IP MIGRATION MADE SIMPLE

NVT PHYBRIDGE
**FLEX ADAPTERS & EXTENDERS**
DATA SHEET

FLEX-Link FLEX-C FLEX4 FLEX-Base




## FLEX Adapters & Extenders

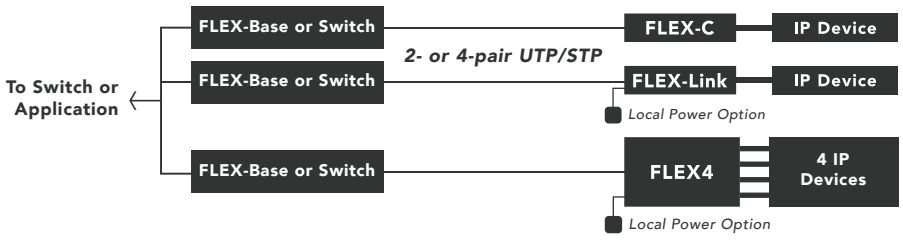
The FLEX series of adapters and extenders are designed to extend PoE far beyond standard Ethernet reach. When used with the FLEX24 Switch or the FLEX-Base Extender, the FLEX adapters can deliver 10/100Mbps (symmetrical, full duplex) and PoE (up to 50W) over 1- (needs local power), 2-, or 4-pair UTP/STP with up to 2,000ft (610m) reach. This helps eliminate the costs and disruptions associated with IDF closet requirements. There are three adapter options that provide deployment flexibility:

- FLEX-Link is IEEE-compliant and negotiates power requirements with an IP device, delivers 50W of power over 4-pairs, and can be locally powered.
- FLEX-C supports IEEE-compliant devices with lower power requirements.
- FLEX4 is IEEE-compliant and negotiates power requirements with up to 4 IP devices, delivers 30W of power over 2-pairs, and can be locally powered

| | FLEX-Link | FLEX-C | FLEX4 |
|---|---|---|---|
| Power | • Maximum 50W, delivered on 4-pairs<br>• Local power option to support greater power delivery to IP device<br>• Adapter is IEEE-compliant and will negotiate power requirements with IP device | • Maximum 30W, delivered on 2-pairs (spare pairs)<br>• No local power option available<br>• Does not negotiate power requirements with IP device<br>• Device should be IEEE compliant | • Maximum 30W, delivered on 2-pairs<br>• Local power option to support greater power delivery to IP device<br>• Adapter is IEEE-compliant and will negotiate power requirements with IP device |
| Casing | Metal | Plastic | Metal |
| Single-pair Supported | Yes (needs local power) | No | Yes (needs local power) |
| EN 50121-4 Standard | Yes (Approved to operate in a Railway/Subway environment) | No | Yes (Approved to operate in a Railway/Subway environment) |

## FLEX Adapter Applications

10/100Mbps (full duplex, symmetrical) and PoE++ over multi-pair UTP/STP with 2,000ft (610M) reach




## Features

- 10/100BASE-T(X) Ethernet with PoE++ (up to 50W)
- 10/100Mbps, full duplex data rate
- Power Injection or Pass-through PoE++ over standard UTP or STP cable
- Up to 2,000ft (610m) at 100Mbps over 4-pair, or at 10Mbps over 1- (needs local power) or 2-pair
- Operating temperature from -40°C to +70°C
- Supports Multicast, Unicast and Broadcast
- Auto detect data rate for maximum bandwidth and transmission distance utilization
- Compliant with all major IP and IEEE standards for RFC network protocols such as UDP and TCP.
- EN 50121-4 Standard for Railway/ Subway environments (FLEX-Base, FLEX-Link and FLEX4)
- LED indicators for operating status
- Designed and manufactured in North America
- 5-Year Warranty
- FLEX-Base, FLEX-Link and FLEX4 can be locally powered
- Power consumption: 1.5W or less

## FLEX Extender Kits

The FLEX Extender Kits are single-port extender solutions.

**1-Port Extender Kit** (NV-FLXLK-XKIT)
- 1 x FLEX-Base unit
- 1 x FLEX-Link adapter
- 1 x 60W, 55V power supply

**4-Port Extender Kit** (NV-FLX-04-XKIT)
- 1 x FLEX-Base unit
- 1 x FLEX4 adapter
- 1 x 110W, 55V power supply

CHARIOT
by NVT Phybridge

## Bandwidth Availability for FLEX Extender Kit (FLEX-Base, FLEX-Link, 60W, 55V power supply)

| | |
|---|---|
| 4-Pair UTP/STP | 100Mbps full duplex, symmetrical to 2,000ft (610m) |
| 2-Pair UTP/STP | 100Mbps full duplex, symmetrical to 1,000ft (305m), 10Mbps full duplex, symmetrical from 1,000ft (305m) to 2,000ft (610m) |
| 1-Pair UTP/STP | 10Mbps full duplex, symmetrical to 2,000ft (610m) - Only with the FLEX-Link locally-powered |

## PoE Power Available to FLEX-Link, FLEX4 and FLEX-C

| FLEX-Link/FLEX4 | 20ft (6m) | 250ft (76m) | 500ft (152m) | 750ft (228m) | 1,000ft (305m) | 1,250 (381m) | 1,500ft (457m) | 1,750ft (533m) | 2,000ft (610m) |
|---|---|---|---|---|---|---|---|---|---|
| 4-Pair UTP/STP | 50W | 47W | 44W | 41W | 38W | 35W | 32W | 30W | 27W |
| 2-Pair UTP/STP | 30W | 30W | 27W | 25W | 22W | 20W | 17W | 14W | 12W |

The FLEX-Link can support up to 50W of power using all 4-pairs or maximum of 30W using 2-pairs. FLEX4 can accept up to 120W of power and it can output up to 30W of power for 802.3af/at compliant devices. To account for cable losses and increase PoE delivery, the FLEX-Link and FLEX4 adapters have the option of using a local external power supply. The FLEX-Link and FLEX4 are IEEE-compliant and will negotiate power with the IP device.

| FLEX-C | 20ft (6m) | 250ft (76m) | 500ft (152m) | 750ft (228m) | 1,000ft (305m) | 1,250 (381m) | 1,500ft (457m) | 1,750ft (533m) | 2,000ft (610m) |
|---|---|---|---|---|---|---|---|---|---|
| 4-Pair UTP/STP | 30W | 30W | 30W | 29W | 27W | 26W | 25W | 23W | 22W |
| 2-Pair UTP/STP | 30W | 30W | 27W | 25W | 22W | 20W | 17W | 14W | 12W |

The FLEX-C supports IEEE-compliant devices and can support up to 30W of power using 2-pairs. If additional power is required use the FLEX-Link instead.

## FLEX Adapter Technical Specifications

| Model Number | FLEX-C | FLEX-Link | FLEX-Base | FLEX4 |
|---|---|---|---|---|
| Part Number | NV-FLXLK-C | NV-FLXLK | NV-FLXLK-BSE | 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 5.5cm x 2.5cm (LxWxH); 3.46" x 2.16" x 0.98" (LxWxH) | 8.8cm x 5.5cm x 2.5cm (LxWxH); 3.46" x 2.16" 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.) | 114g (4oz.) | 114g (4oz.) | 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 (2-pair or 4-pair) | 1 RJ45 port: UTP/STP cable (2-pair or 4-pair) | 1 RJ45 port: UTP /STP cable (2-pair or 4-pair) |
| Interface: IEEE Side (IP Device) | 1 RJ45 port; device must be IEEE 802.3 af/at compliant | 1 RJ45 port; device must be IEEE 802.3 af/at compliant 50W, 10/100Mbps connection to IP end device | (For General/PoE Switch)<br>1 RJ45 port: supports negotiation with IEEE 802.3 af/at switches | 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 standard PoE 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)<br>48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only)<br>NOTE 1: Local power supply used must have its output isolated from Earth potential.<br>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)<br>48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only)<br>NOTE: local power supply must have its output isolated from Earth potential. | Optional (sold separately)<br>48V – 56VDC via an external AC/DC Power Adapter (IEC Class II isolated only)<br>NOTE 1: Local power supply used must have its output isolated from Earth potential.<br>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 | 1.5W |
| Operating Temperature | -40°C to 70°C<br>*Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 15W and 50°C at 30W* | -40°C to 70°C<br>*Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 30W and 50°C at 50W* | -40°C to 70°C<br>*Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 30W and 50°C at 50W* | -40°C to 70°C<br>*Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 64W and 55°C at 120W* |
| Mean Time Before Failure (MTBF) | 20+ years | 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 | 10% to 95% (non-condensing) at 35° C |

## Compliance and Agency Approval

| | |
|---|---|
| EMC | Emission (Class A for FLEX4 and Class B for FLEX-Link, FLEX-Base, FLEX-C): EN 55032:2012, FCC Part 15, EN 50121-4:2015 (FLEX4, FLEX-Link, FLEX-Base)<br>Immunity: EN 55024:2010, EN 50121-4:2015 (FLEX4, FLEX-Link, FLEX-Base) |
| Safety | UL 60950-1 2nd Ed 2014-10-14, CSA C22.2 No. 60950-1-07 2nd Ed 2014-10<br>IEC 60950-1:2005 + A1 + A2, EN 60950-1:2006 + A11 + A12 + A1 + A2 |
| Environment | EU RoHS Directive 2011/65 |