



## Fast Ethernet and PoE+ over Coax with up to 3,000ft (915m) Reach

### EC10 Unmanaged Switch

The plug and play EC10 (Coax Leveraged Ethernet Extended Reach) unmanaged switch makes the modernization to IP devices (IoT) simple, secure and cost-effective. When paired with the EC Adapters, this powerful enterprise-grade switch delivers fast Ethernet and PoE+ over Coax cable with up to 3,000ft (915m) reach - **that's 10Xs the reach of standard Ethernet switches.**

With the EC10, customers are taking full advantage of Modern LAN principles, protecting existing infrastructure assets, and eliminating any need to rip/replace the established Coax cabling. The EC10 unmanaged switch optimizes network design with advanced interoperability and easy integration into the overall LAN creating a secure, robust path for IP endpoints.

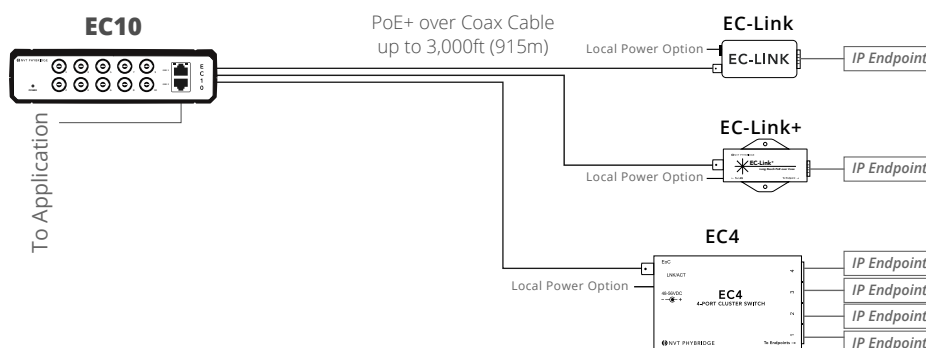
- Accelerate your return on investment by reducing infrastructure costs.
- Simplify your IP modernization, collapsing planning and deployment time.
- Eliminate infrastructure barriers, risks, disruption and costs.
- Create a robust plug-and-play IP platform that is easy to deploy and manage.
- Be environmentally responsible during your IP upgrades.

### Speed, Reach and Power

EC10 delivers 100Mbps symmetrical (full duplex) and PoE+ (30W) over Coax with 3,000ft (915m) reach, providing substantial power to support bandwidth demanding IP endpoints easily and reliably.

### Simple Deployment

EC10 comes preconfigured and ready to deploy, making modernization to IP quick and efficient in organizations of every size. Modernizing multiple sites is greatly simplified with a repeatable, predictable and scalable deployment methodology across every location.



## AT A GLANCE


(NV-EC-10)

- 10-port plug-and-play long reach EoC PoE switch
- 100Mbps symmetrical (full duplex) and PoE+ (30W) over Coax with 3,000ft (915m) reach
- 2 x 1GB uplink ports
- 165W external power supply
- EN 50121-4 Standard for Railway/ Subway environments



## EC10 Technical Specifications

|  |  |
|--|--|
| <b>Model</b>                                       | EC10   |
| <b>Part Number</b>                                 | NV-EC-10   |
| <b>Dimensions</b>                                  | <ul style="list-style-type: none"> <li>1.77" x 7.01" x 4.72" (HxWxD)</li> <li>4.5cm x 17.8cm x 12cm (HxWxD)</li> </ul>   |
| <b>Weight</b>                                      | 0.679 lbs (0.308 kg)   |
| <b>Mounting</b>                                    | Standalone, rack or shelf-mountable; 2 brackets included for installation  |
| <b>Interface: Ethernet Uplink (Trunk IP)</b>       | 2 RJ45 ports: 10/100/1000 Base-T auto-sensing<br>Independent speed selection, Ethernet IEEE 802.3, CAT5e/6 copper cable  |
| <b>Interface: Downlink (PoE and IP to Adapter)</b> | 10 x BNC Jacks<br>Speed: 100Mbps (full duplex)<br>PoE Power: 30W max<br>Maximum Distance: <ul style="list-style-type: none"> <li>3,000ft (915m) over RG11 Coax Cable</li> <li>2,000ft (610m) over RG6 Coax Cable</li> <li>1,500ft (457m) over RG59 Coax Cable</li> </ul> |

|  |   |
|--|---|
| <b>Power Supply</b>                    | 55VDC 3A (165W) power supply included   |
| <b>Power Consumption</b>               | 3.8W  |
| <b>Power Injection (PoE)</b>           | 48-56VDC  |
| <b>Operating temperature</b>           | 14°F to 122°F (-10°C to 50°C)   |
| <b>Humidity</b>                        | 10% to 95% (non-condensing) at 95°F (35°C)  |
| <b>Mean Time Before Failure (MTBF)</b> | 20+ Years   |
| <b>Rack Mount</b>                      | Model NV-PL-RMEC10<br> |

## EC10 Compliance and Agency Approval

|                    |  |
|--------------------|--|
| <b>EMC</b>         | Emissions: FCC Part 15, ICES-003, EN 55032:2015, EN 50121-4:2015 Class A<br>Immunity: EN 55035:2017, EN 50121-4:2015             |
| <b>Safety</b>      | UL 60950-1 2nd Ed 2014-10-14, CAN/CSA C22.2 No. 60950-1-07 2nd Ed 2014-10 IEC 62368-1:2014, EN 62368-1:2014, AS/NZS 62368.1:2018 |
| <b>Environment</b> | RoHS Directives 2011/65 and 2015/863   |

## Power & Distance Table

| EC10 used with EC-Link+ |             |              |              |                |                |                |                |                |
|-------------------------|-------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|
|                         | 300ft (92m) | 600ft (183m) | 900ft (275m) | 1,200ft (365m) | 1,500ft (457m) | 2,000ft (610m) | 2,500ft (762m) | 3,000ft (915m) |
| RG11 14AWG              | 30W         | 30           | 30           | 30             | 30             | 29             | 29             | 28             |
| RG6 18AWG               | 30W         | 30           | 28           | 27             | 26             | 24             |                |                |
| RG59 20AWG              | 30W         | 27           | 24           | 22             | 19             |                |                |                |
| EC10 used with EC-Link  |             |              |              |                |                |                |                |                |
| RG11 14AWG              | 30W         | 30           | 30           | 30             | 30             | 29             | 29             | 28             |
| RG6 18AWG               | 30W         | 30           | 28           | 27             | 26             | 24             |                |                |
| RG59 20AWG              | 30W         | 27           | 24           | 22             | 19             |                |                |                |
| EC10 used with EC4      |             |              |              |                |                |                |                |                |
| RG11 14AWG              | 30W         | 30           | 30           | 30             | 30             | 29             | 29             | 28             |
| RG6 18AWG               | 30W         | 30           | 28           | 27             | 26             | 24             |                |                |
| RG59 20AWG              | 30W         | 27           | 24           | 22             | 19             |                |                |                |

### 100Mbit

Power & Distances are based on the following cable specs:

| Cable Spec | Core Type    | AWG    | Diameter | Wire Resistance (m) | Wire Resistance (ft) |
|------------|--------------|--------|----------|---------------------|----------------------|
| RG-11      | Solid Copper | 14 AWG | 1.63 mm  | 1.21 Ω/100m         | 0.37 Ω/100ft         |
| RG-6       | Solid Copper | 18 AWG | 1.01 mm  | 3.60 Ω/100m         | 1.10 Ω/100ft         |
| RG-59U     | Solid Copper | 22 AWG | 0.64 mm  | 7.87 Ω/100m         | 2.40 Ω/100ft         |

## CLEER FAMILY ADAPTER OPTIONS

### EC Adapter Options

There are three media converter options available to pair with the CLEER family of switches to extend PoE over Coax. The EC-Link and EC Link+ are single endpoint solutions and the EC4 enables 4 IP endpoints from a single long run Coax cable.

#### EC-Link



#### EC-Link+



#### EC4



|                            | EC-Link  | EC-Link+   | EC4   |
|----------------------------|--|--|---|
| <b>Power</b>               | <ul style="list-style-type: none"> <li>Maximum 30W, delivered on 2-pairs (spare pairs)</li> <li>Local power option</li> <li>Does not negotiate power requirements with IP device</li> <li>Device must be IEEE 802.3 af/at compliant</li> </ul> | <ul style="list-style-type: none"> <li>Maximum 50W (If locally powered and 30W if power provided from switch) delivered on 4 pairs</li> <li>Local power option</li> <li>Adapter is IEEE 802.3af/at compliant and will negotiate power requirements with IP device</li> </ul> | <ul style="list-style-type: none"> <li>Receives and delivers PoE power (up to 30w) from EC10, CLEER24 or EC-Base</li> <li>EC4 enables IEEE 802.3 AF/AT compliant IP endpoints</li> <li>Can be locally powered (optional) and deliver up to 50 watts per port with a maximum overall power budget of 165W</li> </ul> |
| <b>Casing</b>              | Plastic  | Metal  | Plastic   |
| <b>EN 50121-4 Standard</b> | Yes – approved to operate in a railway/subway environment  |  |   |

### EC Adapters Technical Specifications

| Model Number  | EC-Link   | EC-Link+   | EC4  |
|---|---|--|--|
| <b>Part Number</b>                                    | NV-ECLK   | NV-ECLK-PLS  | NV-EC-04   |
| <b>Dimensions</b>                                     | 8.8cm x 3.2cm x 2.1cm (LxWxH);<br>3.46" x 1.23" x 0.83" (LxWxH)   | 10.09cm x 5.03cm x 2.57cm (LxWxH);<br>3.97" x 1.98" x 1.01" (LxWxH)  | 11cm x 7cm x 2.5cm (LxWxH);<br>4.3" x 2.75" x 0.98" (LxWxH)  |
| <b>Weight</b>   | 42g (1.48oz.)   | 108g (3.81oz.)   | 96g (3.38oz.)  |
| <b>Interface: Network Infrastructure side (CLEER)</b> | 1 BNC port: Coax cable (RG59, RG6, RG11)  | 1 BNC port: Coax cable (RG59, RG6, RG11)   | 1 BNC port: Coax cable (RG59, RG6, RG11)   |
| <b>Line Speed</b>                                     | 10/100Mbps full duplex  | 10/100Mbps full duplex   | 100Mbps full duplex  |
| <b>Interface: IEEE Side (IP Device)</b>               | 1 RJ45 port; device must be IEEE 802.3 af/at compliant  | 1 RJ45 port; adapter is IEEE 802.3af/at compliant and will negotiate power requirements with IP end device.  | 4 RJ45 ports: devices must be IEEE 802.3 af/at compliant   |
| <b>Power Supply</b>                                   | PoE from the CLEER / EC switch or from EC-Base, maximum 30W (over 2-pairs)  | Maximum 50W from CLEER / EC switch (If locally powered and 30W if power provided from switch) delivered on 4 pairs.  | PoE from the CLEER / EC switch or external power supply; maximum 50W (over 4-pairs) each port  |
| <b>DC IN</b>  | Optional (sold separately)<br>48V – 56VDC via an external AC/DC Power Adapter with phoenix connector (IEC Class II isolated only)<br>NOTE 1: Local power supply used must have its output isolated from Earth potential.<br>NOTE 2: If voltage of local power supply is lower than the power voltage provided from the PoE switch, then power on the PoE switch should be turned off. | Optional (sold separately)<br>48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only) with barrel connector<br>NOTE 1: Local power supply used must have its output isolated from Earth potential.<br>NOTE 2: If voltage of local power supply is lower than the power voltage provided from the PoE switch, then power on the PoE switch should be turned off. | Optional (sold separately)<br>48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only) with barrel connector<br>NOTE 1: Local power supply used must have its output isolated from Earth potential.<br>NOTE 2: If voltage of local power supply is lower than the power voltage provided from the PoE switch, then power on the PoE switch should be turned off. |
| <b>Power Consumption</b>                              | 0.9W  | 1.1W   | 1W   |
| <b>Operating Temperature</b>                          | -58°F to +158°F (-50°C to +70°C)<br>Tests conducted against international safety standard at maximum ambient temperatures of 50°C   | -58°F to +158°F (-50°C to +70°C)<br>Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 30W and 55°C at 50W   | -58°F to +158°F (-50°C to +70°C)<br>Tests conducted against international safety standard at maximum ambient temperatures of 50°C  |
| <b>Mean Time Before Failure (MTBF)</b>                | 20+ years   | 20+ years  | 20+ years  |
| <b>Humidity</b>                                       | 10% to 95% (non-condensing) at 35° C  | 10% to 95% (non-condensing) at 35° C   | 10% to 95% (non-condensing) at 35° C   |

### EC Adapters Compliance and Agency Approval

|                    |  |
|--------------------|--|
| <b>EMC</b>         | Emissions: FCC Part 15, ICES-003, EN 55032:2015, EN 50121-4:2015<br>Class A (EC4) Class B (EC-Link and EC-Link+)<br>Immunity: EN 55035:2017, EN 50121-4:2015 |
| <b>Safety</b>      | UL 60950-1 2nd Ed 2014-10-14, CAN/CSA C22.2 No. 60950-1-07 2nd Ed 2014-10<br>IEC 62368-1:2014, EN 62368-1:2014, AS/NZS 62368.1:2018                          |
| <b>Environment</b> | RoHS Directives 2011/65 and 2015/863   |