NVT PHYBRIDGE

EC-Base Extender DATASHEET

Fast Ethernet and PoE+ over Coax with up to 6,000ft (1,830m) Reach

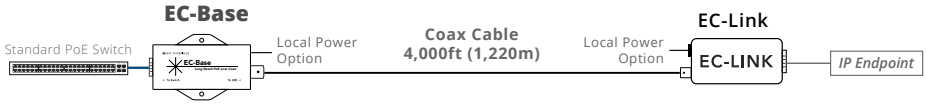
EC-Base Extender Solution

The NVT Phybridge EC-Base Extender Solution is designed to supercharge the downlink ports of a standard Ethernet switch, delivering 10/100Mbps symmetrical (full duplex) and PoE over Coax infrastructure with distances up to 6,000ft (1,830m). **That's 18X the reach of standard Ethernet switches,** thus removing the costs and disruptions associated with multiple IDF closet requirements.

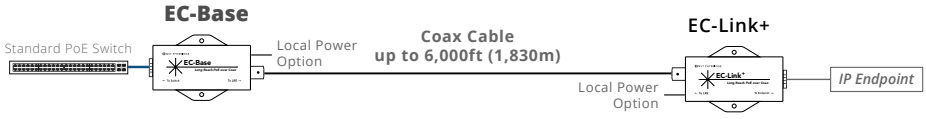
With the EC-Base Extender Solution, IP IoT devices can be connected to the existing Coax cabling infrastructure, delivering optimal performance while saving cost, time, and environmental e-waste. Furthermore, the cost savings realized by using the EC Extender Solution can enable system designers to transfer budget and resources towards higher-quality applications and IEEE-compliant IoT devices, including IP-enabled phones, cameras, access control, speakers, and even facilities lighting.

Extend the reach of standard PoE switches with the EC Extender Solution

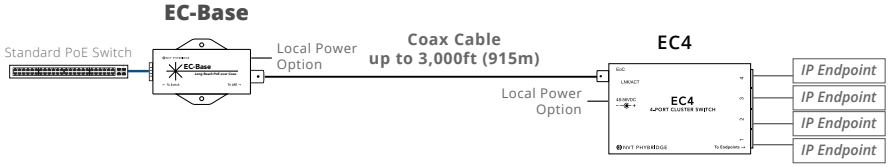
EC-Base Paired with the EC-Link Enable 1 IP endpoint from a single long run Coax cable with up to 30W of power



***EC-Base Paired with the EC-Link+** Enable 1 IP endpoint from a single long run Coax cable with up to 50W of power



***EC-Base Paired with the EC4** Enable 4 IP endpoints from a single long run Coax cable with up to 50W of power per port



**Pairing options available in conveniently packaged EC-Extender Kits*

AT A GLANCE

(NV-ECLK-BSE)

- Base unit for 1-port long reach PoE Extender
- Negotiates with PoE switch
- When paired with EC-Link+ (50W), EC4 (30W) or EC-Link (30W) Adapters, delivers PoE over coax with up to 6,000ft (1,830m) reach
- Can be locally powered
- EN 50121-4 Standard for Railway/ Subway environments

EC-EXTENDER KITS

Each EC Extender Kit is conveniently packaged and includes an EC-Link+ or EC4 Adapter, an EC-Base Extender, and an external power supply.

1-Port EC Extender Kit

(NV-ECLK-PLS-XKIT)

- Extend reach of standard PoE switch
- Single port coax extender solution enabling 1 endpoint from a single long run Coax cable
- 10/100Mbps symmetrical (full duplex) and PoE+ (up to 30W) with up to 6,000ft (1,830m) reach
- Up to 50W of power available for the endpoint
- Adapters can be locally powered
- Includes: EC-Base Extender, EC-Link+ Adapter, and 60W, 55V external power supply

4-Port EC Extender Kit

(NV-EC-04-XKIT)

- Extend reach of standard PoE switch
- Single port coax extender solution enabling 4 IP endpoints from a single long run Coax cable
- 10/100Mbps symmetrical (full duplex) and PoE+ (up to 30W) with up to 3,000ft (915m) reach
- Delivers up to 30W of power per downlink port
- Adapters can be locally powered
- Includes: EC-Base Extender, EC4 Adapter, and 110W, 55V external power supply

CHARIOT by NVT Phybridge

EC-Base Technical Specifications

Model	EC-Base
Part Number	NV-ECLK-BSE
Dimensions	• 10.09cm x 5.03cm x 2.57cm (LxWxH); • 3.97” x 1.98” x 1.01” (LxWxH)
Weight	108g (3.81oz.)
Interface: Network Infrastructure side (CLEER)	1 BNC port: Coax cable (RG59, RG6, RG11)
Interface: IEEE Side (IP Device)	(For General/PoE Switch) 1 RJ45 port: supports negotiation with IEEE 802.3 af/at switches
Power Supply	PoE from standard PoE switch, or external power supply; maximum 50W if locally powered

Power Consumption	1W
Operating temperature	-58°F to +158°F (-50°C to +70°C) Tests conducted against international safety standard at maximum ambient temperatures of 60ºC at 30W and 55ºC at 50W
Mean Time Before Failure (MTBF)	20+ years
Humidity	10% to 95% (non-condensing) at 35° C
Rack Mount	Model NV-RMEXT 

EC-Base Compliance and Agency Approval

EMC	Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2015 Class B Immunity: EN 55024:2010, EN 50121-4:2015
Safety	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
Environment	RoHS Directives 2011/65 and 2015/863

Power & Distance Table

EC-Base 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)	3,500ft (1,067m)	4,000ft (1,220m)	5,000ft (1,524m)	6,000ft (1,830m)
RG11 14AWG	30W	30	30	30	30	29	29	28	27	27	25	24
RG6 18AWG	30W	30	28	27	26	24	22	20	14	16	12	8
RG59 20AWG	30W	27	24	22	19	15	10	6	2	0		
EC-Base used with EC-Link												
RG11 14AWG	30W	30	30	30	30	29	29	28	27	27		
RG6 18AWG	30W	30	28	27	26	24	22	20	14	16		
RG59 20AWG	30W	27	24	22	19	15	10	6	2	0		
EC-Base 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 **10Mbit**

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
Power	• Maximum 30W, delivered on 2-pairs (spare pairs) • Local power option • Does not negotiate power requirements with IP device • Device must be IEEE 802.3 af/at compliant	• Maximum 50W (If locally powered and 30W if power provided from switch) delivered on 4 pairs • Local power option • Adapter is IEEE 802.3af/at compliant and will negotiate power requirements with IP device	• Maximum 50W, delivered on 4 pairs (local power required) • Local power option to support greater power delivery to IP devices • Does not negotiate power requirements with IP device • Devices must be IEEE 802.3 af/at compliant
Casing	Plastic	Metal	Plastic
EN 50121-4 Standard	Yes – approved to operate in a railway/subway environment		

EC Adapters Technical Specifications

Model Number	EC-Link	EC-Link+	EC4
Part Number	NV-ECLK	NV-ECLK-PLS	NV-EC-04
Dimensions	8.8cm x 3.2cm x 2.1cm (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)	11cm x 7cm x 2.5cm (LxWxH); 4.3" x 2.75" x 0.98" (LxWxH)
Weight	42g (1.48oz.)	108g (3.81oz.)	96g (3.38oz.)
Interface: Network Infrastructure side (CLEER)	1 BNC port: Coax cable (RG59, RG6, RG11)	1 BNC port: Coax cable (RG59, RG6, RG11)	1 BNC port: Coax cable (RG59, RG6, RG11)
Line Speed	10/100Mbps full duplex	10/100Mbps full duplex	100Mbps full duplex
Interface: IEEE Side (IP Device)	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
Power Supply	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
DC IN	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.
Power Consumption	0.9W	1.1W	1W
Operating Temperature	-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*
Mean Time Before Failure (MTBF)	20+ years	20+ years	20+ years
Humidity	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

EMC	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
Safety	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
Environment	RoHS Directives 2011/65 and 2015/863