

# NVT PHYBRIDGE FLEX-Base Extender DATASHEET



**Fast Ethernet and PoE  
over Multi-Pair UTP  
with up to 2,000ft  
(610m) Reach**

## FLEX-Base Extender Solution

The NVT Phybridge FLEX-Base Extender Solution is designed to supercharge the downlink ports of a standard Ethernet switch delivering 10/100Mbps symmetrical (full duplex) and PoE over Multi-Pair UTP infrastructure with distances up to 2,000ft (610m). **That's 6X the reach of standard Ethernet switches**, thus removing the costs and disruptions associated with multiple IDF closet requirements.

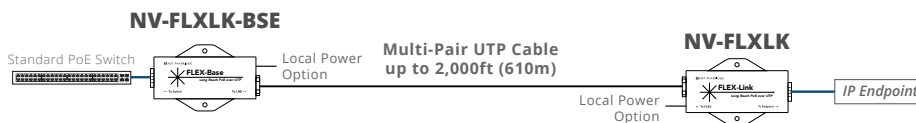
With the FLEX-Base Extender Solution, IP IoT devices can be connected to the existing Multi-Pair UTP cabling infrastructure, delivering optimal performance while saving cost, time, and environmental e-waste. Furthermore, the cost savings realized by using the FLEX Extender Solution can enable system 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 facility lighting.

## Extend the reach of standard PoE switches with the FLEX Extender Solution

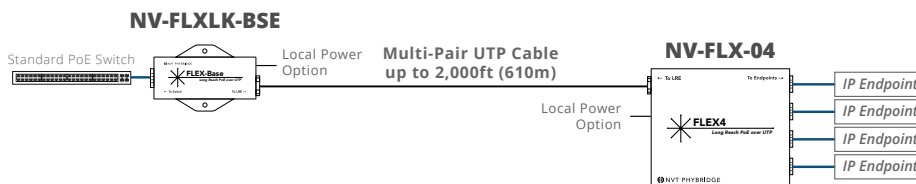
**FLEX-Base Paired with the FLEX-C** Enable 1 IP endpoint from a single long run Multi-Pair UTP cable with up to 30W of power per port



**\*FLEX-Base Paired with the FLEX-Link** Enables 1 IP endpoint from a single long run Multi-Pair UTP cable with up to 50W of power per port



**\*FLEX-Base Paired with the FLEX4** Enables 4 IP endpoints from a single long run Multi-Pair UTP cable with up to 30W of power per port



*\*Pairing options available in conveniently packaged FLEX Extender Kits*

## AT A GLANCE

(NV-FLXK-BSE)

- Base unit for 1-port long reach PoE Extender
- Negotiates with PoE switch
- When paired with FLEX-Link (50W), FLEX4 (30W) or FLEX-C (30W) Adapters, delivers PoE over 2 or 4 pair UTP with up to 2,000ft (610m) reach
- Can be locally powered
- EN 50121-4 Standard for Railway/ Subway environments

## FLEX-EXTENDER KITS

Each FLEX Extender Kit is conveniently packaged and includes a FLEX-Link or FLEX4 Adapter, a FLEX-Base Extender, and an external power supply.

### 1-Port FLEX Extender Kit (NV-FLXK-XKIT)

- Extend reach of standard PoE switch
- Single port extender solution enabling 1 IP endpoint from a single 2 or 4 pair long run UTP cable
- 10/100Mbps symmetrical (full duplex) and PoE++ (50W) over 4-pair UTP or PoE+ (30W) over 2-pair UTP with 2,000ft (610m) reach
- Up to 50W of power available for the endpoint
- Adapters can be locally powered
- Includes: FLEX-Base Extender, FLEX-Link Adapter, and a 60W, 55V external power supply


### 4-Port FLEX Extender Kit (NV-FLX-04-XKIT)

- Extend reach of standard PoE switch
- Single port extender solution enabling 4 IP endpoints from a single 2 or 4 pair long run UTP cable
- 10/100Mbps symmetrical (full duplex) and PoE++ (50W) over 4-pair UTP or PoE+ (30W) over 2-pair UTP with 2,000ft (610m) reach
- Delivers up to 30W of power per downlink port
- Adapters can be locally powered
- Includes: FLEX-Base Extender, FLEX4 Adapter, and a 110W, 55V external power supply



## FLEX-Base Technical Specifications

<b>Model</b>	FLEX-Base
<b>Part Number</b>	NV-FLXLK-BSE
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>8.8cm x 5.0cm x 2.5cm (LxWxH);</li> <li>3.46" x 1.97" x 0.98" (LxWxH)</li> </ul>
<b>Weight</b>	106g (3.74oz.)
<b>Interface: Network Infrastructure side (FLEX)</b>	1 RJ45 port: 10/100 Base-T auto-sensing, independent speed selection, Ethernet IEEE 802.3, CAT5e/6 copper cable
<b>Interface: IEEE Side (IP Device)</b>	(For General/PoE Switch) 1 RJ45 port: supports negotiation with IEEE 802.3 af/at switches
<b>Power Supply</b>	PoE from standard PoE switch, or external power supply; maximum 50W (over 4-pairs) or 30W (over 2-pairs)

<b>Power Consumption</b>	1.5W
<b>Operating temperature</b>	-40°C to 70°C Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 30W and 50°C at 50W
<b>Mean Time Before Failure (MTBF)</b>	20+ years
<b>Humidity</b>	10% to 95% (non-condensing) at 35° C
<b>Rack Mount</b>	Model NV-RMEXT 

## FLEX-Base Compliance and Agency Approval

<b>EMC</b>	Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2015 Class B 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
<b>Environment</b>	IEC 60950-1:2005+A1+A2, EN 60950-1:2006+A1+A2+A11+A12 RoHS Directive 2011/65

## Power & Distance Chart

FLEX-Base used with FLEX-Link										
	20ft (6m)	250ft (76m)	500ft (152m)	750ft (228m)	1,000ft (305m)	1,250ft (381m)	1,500ft (457m)	1,750ft (533m)	2,000ft (610m)	
Cat6 4-Pairs	47W	45	43	41	39	37	35	33	30	
Cat6 2-Pairs	31W	29	28	26	24	22	20	18	16	
Cat5e 4- Pairs	47W	44	41	39	36	33	30	27	24	
Cat5e 2-Pairs	31W	29	26	24	21	18	16	13	11	
FLEX-Base used with FLEX-C										
Cat6 4-Pairs	31W	30	29	29	28	27	26	25	24	
Cat6 2-Pairs	31W	29	28	26	24	22	20	18	16	
Cat5e 4- Pairs	31W	30	29	27	26	25	24	22	21	
Cat5e 2-Pairs	31W	29	26	24	21	18	16	13	11	
FLEX-Base used with FLEX4										
Cat6 4-Pairs	47W	45	43	41	39	37	35	33	30	
Cat6 2-Pairs	31W	29	28	26	24	22	20	18	16	
Cat5e 4- Pairs	47W	44	41	39	36	33	30	27	24	
Cat5e 2-Pairs	31W	29	26	24	21	18	16	13	11	

■ 100Mbit ■ 10Mbit

## FLEX FAMILY ADAPTER OPTIONS

### FLEX Adapter Options

There are three media converter options available to pair with the FLEX family of switches and extend PoE over Multi-Pair UTP. The FLEX-C and FLEX-Link are single endpoint solutions and the FLEX4 enables 4 IP endpoints from a single long run Multi-Pair UTP cable.

#### FLEX-C



#### FLEX-Link



#### FLEX4



	FLEX-C	FLEX-Link	FLEX4
<b>Power</b>	<ul style="list-style-type: none"> <li>Maximum 30W, delivered on 2-pairs (spare pairs)</li> <li>No local power option available</li> <li>Does not negotiate power requirements with IP device</li> <li>Device should be IEEE compliant</li> </ul>	<ul style="list-style-type: none"> <li>Maximum 50W, delivered on 4-pairs</li> <li>Local power option to support greater power delivery to IP device</li> <li>Adapter is IEEE-compliant and will negotiate power requirements with IP device</li> </ul>	<ul style="list-style-type: none"> <li>Maximum 30W, delivered on 2-pairs</li> <li>Local power option to support greater power delivery to IP device</li> <li>Adapter is IEEE-compliant and will negotiate power requirements with IP device</li> </ul>
<b>Casing</b>	Plastic	Metal	Metal
<b>Single-pair Supported</b>	No	Yes (needs local power)	Yes (needs local power)
<b>EN 50121-4 Standard</b>	No	Yes – approved to operate in a railway/subway environment	Yes – approved to operate in a railway/subway environment

### FLEX Adapters Technical Specifications

Model Number	FLEX-C	FLEX-Link	FLEX4
<b>Part Number</b>	NV-FLXK-C	NV-FLXK	NV-FLX-04
<b>Dimensions</b>	8.1cm x 3.8cm x 2.3cm (LxWxH); 3.19" x 1.50" x 0.90" (LxWxH)	8.8cm x 5.0cm x 2.5cm (LxWxH); 3.46" x 1.97" x 0.98" (LxWxH)	9.8cm x 9.6cm x 2.5cm (LxWxH); 3.86" x 3.78" x 0.98" (LxWxH)
<b>Weight</b>	44g (1.5oz.)	106g (3.74oz.)	214 g (7.6 oz.)
<b>Interface: Network Infrastructure side (FLEX)</b>	1 RJ45 port: UTP/STP cable (2-pair or 4-pair)	1 RJ45 port: UTP/STP cable (1-pair, 2-pair or 4-pair)	1 RJ45 port: UTP /STP cable (1-pair, 2-pair or 4-pair)
<b>Interface: IEEE Side (IP Device)</b>	1 RJ45 port; device must be IEEE 802.3 af/at compliant, 10/100Mbps connection to IP end device	1 RJ45 port; device must be IEEE 802.3 af/at compliant 50W, 10/100Mbps connection to IP end device	4 RJ45 ports; device must be IEEE 802.3 af/at compliant, 10/100Mbps connection to IP end device
<b>Power Supply</b>	PoE from the FLEX24 switch or local power from FLEX-Base, maximum 30W (over 2-pairs)	PoE from the FLEX24 switch or external power supply; maximum 50W (over 4-pairs) or 30W (over 2-pairs)	PoE from the FLEX switch, or external power supply; maximum 30W (over 2-pairs) each port
<b>DC IN (Barrel Connector)</b>		Optional (sold separately) 48V – 58VDC via an external AC/DC Power Adapter (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 – 58VDC via an external AC/DC Power Adapter (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.
<b>Power Consumption</b>	1.3W	1.5W	1.5W
<b>Operating Temperature</b>	-40°C to 70°C <i>Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 15W and 50°C at 30W</i>	-40°C to 70°C <i>Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 30W and 50°C at 50W</i>	-40°C to 70°C <i>Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 64W and 55°C at 120W</i>
<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

### FLEX Adapters Compliance and Agency Approval

<b>EMC</b>	Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2015 Class A (FLEX4), Class B (FLEX-C and FLEX-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 60950-1:2005+A1+A2, EN 60950-1:2006+A1+A2+A11+A12
<b>Environment</b>	RoHS Directive 2011/65