* + - 1. EXTENDED REACH POWER OVER ETHERNET (POE) SYSTEMS
         1. The Power over Ethernet (PoE) extender system shall provide the capability to upgrade a channel of a standard Ethernet switch to deliver PoE, PoE+, or HPoE over a composite fiber/power cable. providing the capability of a fully compliant IEEE 802.3at channel at distances beyond 100 meters.
         2. The system shall utilize an external power injector at the source end, no other power inputs are needed.
         3. The PoE extender system shall be a transparent Layer1 device, shall require no MAC or IP address, and shall be fully transparent to Layer 2 devices with no restriction on network traffic.
         4. The system shall be comprised of the following elements from a single manufacturer; equipment that generates and injects DC power, converts electrical signals to optical signals and back, acts as a PSE per IEEE 802.3 for Power over Ethernet, and utilizes a composite cable that contains both copper and fiber optic elements.
         5. The system shall provide options that allow for N+1 or N+2 redundancy of the DC power used for the system for certain configurations.
         6. The system shall provide power that is compliant with the requirements of a Class 2 Power Source per NFPA 70 or CSA C22.1 and be listed as such.
         7. Each port connection on the PoE extender system shall have two Ethernet 8P8C (RJ45) connectors, one standard Ethernet at the power injection side, and one providing PoE capability at the remote end.
         8. The PoE extender system shall support auto-negotiated 10/100/1000BASE-T over a standard 4-pair Ethernet cable, Cat 5e or higher.

Approved Products:

Berk-Tek One-Reach 2U Powered Chassis, 6 slots, empty, 81000569

Berk-Tek One-Reach 4U Powered Chassis, 12 slots, empty, 81000568

Berk-Tek One-Reach 1U Mounting Bracket, empty (holds two 1-port modules), 81000463

Berk-Tek One-Reach 2-slot Power Supply Module - dual voltage, 81000215

Berk-Tek One-Reach 1-slot Blanking Panel, 81000190

* + - 1. MEDIA CONVERTERS - POWER SOURCE DEVICES
         1. Shall be capable of being mounted on a horizontal or vertical surface or rack-mount bracket or chassis. Chassis modules (power injector end only) shall take power from a common power supply.
         2. Operating temperature range: -40°C to 50°C or 0°C to 40°C. Operating relative humidity range: 0 to 90% (non-condensing).
         3. Compliant with NFPA 70 and FCC Part 15 Subpart B EMC.
         4. Power injectors and remotes shall utilize TVSS. If any part of the system is outdoors, it is highly recommended that additional surge suppression be installed.
         5. Three indicator LEDs shall be used at the power injection side to indicate the status of the near end connection: power, link and traffic.
         6. Power over Ethernet capabilities

Input voltage range 100 – 240 VAC and frequency of 47 – 63 Hz.

Complies with the universal IEEE 802.3at PoE endpoint standard, supplying PoE to class 0, 1, 2 and 3 devices or PoE+ to class 0, 1, 2, 3 and 4 devices. HPoE is not currently defined by IEEE.

Capable of supplying PoE (12.95W) to 6560 feet, PoE+ (25W) to 2100 feet, and HPoE (51W) to 1000 feet

Approved Products:

Berk-Tek One-Reach 1 slot, 4-port Source Media Module, 4xLC duplex rear,   
1000BASE-SX (1Gbps), 81000413

Berk-Tek One-Reach 1 slot, 4-port Source Media Module, MTP rear, 1000BASE-SX (1Gbps), 81000414

Berk-Tek One-Reach 1 slot, 4-port Source Media Module, 4xLC duplex rear,   
100BASE-FX (100Mbps), 81000584

Berk-Tek One-Reach 1 slot, 4-port Source Media Module, MTP rear, 100BASE-FX (100Mbps), 81000585

Berk-Tek One-Reach 1-port Source Media Module, PoE+ (External AC power supply), LC duplex, 1000BASE-SX (-40 to 50C), 81000546

Berk-Tek One-Reach 1-port Source Media Module, PoE+ (External AC power supply), LC duplex, 1000BASE-SX (0 to 40C), 81000380

Berk-Tek One-Reach 1-port Source Media Module, PoE+ (External AC power supply), LC duplex, 100BASE-FX, (0 to 40C), 81000217

Berk-Tek One-Reach 1-port Source Media Module, PoE (External AC power supply), LC duplex, 100BASE-FX (0 to 40C), 81000577

Berk-Tek One-Reach 1-port Source Media Module, PoE+ (External AC power supply), LC duplex, 100BASE-FX (-40 to 50C), DIN rail mount, 81000432

* + - 1. MEDIA CONVERTERS - REMOTE END DEVICES
         1. Shall accept power via M8 interface from power source equipment at head end. No power supply is used at the remote end.
         2. Single port module shall convert from duplex LC (multimode) to RJ45 for Power-over-Ethernet use. Multi-port modules shall convert from (4) LC Duplex or (1) MTP port, to (4) RJ45 ports in the same module.
         3. All RJ45 ports shall support up to an additional 100 meter channel over CAT-6 (typical).
         4. Status Indicator lights:

The single-port remote module shall use four indicator LEDs per port to indicate the status of that remote connection: Power, link, traffic, and PoE.

the 4-Port PoE+ remote port shall use four indicator LEDs for each 2-port set to indicate the status of the remote connection: Power, Link, traffic, and PoE.

Operating Temperature: -40°C to 50°C.

Approved Products:

Berk-Tek One-Reach 1-port remote, LC Duplex, 100BASE-FX (100Mbps), PoE, 81000663

Berk-Tek One-Reach 1-port remote, LC Duplex, 100BASE-FX (100Mbps), PoE, 81000663

Berk-Tek One-Reach 1-port remote, LC Duplex, 100BASE-FX (100Mbps), PoE+, 81000218

Berk-Tek One-Reach 1-port remote, LC Duplex, 100BASE-FX (100Mbps), PoE+, DIN rail mount, 81000343

Berk-Tek One-Reach 1-port remote, LC Duplex, 100BASE-FX (100Mbps), HPoE, 81000462

Berk-Tek One-Reach 1-port remote, LC Duplex, 1000BASE-SX (1Gbps), PoE+, 81000381

Berk-Tek One-Reach 1-port remote, LC Duplex, 1000BASE-SX (1Gbps), HPoE, 81000545

Berk-Tek One-Reach 4-port remote, MTP, 100BASE-FX (100Mbps), PoE, 81000664

Berk-Tek One-Reach 4-port remote, MTP, 1000BASE-SX (1Gbps), PoE, 81000586

Berk-Tek One-Reach 4-port remote, 4xLC Duplex, 1000BASE-SX (1Gbps), PoE+, 81000684

* + - 1. COMPOSITE CABLES
         1. The cable shall be a composite, containing OM3 or better fibers and (2) or (4) solid copper conductors, size 12 AWG for PoE and PoE+, respectively.
         2. The tolerance on the Fiber Core Diameter and Numerical Aperture shall be no larger than 2.5µm and 0.015µm respectively. OM3 fibers shall be bend-insensitive multimode fiber with an attenuation of 3.0 dB/km at 850nm.
         3. Shall be listed as Class 3 PLTC per UL 13 and ETL listed or tray cable rated (Type TC).
         4. Shall be of a dry water-blocked indoor/outdoor design capable of being installed in plenum or riser environments (CL3P or CL3R) unless they are TC rated.
         5. Shall be of a round cross-section in order to facilitate easy installation without preferential bend radii.
         6. Shall possess options for being additionally ruggedized via steel or aluminum interlocking armor, or an optional 600V tray cable (TC) rated, which allows the cables to occupy the same pathway as Class 1, electric light & power conductors.
         7. Operating temperature (typical): -40°C to 75°C
      2. PRE-TERMINATED COMPOSITE CABLES
         1. Cables are factory pre-terminated, orderable by total footage measured tip to tip, with MTP or LC fiber and M8 power connectors.

Approved Products:

Berk-Tek 4-port 12 AWG Assembly, Loose Tube OM3, PoE, M8 and MTP both ends, BAC\*12EDD077NNNM8Pxxx

Berk-Tek 4-port 12 AWG Assembly, Loose Tube OM3, PoE, interlocking armor, M8 and MTP both ends, BAC\*K12EDD077NNNM8Pxxx

Berk-Tek 4-Port 12 AWG Assembly, Loose Tube OM3, PoE+, M8 and Duplex LC both ends, BAC\*08EDDDD44FFNM8Pxxx

Berk-Tek 1-port 12 AWG Assembly, Tight Buffered OM3, PoE, M8 and Duplex LC both ends, BHC\*02EDD044FFNM8Pxxx

Berk-Tek 1-port 12 AWG Assembly, Tight Buffered OM3, PoE+, M8 and Duplex LC both ends, BHC\*02EDDDD44FFNM8Pxxx

Berk-Tek 1-port 12 AWG Assembly, Tight Buffered OM3, PoE, interlocking armor, M8 and Duplex LC both ends, BHC\*K02EDD044FFNM8Pxxx

Where: \* = R (Riser), P (Plenum) and xxx = length, in feet

* + - 1. FIELD TERMINATED COMPOSITE CABLES
         1. Cables may be factory pre-terminated on one end or ordered in bulk unterminated lengths, with an option for field terminating LC fiber and M8 power connectors.

Approved Products:

Berk-Tek 1-port 12 AWG Assembly, Tight Buffer OM3, PoE, PoE+, HPoE, M8 and LC one end only, BHC\*02EDD0N4NFNM8Pxxx (1xM8 pigtail, 2 LC required)

Berk-Tek 1-port 12 AWG Assembly, Tight Buffer OM3, PoE+, M8 and LC one end only, BHC\*02EDDDN4NFNM8Pxxx (1xM8 pigtail, 2 LC required)

Berk-Tek 1-port 12 AWG and Tight Buffer OM3 PoE cable only, (2xM8 pigtail 4 LC or appropriate LC pigtail at each end ), HD\*C002EB3010/25-2X12AWG

Berk-Tek 4-port 12 AWG Assembly, Loose Tube OM3, PoE, M8 and MTP one end only, (Requires MTP pigtail- closet end), BAC\*12EDDN7NNNM8Pxxx

Berk-Tek 4-port 12 AWG and Loose Tube OM3, PoE cable only, (Requires 1xM8 pigtails,), AC\*C012EB3010/25-002X12AWG

Berk-Tek 4-port 12 AWG Assembly, Loose Tube OM3, PoE+, M8 and 4 LC duplex one end only, (Requires 8 LC or 4 LC pigtail-closet end), BAC\*08EDDDDN4NFNM8Pxxx

Berk-Tek 4-port 12 AWG and Loose Tube OM3, PoE+ cable only, (Requires 1xM8 pigtails & 8 LC or 4 of the appropriate LC pigtail at each end), AC\*C008EB3010/25-004X12AWG

Berk-Tek M8 pigtail for field termination (1-Port PoE, PoE+, HPoE or 4-Port PoE), 11099456

Berk-Tek M8 pigtail for field termination (4-Port PoE+), 11099453

Berk-Tek LC pigtail-closet end (1-Port, 4-Port PoE, PoE+, HPoE), 11097538

Berk-Tek LC pigtail-remote end (1-Port, 4-Port PoE, PoE+, HPoE), 11097539

Berk-Tek MTP pigtail-closet end ( 4-Port PoE), 11097536

Berk-Tek MTP pigtail-remote end ( 4-Port PoE), 11097537

Where: \* = R (Riser), P (Plenum) and xxx = length, in feet