPECTATIONS.

OneReach™

PoE EXTENDER SYSTEM



Berk-Tek®
A NEXANS COMPANY



Take PoE and PoE+ simplicity and gigabit capability to new distances.

One hundred meters is no longer the limit.

When Berk-Tek introduced OneReach, it was a game-changer—simply, reliably and cost-effectively taking power and data to new distances. Today, with Gigabit Ethernet capability, OneReach extends the possibilities and options for provisioning remotely located security cameras, access control devices or wireless access points. Simply. Reliably. And cost-effectively.

TAKE POWER & GIGABIT DATA TO NEW DISTANCES

You can rely on OneReach to transmit both power and gigabit data to distances previously unreachable with conventional PoE/PoE+ solutions. Plus OneReach not only allows for a lower cost installation, but also delivers the benefits of infrastructure simplification and remote management capabilities.

STANDARD COMPONENTS, CUSTOM RESULTS

The OneReach System is an integrated power and data cable system with three distinct segments; Power Injection (PI), OneReach Cable Assembly (OCA), and Remote PoE Port (RPP). The components of each segment have been designed to work together seamlessly to ensure simple installation and ease of use. And selecting the right OCA can extend PoE or PoE+ up to several thousand feet from the IT closet that supplies power and houses UPS devices.

Designed to support single or multiple remote devices, the variety of available components allows you to build the exact system you need to meet your specific installation needs. Factory-terminated and tested assemblies that combine multiple stranded copper conductors and optical fibers arrive ready to install and flawlessly interface with a variety of media modules for both the closet and remote locations. OneReach is the answer.



POE AND POE+ DELIVER THE BENEFITS OF SIMPLIFIED NETWORKS, CENTRALIZED POWER MANAGEMENT AND BACK-UP, AND FASTER AND LESS COSTLY INSTALLATIONS. NOW WITH GIGABIT ETHERNET CAPABILITY.

Combining optical fiber for long-distance data transmission and copper conductors in a single system takes PoE to 3,850 ft. and PoE+ to 2,500 ft.

OneReach is the answer.



ONEREACH AT A GLANCE

With integrated power and data, OneReach extends PoE and PoE+ far beyond traditional limitations. OneReach enables you to easily realize all the benefits of simplification and cost-effectiveness of PoE and PoE+ in installation environments that exceed the standard distance limitations of Ethernet. Plus, with Gigabit Ethernet capability, OneReach extends the options for supporting remotely located data intensive applications such as wireless access points.

BENEFITS

- ▶ Enables PoE/PoE+ equipment to be located more than 100 meters from the switch
- ▶ Simplifies network and device management through centralized IT infrastructure
- ▶ Extends remote application options and performance with Gigabit Ethernet capability
- ▶ Cost savings versus installation of a new electrical outlet
- ▶ CL3R-OF/PLTC-OF listing allows cable to be installed in communication pathways

- ▶ Ease of installation with pre-terminated and factory tested products arriving ready to install
- ▶ Broad design selection allows for mix and match of copper and fiber components to specific networking applications
- ▶ Designs for indoor, outdoor and indoor/outdoor installations
- ▶ Armor option adds crush resistance and protection from rodent attacks
- ▶ Optional pigtailed enable field termination when final run lengths are not known

FEATURES

- ▶ Gigabit Ethernet support
- ▶ Available option supports PoE+ to extended distances, up to several thousand feet
- ▶ Combines control and communication in industrial pathways
- ▶ Provides common pathway for fiber backbone and Class 3 power supply
- ▶ Ideal for IP cameras, wireless access points and other ESS devices
- ▶ CL3R-OF, wet and dry rated
- ▶ OM3 optical fiber standard. Other fiber types available on request

- ▶ Multiple loose tube or tight buffer fibers for indoor, outdoor and indoor/outdoor environments
- ▶ Uses standard LC or MTP optical connectors
- ▶ Configurations with stranded THWN and/or TFFN copper conductors
- ▶ Armored cable configurations available

APPLICATIONS & STANDARDS

OneReach provides power and data connections for remote devices such as security cameras, access control devices and wireless access points with options to support single and multi-port applications:

- ▶ IEEE 802.3af
- ▶ IEEE 802.3at
- ▶ EN 50173
- ▶ ISO/IEC 11801
- ▶ UL 13
- ▶ ANSI/ICEA S-104-696
- ▶ IEC 1000-4-5
- ▶ IEEE 802.3 10/100BASE-T
- ▶ IEEE 802.3 10/100/1000BASE-T

OneReach enables new options, new applications and more possibilities.

Security Phones, WAPs, Security Cameras—any
PoE/PoE+ application: **One Choice. OneReach.**



“THIS SYSTEM WAS A LIFE SAVER FOR THIS PARTICULAR APPLICATION AND ENVIRONMENT, AND WE ARE LOOKING AT FUTURE POTENTIAL APPLICATIONS FOR UPCOMING PROJECTS.”

- ROB KWIATKOWSKI
HUDSON VALLEY
COMMUNITY COLLEGE

BLUE LIGHT SECURITY PHONES

Blue-light telephone networks play an important role on many college campuses across North America for safety, security and convenience reasons. Some of these phone locations also include VoIP security phones and IP security cameras.

The OneReach PoE Extender System can provide both the power and data required for IP devices at distances up to 3,800 ft./1,100 m. from the equipment room. That's critical because a more traditional PoE approach would require mid-span equipment to be located within 100 m. (330 ft.) of the phones and cameras and could also require a new electrical power cable run and electrical outlet to be installed. If these critical campus emergency system components are run with local power, redundancy needs to be considered as well, so that a power outage does not bring down the emergency call system or security cameras. OneReach solves that issue.

WIRELESS ACCESS POINTS

In today's always connected environment, providing wireless access is no longer a luxury, it is a necessity for any and every public space, like college and corporate campuses, hotels, entertainment venues, airports, hospitals, convention centers, distribution centers and big-box retailers.

With Gigabit Ethernet bandwidth and effective distances of up to 3,800 ft. from the headend, OneReach enables cost-effective, reliable WAPs to facilitate remote access for laptops, smartphones and tablets so that users can employ their devices to access information quickly, without interference.

For some spaces, such as large, open plan meeting spaces, dining areas or auditoriums, the best coverage from a WAP may come from locating the device centrally, for example in the ceiling. But while this device location may provide optimal coverage, supplying power and data connectivity to such a location has usually been difficult and costly. For these installation challenges, OneReach provides the ideal solution. By combining power and data cable within a single jacket, backed up by a centrally-located UPS and connecting to a single compact device, OneReach enables installations in the trickiest of environments.



PARKING GARAGE SECURITY CAMERAS

As the cost of security cameras has fallen and the quality of the footage captured has increased, the public has grown to expect video surveillance in more and more public spaces. Simultaneously, businesses and insurers have embraced the technology to ensure the safety of employees, customers and property.

Locations where the overall number of people or security staff may be minimal, increase the need for effective remote surveillance capabilities. But many have proven more difficult or costly to ensure the complete surveillance coverage of, for example, parking garages and remote parking lots.

OneReach is the perfect choice for this type of installation, taking power and

data up to 3,850 ft. from the central telecommunications closet, powering the camera via PoE, and ensuring the safety of people and property.

ANY POE/POE+ APPLICATION. ONE REACH. ONE CHOICE.

Key to the benefits of OneReach is its transparent nature. As long as the PD is compliant to the PoE specification, it can be supported by OneReach. And as newer, high-performance applications that take advantage of PoE and PoE+ are deployed, OneReach supports those applications, at longer distances, with:

- ▶ No need to locate a power outlet in difficult areas
- ▶ Consolidated power source and centralized power back-up
- ▶ Ability for low voltage contractors to install the entire system

OneReach simply needs one length of composite fiber/copper cable to be run to each remote powered device and includes everything needed for data transmission and device power. Plus, with all power coming from the equipment room, having UPS back-up for power redundancy is easy and requires only one centrally located UPS to protect all remote sites.

OneReach provides extended distance connectivity to any IEEE 802.3af and 802.3at device. The cabling is standards compliant and delivers significant cost savings through simplified installation, the elimination of separate electrical power cabling and the consolidation of back-up power supplies.

Even configuring the system is easy. To determine a bill of materials for your project, **visit onereachsystem.com**.

ONEREACH COST ADVANTAGE

OneReach delivers significant cost advantages over traditional solutions. In a typical system of 24 device deployment with PoE+ and an average distance of 550 ft. OneReach is the lowest cost and the easiest to maintain.

PRODUCT	TOTAL COST	\$/PORT	CONSOLIDATED POWER	COMMENTS
OneReach	\$48,000	\$2,000	Y	Lowest cost and easiest to maintain
Hardened Switch	\$48,000	\$2,000	N	Distributed UPS must be on a maintenance calendar; IT equipment distributed in outside plant
Hardened Media Conversion	\$67,200	\$2,800	N	Distributed UPS must be on a maintenance calendar

Note: costs shown do not include the costs of a 24-port switch, closet UPS, patch cords and devices.



OneReach: One Pathway. One Pull. One Solution.

With options to power one device or many, the OneReach PI seamlessly becomes a part of the network infrastructure, with 2U or 4U Power Injector Chassis' installing in a standard 19" rack.

FROM THE CLOSET...

The OneReach System begins in the local closet with the PI. The PI provides both the power to run the system and the technology to transmit the data signals to previously unreachable distances. Composed of a specially designed Media Module or 19" rack mountable Power Injector Chassis, and Power Supply modules, these devices deliver big benefits in a small footprint.

This approach to IP-based security enables the consolidation of device management through the existing network infrastructure. The existing IT team is able to monitor device traffic and operations without having to travel to remote locations.

By locating the power for remote devices in a single local closet, users are able to consolidate UPS devices and streamline and simplify management. Unlike traditional installations, with OneReach there is no need to provide for redundant

power at a variety of remote and possibly environmentally hostile locations. Now, in the event of a power outage, one centrally located UPS can keep your cameras, access control devices or wireless access points fully operational.

BENEFITS

- ▶ Simplifies device management
- ▶ Enables UPS consolidation
- ▶ Uses simple screw terminal connections
- ▶ Supports PoE and PoE+

Power Injection Devices

Operating Temperature: 0°C to +50°C

PART NO.	DESCRIPTION	SLOTS OCCUPIED	QTY. OF SUPPORTED PoE POWERED DEVICES	
			PoE ports supported	PoE+ ports supported
81000170	PoE Media Module, 1-port (no chassis required), w/ext AC Power Supply	NA	1	NA
81000217	PoE+ Media Module, 1-port (no chassis required), w/ext AC Power Supply	NA	1	1
81000380	PoE+ Media Module, 1-port, 10/100/1000Mb/s	NA	1	1
81000333	PoE Media Module, 1-port, w/DIN rail mount	NA	1	NA
81000342	PoE+ Media Module, 1-port, w/DIN rail mount	NA	1	1
81000166	2U Power Injector Chassis, w/rear terminal blocks, 6 available slots	NA	NA	NA
81000167	4U Power Injector Chassis, w/rear terminal blocks, 12 available slots	NA	NA	NA
81000215	Power Supply Module; dual voltage, 12 & 54 VDC 400 W, AC input	2	12	8
81000173	Media Module, 4-port 10/100Mb/s, MTP, MM, RJ45	1	4	4
81000172	Media Module, 4-port 10/100Mb/s, Rear LC Duplex, MM, RJ45	1	4	4
81000413	PoE Media Module, 4-port, 10/100/1000Mb/s, Rear LC Duplex	1	4	4
81000414	PoE Media Module, 4-port, 10/100/1000Mb/s, MTP Rear	1	4	4
81000190	Blanking panel	1	NA	NA





The **OCA combines optical fiber and copper conductors** in a single assembly that easily attaches with standard M8 and LC or MTP connectors taking PoE+ up to 2,500 feet.

SPANNING THE DISTANCE...

Speed, simplicity and performance. You find them all in the OCA of the OneReach System. Power and data transmission are supported within a single jacket through the use of Berk-Tek CL3R-OF rated composite copper/fiber cable. These cables combine 12 AWG or 18 AWG stranded conductors with either tight-buffered or loose tube optical fiber cable designs to support 1- or 4-port remote devices.

To provide the right solution for any installation challenge, the OCA is available with a complete array of termination options. For the fastest deployment, the OCA can be built to the specific length requirements of each project, and arrive on-site with

pre-tested optical fiber connectors and an M8 connector for power on the remote device end, ready to install. The local end of the assembly attaches effortlessly to the local media module or Power Injector Chassis with standard LC connectors and easy to use screw terminals. When run lengths aren't known, unterminated bulk cable can be ordered in conjunction with easily spliced pigtail assemblies. Whatever the project requires, Berk-Tek can supply it.

Rapid and reliable installation is the norm with OneReach, which lets you take PoE and PoE+ to new distances. The stranded conductors provide enough power to support PoE to distances well beyond the 100 meters supported through traditional twisted pair cabling.

Combine this with the highest quality OM3 optical fiber, and you get an unparalleled solution for flawless data transmission.

BENEFITS

- ▶ Simple, single pull installation
- ▶ Combines control and communication in industrial pathways
- ▶ Provides common pathway for fiber backbone and Class 3 power supply
- ▶ Can be used in wet or dry locations
- ▶ Designs for indoor, outdoor and indoor/outdoor environments
- ▶ Able to support distances beyond 2,500 feet
- ▶ Pigtail available for use in 1-port applications

OneReach Cable Assemblies

Operating Temperature: -40°C to +75°C

NUMBER OF CONDUCTORS	CONDUCTOR GAUGE SIZE	CABLE TYPE	FIBER TYPE	# OF FIBERS	CABLE PART NUMBER	APPLICATION	SUPPORTED DISTANCE TO RPP: PoE	PoE+
2	18,18	Tight buffer	OM3	2	BHCR02EAA044FFNM8Pxxx	1-port assembly	1,000 ft./305 m.	650 ft./200 m.
2	12,12	Tight buffer	OM3	2	BHCR02EDD044FFNM8Pxxx	1-port assembly	3,850 ft./1,175 m.	2,500 ft./760 m.
3	18,18,18	Loose tube	OM3	12	BACR12EAAA77NNNM8Pxxx	4-port assembly	250 ft./75 m.	160 ft./50 m.
3	12,12,18	Loose tube	OM3	12	BACR12EADD77NNNM8Pxxx	4-port assembly	960 ft./290 m.	625 ft./190 m.
2	18,18	Pigtail	NA	0	M8 pigtail for field termination	Pigtail	NA	NA
2	18,18	Tight buffer	OM3	2	HDRC002EB3010/25-2x18AWG (1 M8 pigtail needed)	1-port bulk cable	1,000 ft./305 m.	650 ft./200 m.
2	12,12	Tight buffer	OM3	2	HDRC002EB3010/25-2x12AWG (1 M8 pigtail needed)	1-port bulk cable	3,850 ft./1,175 m.	2,500 ft./760 m.

xxx is length of assembly in feet. Contact Berk-Tek Inside Sales at 1-800-BERK-TEK for exact part number and pricing.

Remote devices mount in enclosures and connect to active devices up to 100 meters away using Category cables terminated with standard RJ45 connectors.

ONEREACH TECHNICAL
SUPPORT IS AVAILABLE
AT (888) 939-4528.



TO YOUR DEVICE.

Whether you need to enable gigabit access for a single wireless access point for a common study area on campus or to support multiple cameras securing a remote parking area, the OneReach System gives you the power to get the job done. In the past, these types of installations might have required the installation of local 120 Volt power and/or industrial switches, both at a significant cost. But not any more.

Now OneReach enables you to take power easily from the closet, over the OCA to the Remote PoE Port specially suited for your application. And no matter which RPP you select, to support

one or multiple-devices, completing the OneReach System installation is a snap. Mounted in a standard enclosure, the M8 Connector of the OCA simply screws into place and the data connection is completed as soon as you plug in the standard LC connectors.

Whether supporting Gigabit Ethernet speeds for true data networking or using 10/100 Ethernet to monitor remote cameras or security phones, any IP-based device with appropriate power requirements can easily be connected to the RPP with category cables terminated using standard RJ45 connectivity.

BENEFITS

- ▶ No need to install costly remote power outlets
- ▶ No need to install remote industrial switches
- ▶ Eliminates the need for remote UPS
- ▶ Easily attach pre-terminated LC or MPO connectors for data transmission
- ▶ Standard M8 connector screws into place to complete power circuit
- ▶ Uses standard RJ45 connectivity to patch to the security camera, wireless access point or any other IP-based device
- ▶ Allows common pathway for fiber backbone and Class 3 power supply

Remote PoE Ports

Operating Temperature: -40°C to +50°C

PART NO.	DESCRIPTION	QTY. OF SUPPORTED POWERED DEVICES
81000174	PoE Remote Converter, 1-port, 10/100Mb/s, LC Duplex, MM, RJ45, M8 Pwr Input	1
81000218	PoE+ Remote Converter, 1-port, 10/100Mb/s, LC Duplex, MM, RJ45, M8 Pwr Input	1
81000381	PoE+ Remote Converter, 1-port, 10/100/1000Mb/s, LC Duplex, MM, RJ45, M8 Pwr Input	1
81000334	PoE Remote Converter, 1-port, w/DIN rail mount, 10/100Mb/s, LC Duplex, MM, RJ45, M8 Pwr Input	1
81000343	PoE+ Remote Converter, 1-port, w/DIN rail mount, 10/100/1000Mb/s, LC Duplex, MM, RJ45, M8 Pwr Input	1
81000176	PoE Remote Converter, 4-port, 10/100Mb/s, MTP(m), MM, RJ45	4
81000177	PoE+ Remote Converter, 4-port, 10/100Mb/s, MTP, MM, RJ45	4
81000415	PoE+ Remote Converter, 4-port, 10/100/1000Mb/s, MTP(m), MM, RJ45	4



Technical support for the OneReach product can be reached at: 800-237-5835 or via email at fiber-pc.us@nexans.com

GUIDANCE FOR BUILDING YOUR SYSTEM

OneReach is modular, allowing you to easily scale the system to meet your specific application requirements. Every application will require devices from each of the system segments; **Power Injection (PI)**, **OneReach Cable Assembly (OCA)**, and **Remote PoE Port (RPP)**. The specific devices will be determined by the number of remote devices to be supported, the distance of the RPP from the closet and the environmental conditions of the

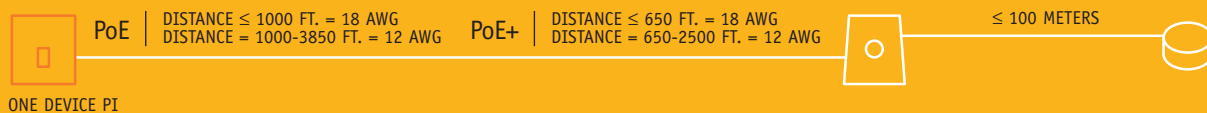
installation. Generally, you will have the same quantity of Media Modules, Remote Port devices and OCAs. The examples below provide guidance on the specifics required for a few common installation options.

Visit OneReachSystem.com and use our online system configuration tool to easily determine the BOM for your specific application needs.



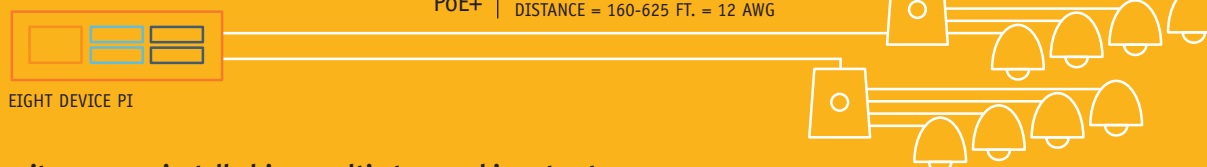
One wireless access point installed in the ceiling:

PI		OCA (Select one based upon RPP distance from closet)		RPP	
Name	# required	Name	# required	Name	# required
1-Port Media Module	1	1-Port 18 AWG or 12 AWG OCA	1	1-Port Remote, Converter	1



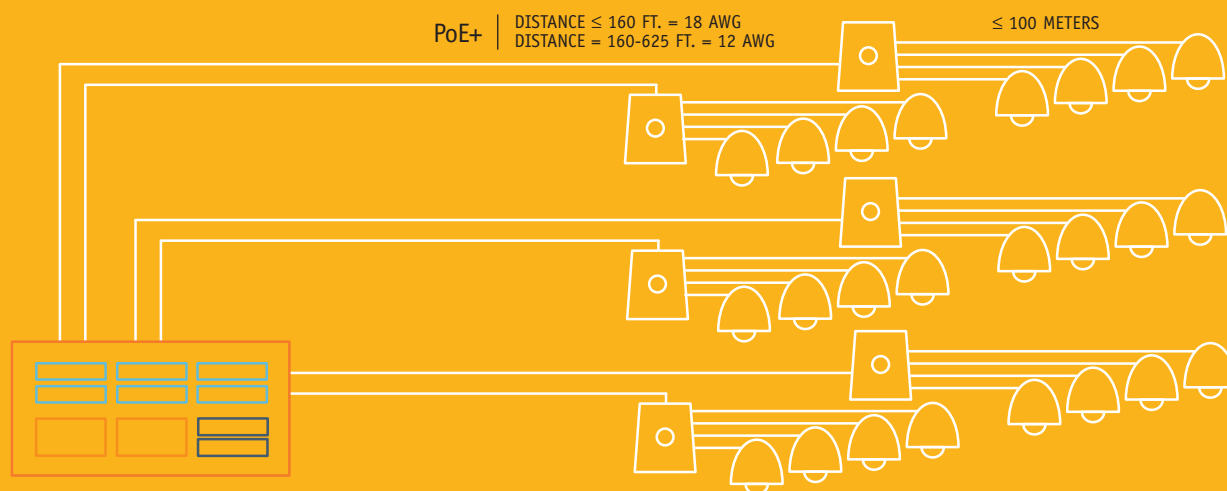
Eight security cameras installed in a small parking area:

PI		OCA (Select one based upon RPP distance from closet)		RPP	
Name	# required	Name	# required	Name	# required
2U Power Chassis	1	4-Port 18 AWG or 12 AWG OCA	2	4-Port Remote, Converter	2
Power Supply Module – primary	1				
4-Port Media Module, MTP	2				
Blanking Panels	2				



24 security cameras installed in a multi-story parking structure:

PI		OCA (Select one based upon RPP distance from closet)		RPP	
Name	# required	Name	# required	Name	# required
4U Power Chassis	1	4-Port 18 AWG or 12 AWG OCA	6	4-Port Remote, Converter	6
Power Supply Module	2				
4-Port Media Module, MTP	6				
Blanking Panels	2				





Insist on OneReach from Berk-Tek:
**The leader in innovative
PoE/PoE+ solutions.**

**THOUGHT LEADERSHIP: IT'S
WHAT MAKES INNOVATIONS
LIKE ONEREACH HAPPEN.**

At Berk-Tek, innovation begins with strong research, engineering and design. It's leveraged with stringent quality and manufacturing processes. It's delivered with knowledgeable applications and installation experience and superior customer service, and it's backed by ironclad product performance guarantees.

But that's only part of the story.

For over 50 years, Berk-Tek has led the industry in developing and manufacturing exceptional cable products and solutions that have repeatedly set the standard for quality and performance.

**THERE IS NO SUBSTITUTE
FOR EXPERIENCE.**

Working with Berk-Tek means that you have a partner with experience in virtually every communications installation and application environment, including stadiums, convention and entertainment venues, college campuses, primary/secondary schools, airports, hotels, data centers, manufacturing, warehouse and distribution facilities and countless corporate campuses and office buildings worldwide.

Our experienced engineers, our highly qualified sales force and our technical support team provide industry expertise and experience to guide you through the entire project lifecycle, from the development of ideas and solutions, to the design specification, through purchasing and delivery, to installation and support. Plus, Berk-Tek products are in stock with a variety of distribution channels nationwide, and all of our distribution partners are committed to providing you with high-quality customer service.

**OUR PROMISE: PERFORM
BEYOND EXPECTATIONS.**

When you work with Berk-Tek, you also access the entire Nexans global organization—more than 21,000 people working in 30 countries around the world. Berk-Tek's experienced product, process and manufacturing engineers are backed by an array of research scientists and engineers within the Nexans R&D network, and together, Berk-Tek and Nexans help to guide the development of the standards that govern the structured cabling industry. With positions on industry steering committees, we facilitate the evolution of new industry standards and best practices.

The Nexans Data Communications Competence Center at Berk-Tek is a good example. Part of the Nexans' worldwide R&D network, the Data Communications Competence Center at the Berk-Tek headquarters in New Holland, PA, is a state-of-the-art research and development facility.



The Competence Center offers extensive technical expertise and capabilities by focusing on:

- ▶ Advanced product design and analysis
- ▶ Standardization and emerging technologies
- ▶ Advanced material development
- ▶ Application engineering and development
- ▶ Advanced manufacturing processes

Through sophisticated design, analysis and modeling tools, an international team explores the complex interaction of characteristics that influence network performance. The result: more robust network operations, reduced cost of ownership, and industry-leading solutions that routinely exceed expectations for performance and reliability—and product innovations like OneReach.

AN UNWAVERING COMMITMENT TO QUALITY AND MANUFACTURING EXCELLENCE

Reliable product performance comes from the combination of a well-engineered product and stringent manufacturing processes.

With state-of-the-art equipment for manufacturing, monitoring and testing, Berk-Tek facilities consistently exceed the stringent quality standards specified by the TL 9000 designation. Performance to ISO 9001 certification standards and the TL 9000 quality management system helps to drive continuous improvement, consistent quality and on-time delivery.

State-of-the-art manufacturing technology and data acquisition tools—along with a variety of quality programs like advanced Greenbelt Six Sigma training—enable us to leverage best practices, track trend data and bring reliable, high-quality products to market more quickly and more efficiently. Our unwavering commitment to quality also enables us to not only guarantee every product, but also guarantee the performance of every product. Every time.

IDEA TO IMPLEMENTATION: INSIST ON BERK-TEK.

Whatever your application or infrastructure requirements, you can count on the guaranteed performance of Berk-Tek cable solutions. Twisted pair or optical fiber, no one delivers solutions that perform beyond expectations like Berk-Tek. Born of strong research, engineering and design. Leveraged with stringent quality and manufacturing processes. Delivered with knowledgeable experience and superior customer service. Backed by an ironclad product performance guarantee. Your organization runs on its infrastructure. Insist on Berk-Tek.

Learn more at www.berktek.com or call 1-800-Berk-Tek.

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