



## 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.

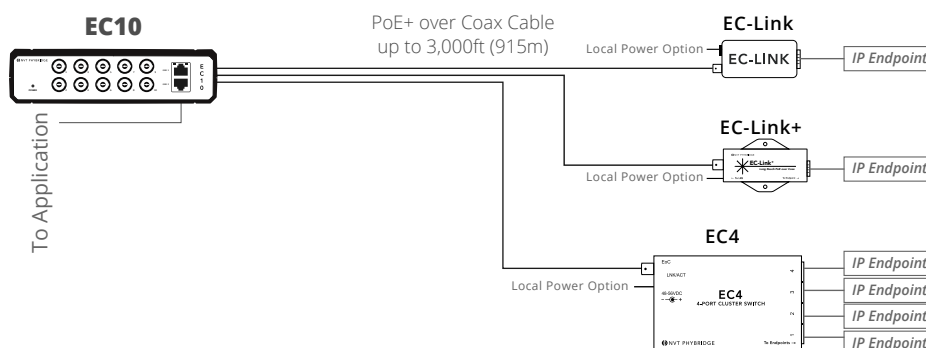
- Accelerate your return on investment by reducing infrastructure costs.
- Simplify your IP modernization, collapsing planning and deployment time.
- Eliminate infrastructure barriers, risks, disruption and costs.
- Create a robust plug-and-play IP platform that is easy to deploy and manage.
- Be environmentally 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 Independent speed selection, Ethernet IEEE 802.3, CAT5e/6 copper cable
<b>Interface: Downlink (PoE and IP to Adapter)</b>	10 x BNC Jacks Speed: 100Mbps (full duplex) PoE Power: 30W max 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 

## EC10 Compliance and Agency Approval

<b>EMC</b>	Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2015 Class A Immunity: EN 55024:2010, 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>Maximum 50W, delivered on 4 pairs (local power required)</li> <li>Local power option to support greater power delivery to IP devices</li> <li>Does not negotiate power requirements with IP device</li> <li>Devices must be IEEE 802.3 af/at compliant</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 2.1 cm (LxWxH); 3.46" x 1.23" x 0.83" (LxWxH)	10.09cm x 5.03cm x 2.57cm (LxWxH); 3.97" x 1.98" x 1.01" (LxWxH)	11 cm x 7cm x 2.5cm (LxWxH); 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) 48V – 56VDC via an external AC/DC Power Adapter with phoenix connector (IEC Class II isolated only) NOTE 1: Local power supply used must have its output isolated from Earth potential. 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) 48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only) with barrel connector NOTE 1: Local power supply used must have its output isolated from Earth potential. 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) 48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only) with barrel connector NOTE 1: Local power supply used must have its output isolated from Earth potential. 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) Tests conducted against international safety standard at maximum ambient temperatures of 50°C	-58°F to +158°F (-50°C to +70°C) 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) 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 55032:2012, EN 50121-4:2015 Class A (EC4) Class B (EC-Link and EC-Link+) Immunity: EN 55024:2010, 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