

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.

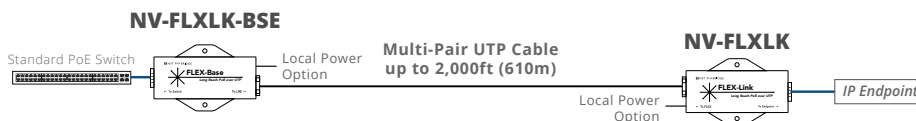
With the FLEX-Base Extender Solution, IP IoT devices can be connected to the existing Multi-Pair UTP cabling infrastructure, delivering optimal performance while saving cost, time, and environmental e-waste. Furthermore, the cost savings realized by using the FLEX Extender Solution can enable system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

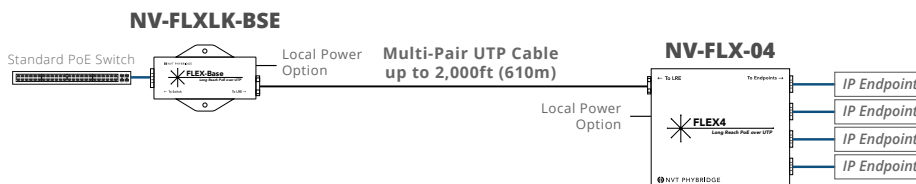
FLEX-Base Paired with the FLEX-C Enable 1 IP endpoint from a single long run Multi-Pair UTP cable with up to 30W of power per port



***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

| | |
|--|---|
| Model | FLEX-Base |
| Part Number | NV-FLXK-BSE |
| Dimensions | <ul style="list-style-type: none"> 8.8cm x 5.0cm x 2.5cm (LxWxH); 3.46" x 1.97" x 0.98" (LxWxH) |
| Weight | 106g (3.74oz.) |
| Interface: Network Infrastructure side (FLEX) | 1 RJ45 port: 10/100 Base-T auto-sensing, independent speed selection, Ethernet IEEE 802.3, CAT5e/6 copper cable |
| 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 (over 4-pairs) or 30W (over 2-pairs) |

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|--|--|
| Power Consumption | 1.5W |
| Operating temperature | -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 |
| Mean Time Before Failure (MTBF) | 20+ years |
| Humidity | 10% to 95% (non-condensing) at 35° C |
| Rack Mount | Model NV-RMEXT  |

FLEX-Base Compliance and Agency Approval

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|--------------------|--|
| 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 |
| Environment | 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 |
|------------------------------|---|--|--|
| Power | <ul style="list-style-type: none"> Maximum 30W, delivered on 2-pairs (spare pairs) No local power option available Does not negotiate power requirements with IP device Device should be IEEE compliant | <ul style="list-style-type: none"> Maximum 50W, delivered on 4-pairs Local power option to support greater power delivery to IP device Adapter is IEEE-compliant and will negotiate power requirements with IP device | <ul style="list-style-type: none"> Maximum 30W, delivered on 2-pairs Local power option to support greater power delivery to IP device Adapter is IEEE-compliant and will negotiate power requirements with IP device |
| Casing | Plastic | Metal | Metal |
| Single-pair Supported | No | Yes (needs local power) | Yes (needs local power) |
| EN 50121-4 Standard | 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 |
|--|--|--|--|
| Part Number | NV-FLXK-C | NV-FLXK | NV-FLX-04 |
| Dimensions | 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) |
| Weight | 44g (1.5oz.) | 106g (3.74oz.) | 214 g (7.6 oz.) |
| Interface: Network Infrastructure side (FLEX) | 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) |
| Interface: IEEE Side (IP Device) | 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 |
| Power Supply | 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 |
| DC IN (Barrel Connector) | | 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. |
| Power Consumption | 1.3W | 1.5W | 1.5W |
| Operating Temperature | -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> |
| 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 |

FLEX Adapters Compliance and Agency Approval

| | |
|--------------------|---|
| EMC | 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 |
| Safety | 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 |
| Environment | RoHS Directive 2011/65 |