**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

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**AT A GLANCE (NV-FLXLK-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-EXTEENDER 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-FLXLK-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**

<table>
<thead>
<tr>
<th>Model</th>
<th>FLEX-Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>NV-FLXLK-BSE</td>
</tr>
</tbody>
</table>
| Dimensions | • 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) |

**Power & Distance Chart**

**FLEX-Base used with FLEX-Link**

<table>
<thead>
<tr>
<th>20ft (6m)</th>
<th>250ft (76m)</th>
<th>500ft (152m)</th>
<th>750ft (228m)</th>
<th>1,000ft (305m)</th>
<th>1,250ft (381m)</th>
<th>1,500ft (457m)</th>
<th>1,750ft (533m)</th>
<th>2,000ft (610m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat6 4-Pairs</td>
<td>47W</td>
<td>45</td>
<td>43</td>
<td>41</td>
<td>39</td>
<td>37</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Cat6 2-Pairs</td>
<td>31W</td>
<td>29</td>
<td>28</td>
<td>26</td>
<td>24</td>
<td>22</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Cat5e 4-Pairs</td>
<td>47W</td>
<td>44</td>
<td>41</td>
<td>39</td>
<td>36</td>
<td>33</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>Cat5e 2-Pairs</td>
<td>31W</td>
<td>29</td>
<td>26</td>
<td>24</td>
<td>21</td>
<td>18</td>
<td>16</td>
<td>13</td>
</tr>
</tbody>
</table>

**FLEX-Base used with FLEX-C**

<table>
<thead>
<tr>
<th>20ft (6m)</th>
<th>250ft (76m)</th>
<th>500ft (152m)</th>
<th>750ft (228m)</th>
<th>1,000ft (305m)</th>
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<th>1,750ft (533m)</th>
<th>2,000ft (610m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat6 4-Pairs</td>
<td>31W</td>
<td>30</td>
<td>29</td>
<td>29</td>
<td>28</td>
<td>27</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>Cat6 2-Pairs</td>
<td>31W</td>
<td>29</td>
<td>28</td>
<td>26</td>
<td>24</td>
<td>22</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Cat5e 4-Pairs</td>
<td>31W</td>
<td>30</td>
<td>29</td>
<td>27</td>
<td>26</td>
<td>25</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Cat5e 2-Pairs</td>
<td>31W</td>
<td>29</td>
<td>26</td>
<td>24</td>
<td>21</td>
<td>18</td>
<td>16</td>
<td>13</td>
</tr>
</tbody>
</table>

**FLEX-Base used with FLEX4**

<table>
<thead>
<tr>
<th>20ft (6m)</th>
<th>250ft (76m)</th>
<th>500ft (152m)</th>
<th>750ft (228m)</th>
<th>1,000ft (305m)</th>
<th>1,250ft (381m)</th>
<th>1,500ft (457m)</th>
<th>1,750ft (533m)</th>
<th>2,000ft (610m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat6 4-Pairs</td>
<td>47W</td>
<td>45</td>
<td>43</td>
<td>41</td>
<td>39</td>
<td>37</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Cat6 2-Pairs</td>
<td>31W</td>
<td>29</td>
<td>28</td>
<td>26</td>
<td>24</td>
<td>22</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Cat5e 4-Pairs</td>
<td>47W</td>
<td>44</td>
<td>41</td>
<td>39</td>
<td>36</td>
<td>33</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>Cat5e 2-Pairs</td>
<td>31W</td>
<td>29</td>
<td>26</td>
<td>24</td>
<td>21</td>
<td>18</td>
<td>16</td>
<td>13</td>
</tr>
</tbody>
</table>

**FLEX-Compliance and Agency Approval**

**EMC**

- Class B

**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

**Power Supply**

- PoE from standard PoE switch, or external power supply; maximum 50W (over 4-pairs) or 30W (over 2-pairs)

**Rack Mount**

- Model NV-RMEXT

For more information, visit: [www.nvphybridge.com](http://www.nvphybridge.com)
**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

- **Power**
  - 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

- **Casing**
  - Plastic

- **Single-pair Supported**
  - No

**EN 50121-4 Standard**
- Yes – approved to operate in a railway/subway environment

### FLEX-Link

- **Power**
  - 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

- **Casing**
  - Metal

- **Single-pair Supported**
  - Yes (needs local power)

**EN 50121-4 Standard**
- Yes – approved to operate in a railway/subway environment

### FLEX4

- **Power**
  - 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**
  - Metal

- **Single-pair Supported**
  - Yes (needs local power)

**EN 50121-4 Standard**
- Yes – approved to operate in a railway/subway environment

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**FLEX Adapters Technical Specifications**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>FLEX-C</th>
<th>FLEX-Link</th>
<th>FLEX4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>NV-FLXLK-C</td>
<td>NV-FLXLK</td>
<td>NV-FLX-04</td>
</tr>
<tr>
<td>Dimensions</td>
<td>8.1cm x 3.8cm x 2.3cm (LxWxH)</td>
<td>8.8cm x 5.0cm x 2.5cm (LxWxH)</td>
<td>9.8cm x 9.6cm x 2.5cm (LxWxH)</td>
</tr>
<tr>
<td>Weight</td>
<td>44g (1.5oz.)</td>
<td>106g (3.74oz.)</td>
<td>214 g (7.6 oz.)</td>
</tr>
<tr>
<td>Interface: Network Infrastructure side (FLEX)</td>
<td>1 RJ45 port: UTP/STP cable (2-pair or 4-pair)</td>
<td>1 RJ45 port: UTP/STP cable (1-pair, 2-pair or 4-pair)</td>
<td>4 RJ45 ports: device must be IEEE 802.3 af/at compliant, 10/100Mbps connection to IP end device</td>
</tr>
<tr>
<td>Interface: IEEE Side (IP Device)</td>
<td>1 RJ45 port; device must be IEEE 802.3 af/at compliant, 10/100Mbps connection to IP end device</td>
<td>1 RJ45 port; device must be IEEE 802.3 af/at compliant, 10/100Mbps connection to IP end device</td>
<td>4 RJ45 ports: device must be IEEE 802.3 af/at compliant, 10/100Mbps connection to IP end device</td>
</tr>
<tr>
<td>Power Supply</td>
<td>PoE from the FLEX24 switch or local power from FLEX-Base, maximum 30W (over 2-pairs)</td>
<td>PoE from the FLEX24 switch or external power supply; maximum 50W (over 4-pairs) or 30W (over 2-pairs)</td>
<td>PoE from the FLEX switch, or external power supply; maximum 30W (over 2-pairs) each port</td>
</tr>
</tbody>
</table>
| 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. | 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 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 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 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 |
| 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**
  Class A (FLEX4), Class B (FLEX-C and FLEX-Link)  

**Safety**
- UL 60950-1 and 2nd Ed 2014-10-14, CAN/CSA C22.2 No. 60950-1-07 2nd Ed 2014-10  
  IEC 60950-1:2006+A1+A2, EN 60950-1:2006+A1+A2+A11+A12

**Environment**
- RoHS Directive 2011/65

For more information, visit: [www.nvtphybridge.com](http://www.nvtphybridge.com)  
NV-FLXLK-BSE-7.27.2020