LEVITON®

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 a game changer 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.

closet — **OneReach PoE** 10,000 ft.

closet — **OneReach PoE+** 5,000 ft.

closet — **Traditional PoE** 328 ft.

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++ equipment to be located more than 100 meters from the switch
- Flexible applications extended 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

Head End Devices

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 2RU or 4RU Power Injector Chassis installed in a standard 19″ rack.

A

B

C

	DESCRIPTION	SLOTS	QUANTITY OF SUPPORTED POE POWERED DEVICES*			OPERATING TEMP. (°C)	PART NO.
			PoE PORTS	PoE+ PORTS	PoE++ PORTS#		
	1-port Source, 1000BASE-SX, LC duplex, MMF, Ext AC power supply	—	1	1	1	0 to +40	81001514
[A]	1-port Source, 1000BASE-LX, LC duplex, SMF, Ext AC power supply	—	1	1	1	0 to +40	81001515
	1RU Mounting Bracket, for two 1-port sources	—	2	2	2	—	81000463
	Power Supply Module, 400 W AC in, 12 and 56 VDC out (dual voltage)	2	12	8	4	0 to +40	81000215
	2RU Chassis, class 2 power output rear terminal blocks, 6 slots	—	—	—	—	0 to +40	81000569
[B]	4RU Chassis, class 2 power output rear terminal blocks, 12 slots	—	—	—	—	0 to +40	81000568
	4-port Media Module, 1000BASE-SX, 4xLC duplex (rear), MMF	1	4	4	4	0 to +40	81000413
[C]	4-port Media Module, 1000BASE-LX, 4xLC duplex (rear), SMF	1	4	4	4	0 to +40	81001262
	Blanking Panel for Power Injector Chassis	1	—	—	—	—	81000190

HEAD END DEVICES FOR POWER INJECTION (PI)

* = Remote needed to support PoE devices
# = 60 W (for 90 W applications contact Technical Support for guidance)

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 100 meters. 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 or connectors taking PoE up to 10,000 feet.

ONEREACH CABLE ASSEMBLIES					
DESCRIPTION	# OF FIBERS	FIBER TYPE	CONDUCTOR COUNT	CONDUCTOR GAUGE	PART NO.
LC-LC 1-port Tight Buffered Cable Assembly,	2	OM3	2	12	BHCP02E02D44FFNNPxxxx¥
LC-LC 1-port Tight Buffered Cable Assembly	2	OM3	2	12	BHCR02E02D44FFNNPxxxx¥
LC-LC 1-port Tight Buffered Cable Assembly	2	SMF	2	12	BHCP02A02D44FFNNPxxxx¥
LC-LC 1-port Tight Buffered Cable Assembly	2	SMF	2	12	BHCR02A02D44FFNNPxxxx¥
LC-LC 1-port Tight Buffered Interlock Armor Cable Assembly	2	OM3	2	12	BHKR02E02D44FFNNPxxxx¥
LC-LC 1-port Tight Buffered Interlock Armor Cable Assembly	2	SMF	2	12	BHKR02A02D44FFNNPxxxx¥
LC-LC 2-port Loose Tube Cable Assembly	4	OM3	2	12	BACR04E02D44FFNNPxxxx¥
LC-LC 2-port Loose Tube Cable Assembly	4	SMF	2	12	BACR04A02D44FFNNPxxxx¥
LC-LC 4-port Loose Tube Cable Assembly	8	OM3	4	12	BACR08E04D44FFNNPxxxx^
LC-LC 4-port Loose Tube Cable Assembly	8	SMF	4	12	BACR08A04D44FFNNPxxxx^
MPO-MPO 4-port Loose Tube Cable Assembly	12	OM3	2	12	BACR12E02D77NNNNPxxxx¥
MPO-MPO 4-port Loose Tube Interlock Armor Cable Assembly	12	OM3	2	12	BAKR12E02D77NNNNPxxxx¥

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

¥ = M8 Pigtail 11099456 is required when ordering.
^ = M8 Pigtail 11099453 is required when ordering.

Remote PoE Ports

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, 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.

A

B

C

REMOTE END DEVICES			
DESCRIPTION	QUANTITY OF POWERED DEVICES SUPPORTED	OPERATING TEMP. (°C)	PART NO.
[A] 1-port Remote, 1000BASE-SX, PoE++, LC duplex, MMF, RJ-45, M8 Power Input	1	-40 to +70	81001512
1-port Remote, 1000BASE-LX, PoE++ , LC duplex, SMF, RJ-45, M8 Power Input	1	-40 to +70	81001513
2-port Remote, 1000BASE-SX, PoE+, 2 x LC duplex, MMF, RJ-45, M8 Power Input	2	-40 to +70	81000773
[B] 2-port Remote, 1000BASE-LX, PoE+, 2 x LC duplex, SMF, RJ-45, M8 Power Input	2	-40 to +70	81001263
4-port Remote, 1000BASE-SX, PoE+, 4 x LC duplex, MMF, RJ-45, M8 Power Input	4	-40 to +70	81000684
[C] 4-port Remote, 1000BASE-LX, PoE+, 4 x LC duplex, SMF, RJ-45, M8 Power Input	4	-40 to +70	81001264

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.*

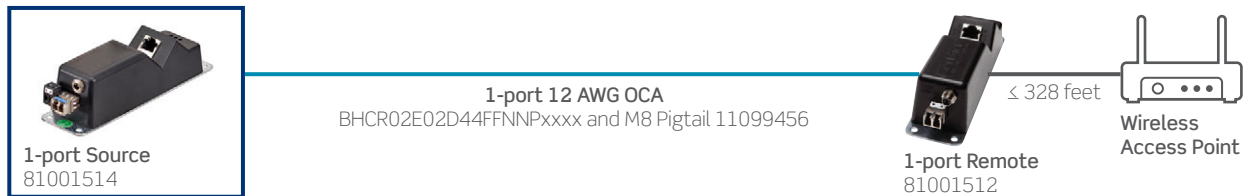* Single-mode 1-port (see page 11 for a list of maximum supported distances)

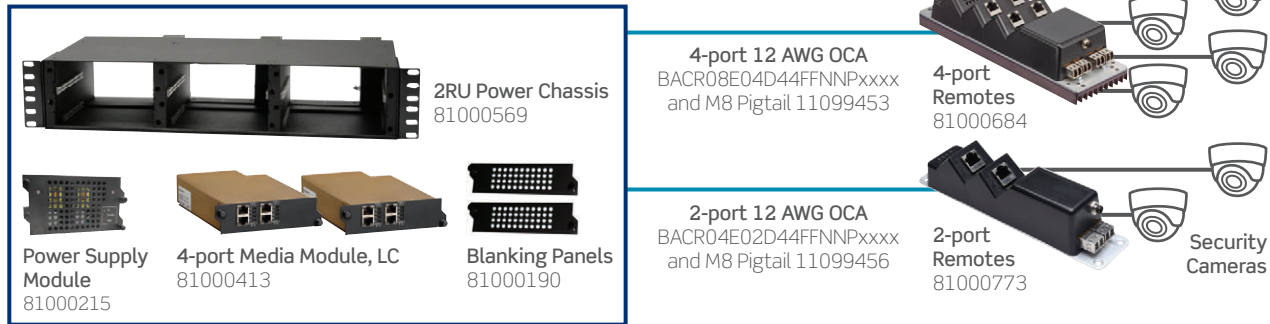OneReach™ is the answer.

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:

1-port Source
81001514

1-port 12 AWG OCA
BHCR02E02D44FFNNPxxxx and M8 Pigtail 11099456

≤ 328 feet

1-port Remote
81001512

Wireless Access Point

Six Security Cameras Installed in a Small Parking Area:

2RU Power Chassis
81000569

Power Supply Module
81000215

4-port Media Module, LC
81000413

Blanking Panels
81000190

4-port 12 AWG OCA
BACR08E04D44FFNNPxxxx and M8 Pigtail 11099453

≤ 328 feet

4-port Remotes
81000684

2-port 12 AWG OCA
BACR04E02D44FFNNPxxxx and M8 Pigtail 11099456

2-port Remotes
81000773

Security Cameras

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

4RU Power Chassis
81000568

Power Supply Module
81000215

4-port Media Module, LC
81001262

≤ 328 feet

4-port 12 AWG OCA
BACR08A04D44FFNNPxxxx and M8 Pigtail 11099453

4-port Remotes
81001264

Security Cameras

Please note, the above diagrams do not include the recommended surge protectors nor the required grounding for such installations.

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 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 (100 m)] 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 (10 m)] 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.

DISTANCE CHART (FEET) – 1-PORT REMOTES

PATCH DISTANCE	POWER LEVEL			
	15 W (TYPE 1)	30 W (TYPE 2)	60 W (TYPE 3)	90 W (TYPE 4)
328 ft (100 m)	5000	1800	900	500
32 ft (10 m)	10000	5000	2000	1500

DISTANCE CHART (FEET) – 2-PORT AND 4-PORT REMOTES

PATCH DISTANCE	POWER LEVEL	
	15 W (TYPE 1) (ALL PORTS)	30 W (TYPE 2) (ALL PORTS)
328 ft (100 m)	1800	900
32 ft (10 m)	5000	2000

NOTES:

- Based on 802.3bt for all power levels, Types 1-4 (PoE 15 W, PoE+ 30 W, PoE++ 60 W and PoE++ 90 W)
  - 50 degrees C worst case environment for the OR cable assembly
  - Typical applications with patch cords from the remote to the Powered Device (PD) can support extended OR cable assembly distances
  - Power levels are calculated for "delivered power" to the PD to support long distance applications
- Standard distances for horizontal cabling of 100 m are used to calculate max distance for full power at Power Sourcing Equipment (PSE)
- Standard application distances of 10 m of 24 AWG stranded patch cordage are used to calculate max distances for full power at the PD
- 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.

See the full range of OneReach head end power injection devices, cable assemblies, and remote PoE ports at 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**.

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