

# NVT PHYBRIDGE FLEX8 DATASHEET



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

### **FLEX8 Unmanaged Switch**

The plug and play FLEX8 unmanaged switch makes the modernization to IP devices (IoT) simple, secure and cost-effective. When paired with the FLEX Adapters, this powerful enterprise-grade switch delivers fast Ethernet and PoE over Multi-Pair UTP with up to 2,000ft (610m) reach - **that's 6Xs the reach of standard Ethernet switches.**

With the FLEX8, customers are taking full advantage of Modern LAN principles, protecting existing infrastructure assets, and eliminating any need to rip and replace the established UTP cabling. The FLEX8 unmanaged switch optimizes network design with advanced interoperability and easy integration into the overall LAN creating a secure, robust path for IP endpoints.

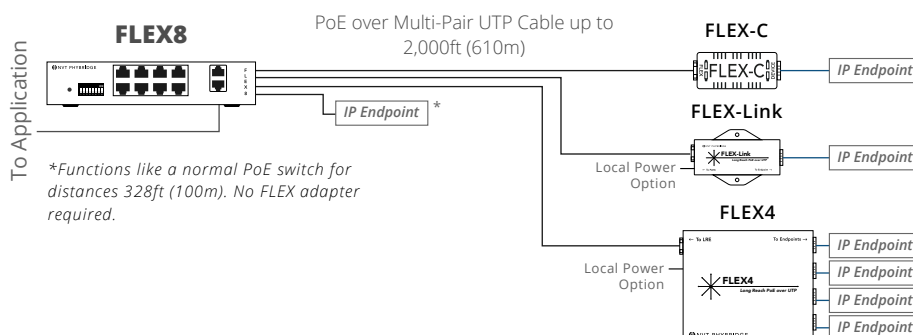
- Accelerate your return on investment by reducing infrastructure costs.
- Simplify your IP modernization, collapsing planning and deployment time.
- Eliminate infrastructure barriers, risks, disruption and costs.
- Create a robust plug-and-play IP platform that is easy to deploy and manage.
- Be environmentally responsible during your IP upgrades.

### **Speed, Reach and Power**

FLEX8 delivers 10/100Mbps symmetrical (full duplex) and PoE++ (50W) over 4-pair UTP or PoE+ (30W) over 2-pair UTP with 2,000ft (610m) reach, providing substantial power to support bandwidth demanding IP endpoints easily and reliably.

### **Simple Deployment**

FLEX8 comes preconfigured and ready to deploy, making modernization to IP quick and efficient in organizations of every size. Modernizing multiple sites is greatly simplified with a repeatable, predictable and scalable deployment methodology across every location.



## **AT A GLANCE**

(NV-FLX-08)

- 8-port plug-and-play long reach PoE switch
- 10/100Mbps symmetrical (full duplex) and PoE++ (50W) over 4-pair UTP or PoE+ (30W) over 2-pair UTP with 2,000ft (610m) reach
- 2 x 1GB uplink ports
- 190W external power supply
- EN 50121-4 Standard for Railway/ Subway environments



## FLEX8 Technical Specifications

|                                                    |                                                                                                                                                                                    |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model</b>                                       | FLEX8                                                                                                                                                                              |
| <b>Part Number</b>                                 | NV-FLX-08                                                                                                                                                                          |
| <b>Dimensions</b>                                  | <ul style="list-style-type: none"> <li>7.09" x 4.53" x 1.45" (LxWxH)</li> <li>18cm x 11.5cm x 3.68cm, (LxWxH)</li> </ul>                                                           |
| <b>Weight</b>                                      | 1.3 lbs (0.59 kgs)                                                                                                                                                                 |
| <b>Mounting</b>                                    | Standalone, rack or shelf-mountable; 2 brackets included for installation                                                                                                          |
| <b>Interface: Ethernet Uplink (Trunk IP)</b>       | 2 RJ45 ports: 10/100/1000 Base-T autosensing, independent speed selection, Ethernet IEEE 802.3, CAT5e copper cable                                                                 |
| <b>Interface: Downlink (PoE and IP to Adapter)</b> | 8 x RJ45 Jacks<br>Speed: 10/100Mb/s (full duplex)<br>PoE Power: <ul style="list-style-type: none"> <li>50 Watts Maximum on 4-Pairs</li> <li>30 Watts Maximum on 2-Pairs</li> </ul> |

|                              |                                                                                                                                                            |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power Supply</b>          | 48-58VDC (55VDC, 190W power supply included)                                                                                                               |
| <b>Power Consumption</b>     | 6W                                                                                                                                                         |
| <b>Power Injection (PoE)</b> | DC voltage: 48VDC to 58VDC<br>IEEE 802.3af/at<br>If power is provided on all 4-pairs then maximum 50W;<br>If power is provided on 2-pairs then maximum 30W |
| <b>Operating temperature</b> | +14°F to +149°F (-10°C to +65°C)<br>Tests conducted against international safety standard at maximum ambient temperatures of +104°F (40°C)                 |
| <b>Humidity</b>              | 10% to 95% (non-condensing) at +95°F (+35°C)                                                                                                               |

## FLEX8 Compliance and Agency Approval

|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>EMC</b>         | Emissions: FCC Part 15, ICES-003, EN 55032:2012, EN 50121-4:2015<br>Class A<br>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 62368-1:2014, EN 62368-1:2014, AS/NZS 62368.1:2018 |
| <b>Environment</b> | RoHS Directives 2011/65 and 2015/863                                                                                             |

## Power & Distance Table

| FLEX8 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             |
| FLEX8 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             |
| FLEX8 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>   | Yes – approved to operate in a railway/subway environment                                                                                                                                                                                         |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                        |

### FLEX Adapters Technical Specifications

| Model                                                | FLEX-C                                                                                                                                       | FLEX-Link                                                                                                                                                                                                                                                                                                                                                      | FLEX4                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Part Number</b>                                   | NV-FLXLC-C                                                                                                                                   | NV-FLXLK                                                                                                                                                                                                                                                                                                                                                       | NV-FLX-04                                                                                                                                                                                                                                                                                                                                                      |
| <b>Dimensions</b>                                    | 8.1cm x 3.8cm x 2.3cm (LxWxH);<br>3.19" x 1.50" x 0.90" (LxWxH)                                                                              | 8.8cm x 5.0cm x 2.5cm (LxWxH);<br>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 FLEX switch or from FLEX-Base, maximum 30W (over 2-pairs)                                                                       | PoE from the FLEX 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)<br>48V – 58VDC 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 – 58VDC 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. |
| <b>Power Consumption</b>                             | 1.3W                                                                                                                                         | 1.5W                                                                                                                                                                                                                                                                                                                                                           | 1.5W                                                                                                                                                                                                                                                                                                                                                           |
| <b>Operating Temperature</b>                         | -40°C to 70°C<br><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<br><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<br><i>Tests conducted against international safety standard at maximum ambient temperatures of 60°C at 64W and 55°C at 120W</i>                                                                                                                                                                                                                  |
| <b>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<br>Class A (FLEX4), Class B (FLEX-C and FLEX-Link)<br>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 62368-1:2014, EN 62368-1:2014, AS/NZS 62368.1:2018                                                                                                          |
|                    | RoHS Directives 2011/65 and 2015/863                                                                                                                            |