

# OneReach™ PoE Extender System

Take your network anywhere



# Reach farther with OneReach™

Your network is connecting and powering devices located both inside and out. OneReach allows you to extend your network up to thousands of feet away.

The typical security system requires cameras, emergency phones, and wireless access points to be located outside in parking lots, parking garages, and at various other places inside and outside the building. The OneReach solution is revolutionary for these remote applications. By combining fiber for long-distance data transmission and copper for Power over Ethernet (PoE) in a single composite cable, OneReach takes PoE data to all new distances.







## Streamline your infrastructure management

OneReach™ simplifies your device management and power supply, resulting in reduced costs and streamlined network management.



### **CENTRALIZED DEVICE CONNECTIONS**

The OneReach system starts in the closet with a single chassis that provides power and data to multiple remote devices. This unique approach is invisible to the network and allows you to connect and manage remote powered devices from one central location.



### **NO SEPARATE POWER LINES NEEDED**

Running dedicated power to devices located in remote areas can be complicated and costly. OneReach supplies power and data through a single cable, reducing installation and maintenance costs.



### **CONSOLIDATED UPS**

With any security system, back-up power is critical. With OneReach, all power comes from the IDF, so you can protect all your remote devices from a central UPS located in an existing IDF.

# OneReach™

## One Pathway. One Pull. One Solution.

### Take Simplicity to New Distances

With integrated power and data, OneReach extends PoE far beyond traditional limitations. OneReach enables the simplification and economic benefits of PoE and LC connectors in installation environments that exceed the standard distance limitations of Ethernet.



#### EXTENDED DISTANCE

- Enables PoE/PoE+/PoE++ (up to Type 4, Class 8) equipment to be located more than 328 feet from the switch
- Flexible applications extend PoE capabilities to extended distances, up to several thousand feet
- Ideal for remote devices such as security cameras, wireless access points, and access control devices



#### COST SAVINGS & EFFICIENCY

- Simplifies network and device management through centralized infrastructure
- Cost savings versus installation of a new electrical outlet
- Broad design selection allows for mix and match of copper and fiber components to specific networking applications



#### EASE OF INSTALLATION

- Pre-terminated and factory tested products arrive ready to install
- Uses standard LC optical connectors
- Provides common pathway for fiber backbone and power supply



#### SYSTEM FLEXIBILITY

- Options to support single and multi-port applications
- Designs available for indoor, outdoor, and indoor/outdoor installations
- CL3R-OF and CL3P-OF wet- and dry-rated
- Aluminum interlock armor adds crush resistance and protection from rodent attacks
- Configurations with solid THWN & TFFN copper conductors
- Multiple loose tube or tight buffer fiber composite cable constructions available
- CL3R-OF/PLTC-OF and CL3P-OF/PLTC-OF allows cable to be installed in communication pathways



The OneReach™ System begins in the local closet with the Power Injector (PI) device. 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 1-port Source or 19" rack-mountable Power Injector Chassis, Media Modules, and Power Supply Modules, these devices deliver big benefits in a small footprint.

By locating the power for remote devices in a single local closet, you can consolidate UPS devices and streamline management. Unlike traditional installations, with OneReach there is no need to provide redundant power at a variety of remote and/or 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.

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



## HEAD END DEVICES FOR POWER INJECTION (PI)

DESCRIPTION	SLOTS	QUANTITY OF SUPPORTED POE POWERED DEVICES*			OPERATING TEMP. (°F)	PART NO.
		PoE PORTS	PoE+ PORTS	PoE++ PORTS*		
<b>[A]</b> 1-port Source, 1000BASE-SX, LC duplex, MMF, Ext AC power supply	—	1	1	1	32 to 104	81001514
1-port Source, 1000BASE-LX, LC duplex, SMF, Ext AC power supply	—	1	1	1	32 to 104	81001515
1U Mounting Bracket, for two 1-port Sources	—	2	2	2	—	81000463
Power Supply Module, 250 W AC in, 56 VDC out	1	12	8	4	32 to 104	81001536
<b>[B]</b> 2U Chassis, 6 slots	—	—	—	—	32 to 104	81001531
4-port Media Module, 1000BASE-SX, 4xLC duplex (rear), MMF	1	4	4	4	32 to 104	81000413
<b>[C]</b> 4-port Media Module, 1000BASE-LX, 4xLC duplex (rear), SMF	1	4	4	4	32 to 104	81001262
Blanking Panel for Power Injector Chassis	1	—	—	—	—	81000190

\* = Remote needed to support PoE devices  
 \* = 60 W (for 100 W applications contact Technical Support for guidance)

# OneReach™ Cable Assemblies

The OneReach Cable Assembly (OCA) is composed of CL3P-OF or CL3R-OF rated PLTC-OF composite copper/fiber cables that support power and data transmission within a single jacket. These cables combine 12 AWG conductors with either tight-buffered or loose tube optical fiber cable designs to support 1-, 2-, or 4-port remote devices.

The conductors provide enough power to support PoE to distances well beyond 328 feet. Combine this with the highest quality OM3 and OS2 optical fiber for an unparalleled, flawless data transmission solution.

To handle 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 ready-to-install onsite, with pre-tested optical fiber connectors. A simple M8 pigtail can connect to the assembly to power the remote device end. The local end of the cable assembly attaches effortlessly to the head end PI with standard fiber connectors and easy-to-use screw terminals. When run lengths are unknown, unterminated bulk cable can be ordered in conjunction with easily spliced pigtail assemblies.

The OCA combines optical fiber and copper conductors in a single assembly that easily attaches with standard M8 and LC connectors taking PoE up to 10,000 feet.



CABLE ASSEMBLIES					
DESCRIPTION	# OF FIBERS	FIBER TYPE	CONDUCTOR COUNT	CONDUCTOR GAUGE	PART NO.
LC-LC 1-port Tight Buffered Cable Assembly, Plenum	2	OM3	2	12	BHCP02E02D44FFNNPxxxx <sup>‡</sup>
LC-LC 1-port Tight Buffered Cable Assembly, Riser	2	OM3	2	12	BHCR02E02D44FFNNPxxxx <sup>‡</sup>
LC-LC 1-port Tight Buffered Cable Assembly, Plenum	2	SMF	2	12	BHCP02A02D44FFNNPxxxx <sup>‡</sup>
LC-LC 1-port Tight Buffered Cable Assembly, Riser	2	SMF	2	12	BHCR02A02D44FFNNPxxxx <sup>‡</sup>
LC-LC 1-port Tight Buffered Interlock Armor Cable Assembly, Riser	2	OM3	2	12	BHKR02E02D44FFNNPxxxx <sup>‡</sup>
LC-LC 1-port Tight Buffered Interlock Armor Cable Assembly, Riser	2	SMF	2	12	BHKR02A02D44FFNNPxxxx <sup>‡</sup>
LC-LC 2-port Loose Tube Cable Assembly, Riser	4	OM3	2	12	BACR04E02D44FFNNPxxxx <sup>‡</sup>
LC-LC 2-port Loose Tube Cable Assembly, Riser	4	SMF	2	12	BACR04A02D44FFNNPxxxx <sup>‡</sup>
LC-LC 4-port Loose Tube Cable Assembly, Riser	8	OM3	4	12	BACR08E04D44FFNNPxxxx <sup>^</sup>
LC-LC 4-port Loose Tube Cable Assembly, Riser	8	SMF	4	12	BACR08A04D44FFNNPxxxx <sup>^</sup>

xxxx = Length in feet (using leading zeros as needed)  
 Additional cable/assembly configurations are available upon request.

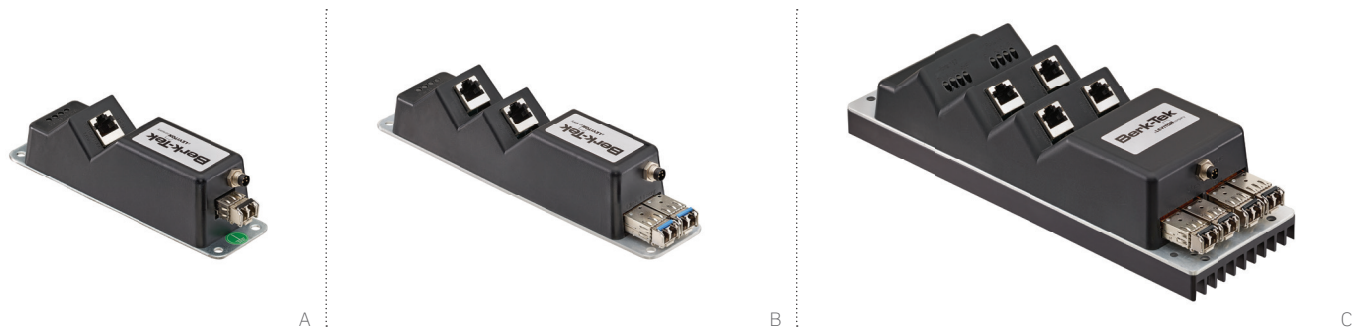
<sup>‡</sup> = M8 Pigtail 11099456 is required when ordering.  
<sup>^</sup> = M8 Pigtail 11099453 is required when ordering.



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 gets the job done. In the past, these types of installations might have required the installation of local 120 V 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 (RPP) specially suited for your application. No matter which RPP you select, installation is a snap. Mounted in a standard enclosure (sold separately), the M8 Connector of the OCA simply screws into place and the data connection is completed as soon as you plug in the standard fiber connectors. Any IP-based device with appropriate power requirements can easily be connected to the RPP with category cables terminated with standard RJ-45 connectivity.

Remote devices mount in enclosures and connect to active devices using Category cables terminated with standard RJ-45 connectors.



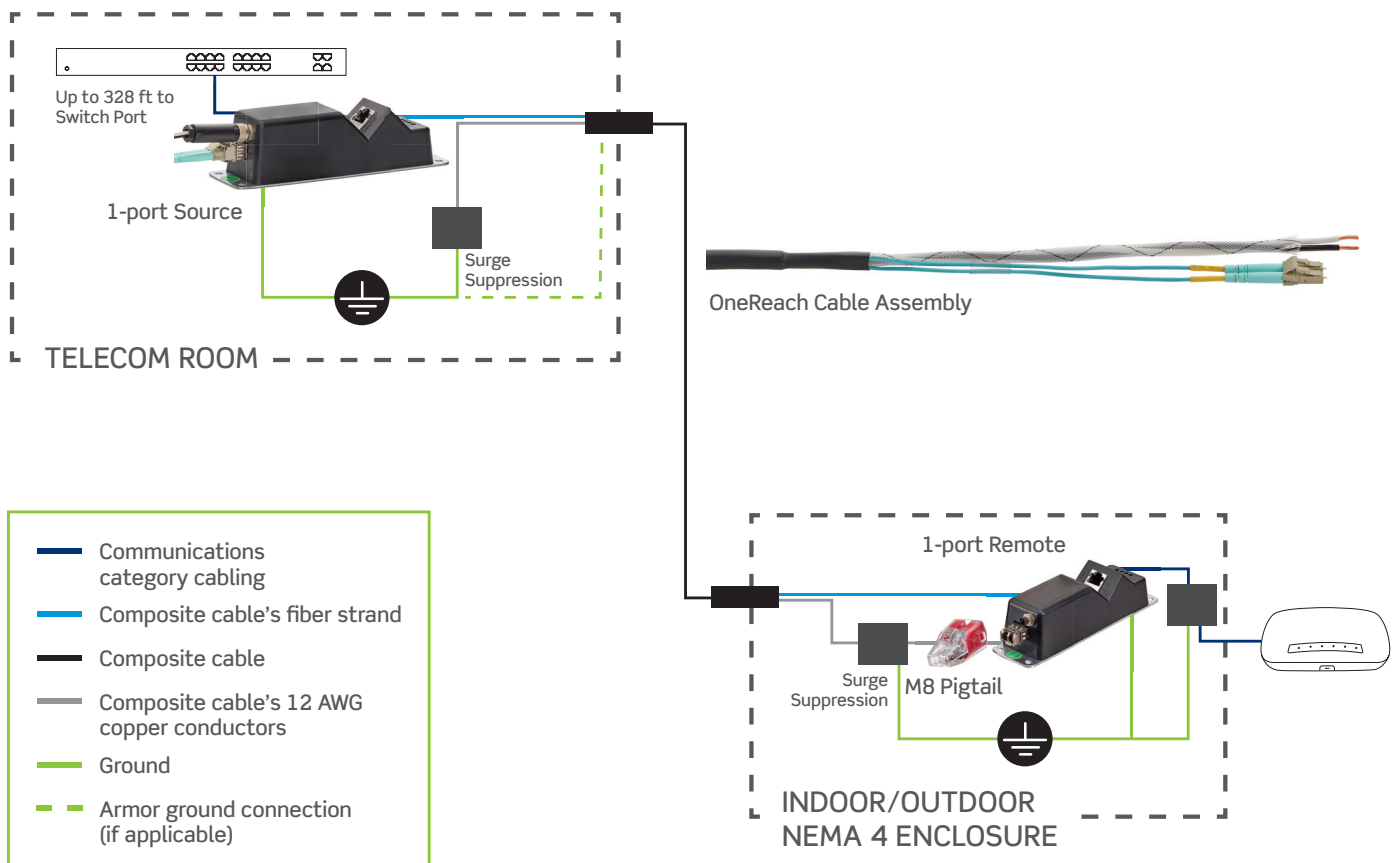
REMOTE END DEVICES			
DESCRIPTION	QUANTITY OF POWERED DEVICES SUPPORTED	OPERATING TEMP. (°F)	PART NO.
<b>[A]</b> 1-port Remote, 1000BASE-SX, PoE++, LC duplex, MMF, RJ-45, M8 Power Input	1	-40 to +158	81001512
1-port Remote, 1000BASE-LX, PoE++ , LC duplex, SMF, RJ-45, M8 Power Input	1	-40 to +158	81001513
2-port Remote, 1000BASE-SX, PoE++, 2 x LC duplex, MMF, RJ-45, M8 Power Input	2	-40 to +158	81001534
<b>[B]</b> 2-port Remote, 1000BASE-LX, PoE++, 2 x LC duplex, SMF, RJ-45, M8 Power Input	2	-40 to +158	81001535
<b>[C]</b> 4-port Remote, 1000BASE-SX, PoE++, 4 x LC duplex, MMF, RJ-45, M8 Power Input	4	-40 to +158	81001532
4-port Remote, 1000BASE-LX, PoE++, 4 x LC duplex, SMF, RJ-45, M8 Power Input	4	-40 to +158	81001533

# 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; Head End 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. The examples below provide guidance on the specifics required for a few common installation options.

While the units have built-in surge protection, it is recommended to add extra surge protection specifically rated for lightning strike protection. Extra surge protection is strongly recommended in all installations. Proper grounding of all 1-port sources, chassis, power supply modules, remotes, and surge protectors is required in all installations.

## One Wireless Access Point Installed in the Ceiling:

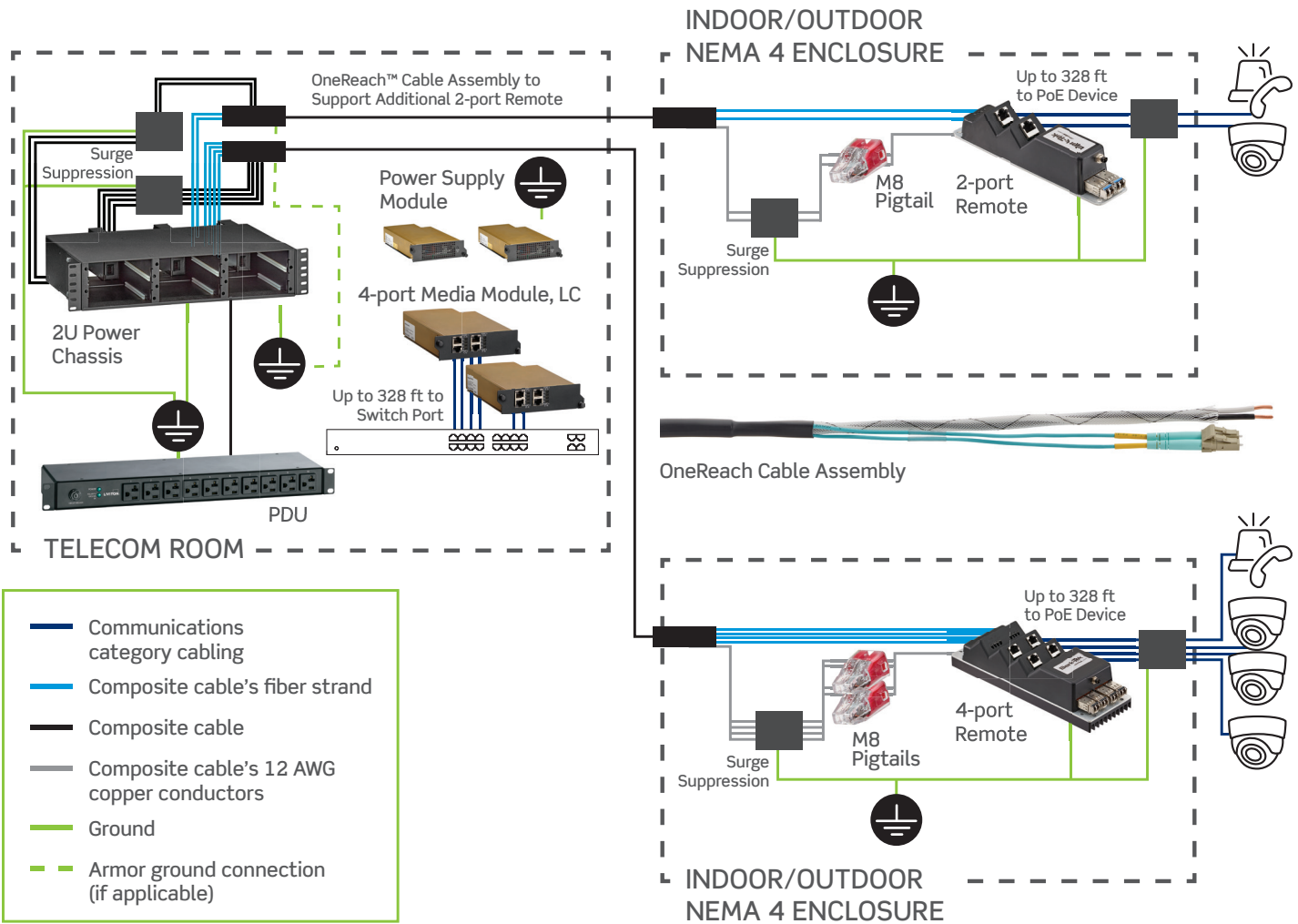


Combining optical fiber for long-distance data transmission and copper conductors in a single system takes PoE up to 10,000 ft.\* and PoE+ up to 5,000 ft.\*

\* Single-mode 1-port (see page 11 for a list of maximum supported distances)



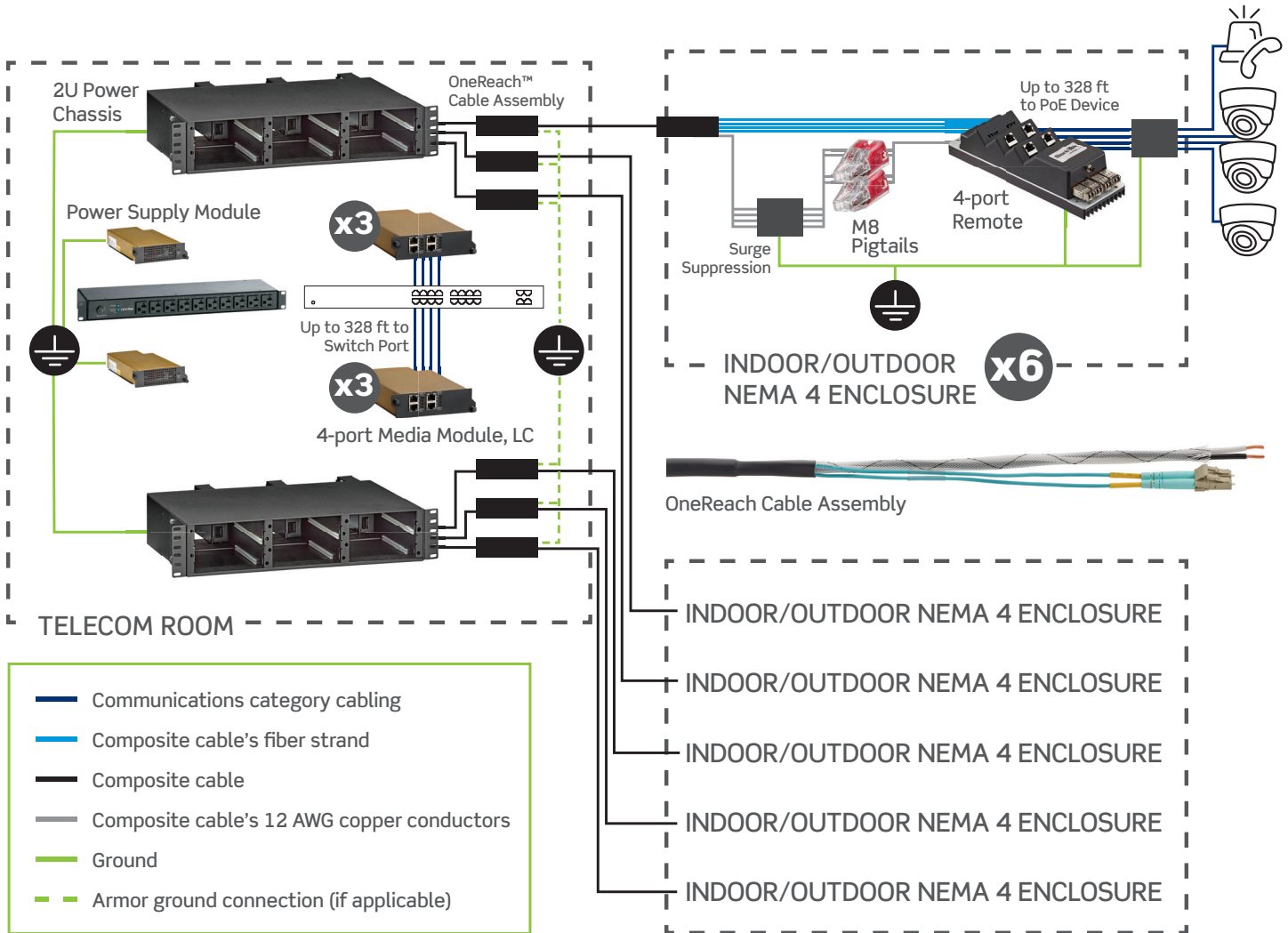
## Six Security Cameras Installed in a Small Parking Area:



OneReach™ is the answer.

# Guidance for Building Your System

## 24 Security Cameras Installed in a Multi-Story Parking Structure:





The following two tables provide the supported distance between the head end (1-port sources, media modules, and/or chassis) and the Remote PoE Ports, using 12 AWG composite cables to connect the ends. The first table is for use with the 1-port Remotes; the second table is for use with the 2-port and 4-port remotes.

When reviewing the tables, first determine the PoE Type and power Class wanted; the referenced wattage is for the power sourcing equipment (PSE) output value. Next, select the appropriate patch cord distance needed.

The first row of each table (328 ft) addresses the standard implementation of PoE, as sourced from the 1-, 2-, or 4-port remote. This distance allows for the maximum flexibility in powered device (PD) placement from the remote's installed location.

The second row (32 ft) is an engineered solution for those times when the PD are close to the remotes. This transfers some of the loss from the 328 ft category cable to the 12 AWG conductors in the composite cable. Since the composite cable has a larger gauge, it supports a further distance increase between the head end and Remote PoE Ports.

### SINGLE-MODE DISTANCE CHART (FEET) – 1-PORT REMOTES\*

PATCH DISTANCE	POWER LEVEL			
	15 W TYPE 1, CLASSES 0-3	30 W TYPE 2, CLASS 4	60 W TYPE 3, CLASSES 5-6	100 W TYPE 4, CLASSES 7-8
328 ft	5,000	1,800	900	500
32 ft	10,000	5,000	2,000	1,500

### SINGLE-MODE DISTANCE CHART (FEET) – 2-PORT AND 4-PORT REMOTES\*

PATCH DISTANCE	POWER LEVEL			
	15 W TYPE 1, CLASSES 0-3 (ALL PORTS)	30 W TYPE 2, CLASS 4 (ALL PORTS)	60 W TYPE 3, CLASSES 5-6†	100 W TYPE 4, CLASSES 7-8‡
328 ft	1,800	900	500	500
32 ft	5,000	2,000	1,500	1,500

\* The distances shown in the table represent maximum reach with single-mode fiber. OM3 multimode supports a maximum distance of either 3,280 feet or the distance listed in the table above, whichever is smaller

#### NOTES:

- Based on 802.3 for all power levels (Classes 0-8) and PoE Types 1-4 (PoE 15 W, PoE+ 30 W, PoE++ 60 W, and PoE++ 100 W)
    - 122 ° F worst case environment for the OneReach™ Cable Assembly (OCA)
    - Typical applications with patch cords from the remote to the PD can support extended OCA
    - Power levels are calculated for “delivered power” to the PD to support long distance applications
  - Standard distances for horizontal cabling of 328 ft are used to calculate max distance for full power at the PSE
  - Standard application distances of 32 ft of 24 AWG stranded patch cordage are used to calculate max distances for full power at the PD
- † Ports 1 and 3 will support a 60 W device; ports 2 and 4 will support a 30 W device
- ‡ Ports 1 and 3 will support a 100 W device; ports 2 and 4 will support data only

See the full range of OneReach head end power injection devices, cable assemblies, and remote PoE ports at [Leviton.com/OneReach](http://Leviton.com/OneReach).

Today's networks must be fast and reliable, with the flexibility to handle ever-increasing data demands. Leviton can help expand your network possibilities and prepare you for the future. Our end-to-end cabling systems feature robust construction that reduces downtime, and performance that exceeds standards. We offer quick-ship make-to-order solutions from our US and UK factories. We even invent new products for customers when the product they need is not available. All of this adds up to the **highest return on infrastructure investment.**

#### USA — NETWORK SOLUTIONS HEADQUARTERS

2222 - 222nd Street S.E., Bothell, WA, 98021, USA  
+1 (800) 722 2082 | [infousa@leviton.com](mailto:infousa@leviton.com) | [leviton.com/ns](http://leviton.com/ns)

##### Customer Service

+1 (800) 722 2082  
[insidesales@leviton.com](mailto:insidesales@leviton.com)

##### International Customer Service

+1 (425) 486 2222  
[intl@leviton.com](mailto:intl@leviton.com)

##### Leviton Berk-Tek Cable Customer Service

+1 (800) 237 5835  
[berktek.info@leviton.com](mailto:berktek.info@leviton.com)

##### Technical Support

+1 (800) 722 2082  
+1 (425) 486 2222  
[appeng@leviton.com](mailto:appeng@leviton.com)

#### APAC

+85 (2) 3620 2602 | [infoapac@leviton.com](mailto:infoapac@leviton.com) | [leviton.com/ns](http://leviton.com/ns)

##### Customer Service

+1 (631) 812 6228  
[infoasean@leviton.com](mailto:infoasean@leviton.com)

##### China

+85 (2) 2774 9876  
[infochina@leviton.com](mailto:infochina@leviton.com)

##### South Korea

+82 (2) 3273 9963  
[infokorea@leviton.com](mailto:infokorea@leviton.com)

#### CANADA

+1 (800) 461 2002 | [infoканада@leviton.com](mailto:infoканада@leviton.com) | [leviton.com/ns](http://leviton.com/ns)

##### Customer Service

+1 (514) 954 1840  
[pcservice@leviton.com](mailto:pcservice@leviton.com)

Network Solutions products are **available worldwide in over 100 countries.** Visit us online at [leviton.com/ns](http://leviton.com/ns) to learn more.



© Copyright Leviton Manufacturing Co., Inc.

#### EUROPE

Viewfield Industrial Estate, Glenrothes, KY6 2RS, UK  
+44 (0) 1592 772124 | [infoeurope@leviton.com](mailto:infoeurope@leviton.com) | [leviton.com/ns/emea](http://leviton.com/ns/emea)

##### Customer Service

+44 (0) 1592 772124  
[customerserviceeu@leviton.com](mailto:customerserviceeu@leviton.com)

##### Technical Support

+44 (0) 1592 778494  
[appeng.eu@leviton.com](mailto:appeng.eu@leviton.com)

##### Benelux

+44 (0) 1592 772124  
[infobenelux@leviton.com](mailto:infobenelux@leviton.com)

##### Nordics

+46 (70) 9675033  
[infonordics@leviton.com](mailto:infonordics@leviton.com)

##### Central & Eastern Europe (CEE)

+44 (0) 1592 772124  
[infocee@leviton.com](mailto:infocee@leviton.com)

##### Portugal

+351 (21) 421 4133  
[infoportugal@leviton.com](mailto:infoportugal@leviton.com)

##### DACH

+49 (0) 173 272 0128  
[infodach@leviton.com](mailto:infodach@leviton.com)

##### Spain

+34 (91) 490 59 19  
[infospain@leviton.com](mailto:infospain@leviton.com)

##### France

+33 (0) 1709 87826  
[infofrance@leviton.com](mailto:infofrance@leviton.com)

##### UK & Ireland

+44 (0) 1592 772124  
[infouk@leviton.com](mailto:infouk@leviton.com)

##### Italy

+39 (02) 3534896 (Milan)  
+39 (06) 68584613 (Rome)  
[infoitaly@leviton.com](mailto:infoitaly@leviton.com)

#### LATAM

[infoLATAM@leviton.com](mailto:infoLATAM@leviton.com) | [leviton.com/ns](http://leviton.com/ns)

##### Customer Service

+52 (55) 2333 5963  
[infoLATAM@leviton.com](mailto:infoLATAM@leviton.com)

##### Caribbean

+1 (954) 593 1896  
[infocaribbean@leviton.com](mailto:infocaribbean@leviton.com)

##### Mexico

+52 (55) 2128 6286  
[lsamarketing@leviton.com](mailto:lsamarketing@leviton.com)

##### Colombia

+57 (1) 743 6045  
[infocolombia@leviton.com](mailto:infocolombia@leviton.com)

#### MIDDLE EAST & AFRICA

Bay Square, Building 3, Office 205, Business Bay, Dubai, UAE  
+971 (4) 247 9800 | [infoMEA@leviton.com](mailto:infoMEA@leviton.com) | [leviton.com/ns](http://leviton.com/ns)

##### Customer Service

+971 (4) 247 9800  
[lmeinfo@leviton.com](mailto:lmeinfo@leviton.com)