Datasheet: 1701+ Extender

1701+ Extender Solution

Ethernet and PoE over Coax, UTP or 2 wire cable with reach of up to 8,000ft (2.4km)

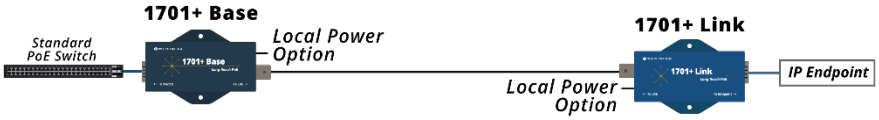
The NVT Phybridge 1701+ Extender Solution is designed to supercharge the downlink ports of a standard Ethernet switch, delivering up to 420Mbps and PoE+ over Coax, single pair UTP or 2 wire infrastructures with reach of up to 8,000ft (2.4km) on RG6. That's 24X the reach of standard Ethernet switches, thus removing the costs and disruptions associated with multiple IDF location requirements.

With the 1701+ Extender Solution, IP IoT devices can be connected to the existing Coax, UTP or 2 wire cabling infrastructure, delivering optimal performance while saving cost, time, and environmental e-waste. Furthermore, the cost savings realized by using the 1701+ Extender Solution can enable system designers to transfer budget and resources towards higher-quality applications and IEEE 802.3at/af compliant IoT devices, including IP-enabled phones, cameras, access control, speakers, and even facilities lighting.

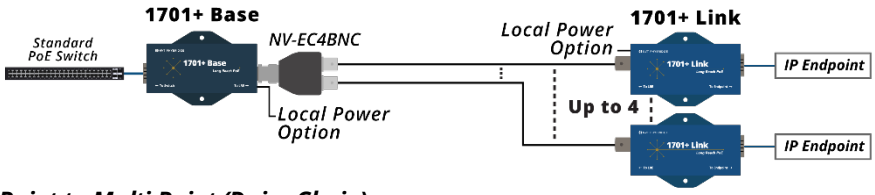
Extend the reach of standard switches with the 1701+ Extender Solution:

Coax Usage Scenarios

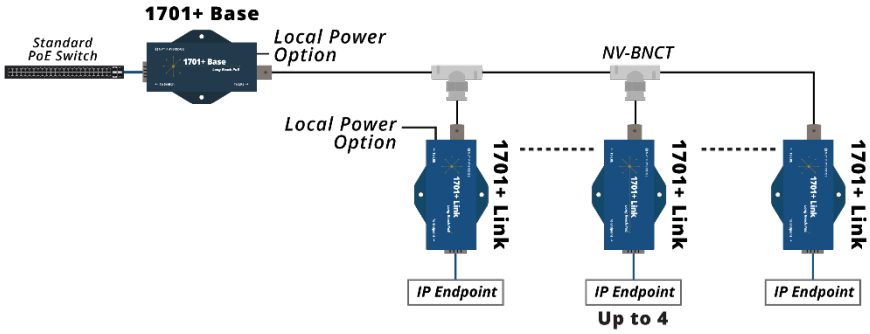
Point to Point



Point to Multi-Point (Star)



Point to Multi-Point (Daisy Chain)



AT A GLANCE

1701+ Base (NV-EC1701PLS-BSE)
- Paired with 1701+ Link Adapter
- Data rate up to 420 Mbps with up to 8,000 ft (2.4km) reach*
- Negotiates power with 802.3at/af PoE Switch (802.3at/af max power is 30W)
- 1701+ Base can also be locally powered for non-PoE switch deployments or high-power delivery (100W)
- 10/100/1000 Base-T, Auto-MDIX interface with Ethernet Switch
- Supports up to 4 endpoints in a point to multi-point topology
- LED Indicators (power, link, data)

1701+ Link (NV-EC1701PLS-LK)
- Paired with 1701+ Base Extender
- Data rate up to 420 Mbps with up to 8,000 ft (2.4km) reach*
- Negotiates with 802.3at/af IP endpoint
- Can provide up to 25W of power on 2 pairs if 1701+ Link adapter is powered by 1701+ Base extender
- If 1701+ Link adapter is locally powered can provide up to 50W of power on 4 pairs, or 25W on 2 pairs
- 328ft (100m) reach from the adapter to the IP endpoint via CAT5 or better cable
- 10/100/1000 Base-T, Auto-MDIX interface with IP endpoint
- LED Indicators (power, link, data)

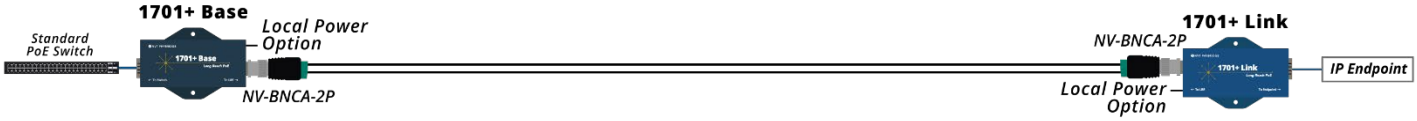
**Data rate and power are distance/cable dependant, please see corresponding tables*

Datasheet: 1701+ Extender

UTP Usage Scenarios

Point to Point

Note: The NV-BNCA & NV- BNCA-2P are polarity sensitive.

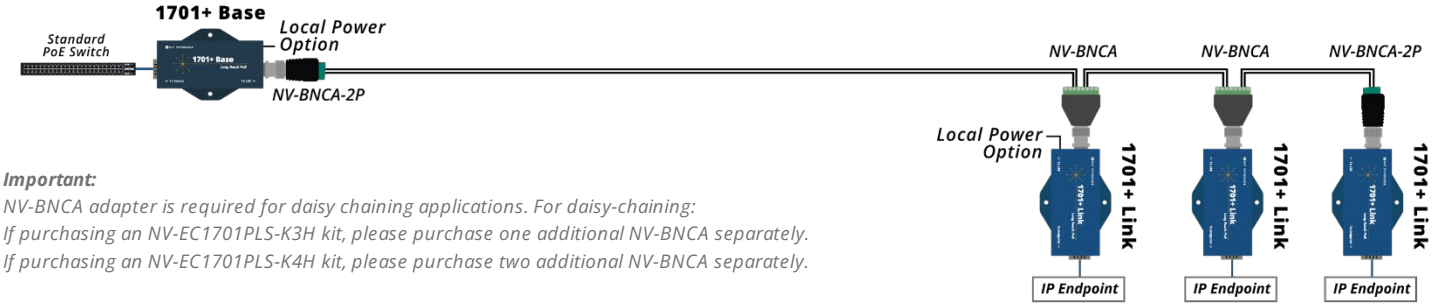


Point to Multi-Point (Star)

Note: The NV-BNCA & NV- BNCA-2P are polarity sensitive.

Point to Multi-Point (Daisy Chain)

Note: The NV-BNCA & NV- BNCA-2P are polarity sensitive.



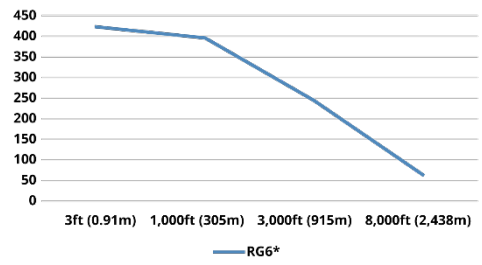
Important:

NV-BNCA adapter is required for daisy chaining applications. For daisy-chaining:
If purchasing an NV-EC1701PLS-K3H kit, please purchase one additional NV-BNCA separately.
If purchasing an NV-EC1701PLS-K4H kit, please purchase two additional NV-BNCA separately.

Performance Chart and Table for Data and Distance

Note: Data rate is in Mbps.

Speed (Mbps) vs. Distance



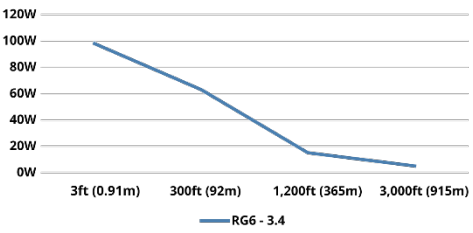
Data Rates at Distance									
Cable Type	3ft (0.91m)	1,000ft (305m)	2,000ft (610m)	3,000ft (915m)	4,000ft (1,219m)	5,000ft (1,524m)	6,000ft (1,830m)	7,000ft (2,134m)	8,000ft (2,438m)
RG11*	423	356	352	316	292	260	232	216	
RG6*	423	396	342	244	156	115	98	82	64
RG59*	410	351	193	110	105	79	73	55	
Cat 6a	356	279	123	51	16				
Cat 5e	355	268	122	64	22				
Cat 3	351	272	116	37	5				
18/2	352	219	55						

Tested up to 7,000ft/2,134m (RG11, RG59) and 8,000ft/2,438m (RG6); may be capable of greater distances.

Performance Chart and Table for Power and Distance

Note: Power is in Watts.

Power vs. Distance



PoE Power from Base Unit at Distances								
Cable Type and Resistance in Ohms / 100 Ft.	3ft (0.91m)	300ft (92m)	600ft (183m)	900ft (274m)	1,200ft (365m)	1,500ft (457m)	2,000ft (610m)	3,000ft (915m)
RG11 - 1.2	98	86	74	59	44	35	26	17
RG6 - 3.4	98	63	31	20	15	11	8	5
RG59 - 5.2	98	41	20	12	9	7	5	3
Cat6a - 4.8	98	44	21	13	10	8	5	3
Cat5e - 5.7	98	36	17	10	8	6	4	2
Cat3 - 5.8	98	36	17	10	8	6	4	2
18/2 - 1.28	98	86	73	58	43	34	25	16

Note: Adapter can be locally powered for more power.

Datasheet: 1701+ Extender

1701+ Extender Kits

Single 60 Watt Transmission System (Coax or UTP) **NV-EC1701PLS-XKIT (EoC/UTP)** • 1 x 1701+ Base Extender (NV-EC1701PLS-BSE) • 1 x 1701+ Link Adapter (NV-EC1701PLS-LK) • 1 x NV-PS55-60W Power Supply with IEC line cord • 1 x BNC to 2Pin Screw Terminal Adapter, pack of 2 (NV-BNCA-2P)	
Dual 110 Watt Transmission System (Coax or UTP) **NV-EC1701PLS-K2H (EoC/UTP)** • 1 x 1701+ Base Extender (NV-EC1701PLS-BSE) • 2 x 1701+ Link Adapter (NV-EC1701PLS-LK) • 1 x NV-PS55-110W Power Supply with IEC line cord • 1 x BNC Screw Terminal Adapter (NV-BNCA) • 1 x BNC to 2Pin Screw Terminal Adapter, pack of 2 (NV-BNCA-2P) • 1 x BNC "T" Adapter (NV-BNCT)	
Triple 110 Watt Transmission System (Coax or UTP) **NV-EC1701PLS-K3H (EoC/UTP)** • 1 x 1701+ Base Extender (NV-EC1701PLS-BSE) • 3 x 1701+ Link Adapter (NV-EC1701PLS-LK) • 1 x NV-PS55-110W Power Supply with IEC line cord • 1 x BNC Screw Terminal Adapter (NV-BNCA) • 2 x BNC to 2Pin Screw Terminal Adapter, pack of 2 (NV-BNCA-2P) • 1 x BNC Coax Splitter 1:4 (NV-EC4BNC)	
Quad 110 Watt Transmission System (Coax or UTP) **NV-EC1701PLS-K4H (EoC/UTP)** • 1 x 1701+ Base Extender (NV-EC1701PLS-BSE) • 4 x 1701+ Link Adapter (NV-EC1701PLS-LK) • 1 x NV-PS55-110W Power Supply with IEC line cord • 1 x BNC Screw Terminal Adapter (NV-BNCA) • 2 x BNC to 2Pin Screw Terminal Adapter, pack of 2 (NV-BNCA-2P) • 1 x BNC Coax Splitter 1:4 (NV-EC4BNC)	

1701+ Base & 1701+ Link Technical Specifications

Model	1701+ Base	1701+ Link
Part Number	NV-EC1701PLS-BSE	NV-EC1701PLS-LK
Dimensions	• 10.5cm x 5.4cm x 3.4cm (LxWxH) • 4.15" x 2.11" x 1.33" (LxWxH)	• 10.5cm x 5.4cm x 3.4cm (LxWxH) • 4.15" x 2.11" x 1.33" (LxWxH)
Weight	138g (4.87oz)	138g (4.87oz)
Interface: Line side	1 BNC port	1 BNC port
Interface: IEEE Side (IP Device)	1 RJ45 port, will negotiate power with 802.3at/af compliant Ethernet PoE switch	1 RJ45 port, will negotiate power with 802.3at/af compliant endpoints
Line side Data rate	Up to 420 Mbps, HPAV2.1 (2-86 MHz)	Up to 420 Mbps, HPAV2.1 (2-86 MHz)
IEEE side Data rate	10/100/1000 Mbps	10/100/1000 Mbps
Power Supply	37-55VDC 100W on Coax, locally powered* 30W powered by 802.3at/af Switch	37-55VDC 50W locally powered, delivered on 4 pairs 25W locally or line powered, delivered on 2 pairs
DC IN (Local)	Optional (sold separately). 37V-55VDC via an external AC/DC Power Adapter. Jack (Male) 2x5.5mm. Note 1: Local Power Adapter must have its output isolated from Earth potential.	Optional (sold separately). 37V-55VDC via an external AC/DC Power Adapter. Jack (Male) 2x5.5mm. Note 1: Local Power Adapter must have its output isolated from Earth potential.

Datasheet: 1701+ Extender

	Note 2: If voltage of Local Power Adapter is lower than voltage provided from PoE Switch, power on the PoE Switch port should be turned off.	
Power Consumption	2W	2W
Operating Temperature	-4°F to 140°F (-20°C to 60°C)	-4°F to 140°F (-20°C to 60°C)
Humidity	10% to 95% (non-condensing) at 95°F (35°C)	10% to 95% (non-condensing) at 95°F (35°C)
MTBF	20+ Years	20+ Years
Frequency	2MHz - 86 MHz.	
Sending levels	12V / 23.8 dBm signal.	

Laboratory tested; 50W UL tested

1701+ Base Compliance and Agency Approval

EMC	Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2016 Class B Immunity: EN 55024:2010, EN 50121-4:2016
Safety	UL 60950-1 2nd Ed 2019-05-09, 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

1701+ Link Compliance and Agency Approval

EMC	Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2016 Class B Immunity: EN 55024:2010, EN 50121-4:2016
Safety	UL 60950-1 2nd Ed 2019-05-09, 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