NVT PHYBRIDGE

NVT Phybridge enables our customers to transform their existing infrastructure and migrate to IP with confidence. NVT Phybridge products offer technologically advanced features including power over long reach Ethernet over single pair or multi pair UTP and COAX, robust power and power management, PowerWISE power sharing and quick and easy migration to IP end points and IoT. Complete switch solutions include PoLRE, CLEER and FLEX products. Complete adapter solutions include PhyLink, EC-LINK, EC-04, FLEX-Base, FLEX-Link, FLEX-Link-C and FLEX 04 media converters and cable extenders.

For additional information, contact:

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POWER OVER LONG REACH UTP NETWORK EXTENDER

DIVISION 27 – COMMUNICATIONS

27 20 00   Data Communications

27 21 00   Data Communications Network Equipment

27 21 29   Switches & Hubs

Notes to Specifier:

1. Where several alternative parameters or specifications exist, or where, the specifier has the option of inserting text, such choices are presented in **<bold text>**.
2. Explanatory notes and comments are presented in coloured text.

POWER OVER LONG REACH UTP NETWORK EXTENDER

PART 1 GENERAL

1.01   SUMMARY

    A.   Section includes a Single port 10/100Mbps Ethernet-over-UTP extender with power capability.

    B.   Product – The FLEX Base Ethernet Extender delivers Ethernet and Power over UTP cable with multiple times the reach of traditional data switches.

    C.   Related Requirements

        (1)   27 10 00 Structured Cabling

        (2)   27 16 00 Communications Connecting Cords, Device, and Adapters

        (3)   27 16 16 Communications Media Converters, Adapters, and Transceivers

        (4)   27 30 00 Voice Communications

        (5)   27 31 23 IP Voice Switch

1.02   REFERENCES

    A.   Abbreviations

        (1)   DVR – Digital Video Recorder

        (2)   GbE – Gigabit Ethernet

        (3)   GBIC – GigaBit Interface Converter

        (4)   GUI – Graphical User Interface

        (5)   IoT – Internet of Things

        (6)   IP – Internet Protocol

        (7)   LAN – Local Area Network

        (8)   LLDP – Link Layer Discovery Protocol

        (9)   Mbps – Megabits per second

        (10)   NTP – Network Time Protocol

        (11)   NVR – Network Video Recorder

        (12)   PoE – Power over Ethernet

        (13)   PoLRE – Power over Long Reach Ethernet

        (14)   SFP – Small Form-factor Pluggable

        (15)   SNMP – Simple Network Management Protocol

        (16)   STP – Spanning Tree Protocol

        (17)   UPoE – Cisco Ultra PoE standard

        (18)   UTP – Un-Twisted Pair wiring

        (19)   VLAN – Virtual LAN

    B.   Reference Standards

        (1)   Network

            (a)   IEEE – 802.3 Ethernet Standards

        (2)   EMC

            (a)   Emissions

                (i)   FCC Part 15, Class B

                (ii)   EN 55032:2012

                (iii)   EN 50121-4:2015

          (b) Immunity
              (i) EN 55024:2010
              (ii) EN 50121-4:2015
      (3) Safety
          (a) UL 60950-1 2nd Ed 2014-10-14
          (b) CSA C22.2 No. 60950-1-07 2nd Ed 2014-10
          (c) IEC 60950-1:2005 + A1 + A2
          (d) EN 60950-1:2006 + A11 + A12 + A1 + A2
      (4) Environment
          (a) EU RoHS Directive 2011/65

1.03   SUBMITTALS

    A. Product data
      (1) Data sheets
      (2) Installation and operation manuals
      (3) DoC (declaration of conformity)
      (4) Warranty documentation

1.04   QUALIFICATIONS

    A. Manufacturer shall have a minimum of five years' experience in producing Ethernet switch equipment.

    B. Installers shall be trained and authorized by the Manufacturer to install, integrate, test and commission the system.

1.05   DELIVERY, STORAGE AND HANDLING

    A. Deliver the device in the manufacturer's original, unopened, undamaged container with identification labels intact.

    B. Store the device in a temperature environment of -40°C to 85°C (-104°F to 185°F), protected from mechanical and environmental conditions as designated by the manufacturer.

1.06   WARRANTY AND SUPPORT

    A. Manufacturer shall provide a limited 5 year warranty for the product to be free of defects in material and workmanship.

END OF SECTION

PART 2 PRODUCTS

2.01   EQUIPMENT

    A.   Manufacturer: NVT Phybridge, Inc.

                             3457 Superior Court, Unit 3

                             Oakville, ON, Canada L6L 0C4

                             Phone: +1 905 901-3633

                             Web: www.nvtphybridge.com

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    B.   Model NV-FLXLK-BSE

    C.   Alternates: None

2.02   GENERAL DESCRIPTION

    A.   The FLEX Base shall provide Ethernet and PoE over UTP cable with up to five times the reach of traditional data switches.

    B.   The FLEX Base shall possess the following characteristics:

        (1)   capable of delivering up to 50W of PoE to the IP end-point

        (2)   pairs with a FLEX-Link or FLEX-Link-C to operate in long-reach mode as an Ethernet Extender

        (3)   capable of operating in IEEE mode supporting standard Ethernet cable lengths (100m) directly connected to end-points (no adapter required)

        (4)   capable of operating in FLEX mode supporting extended UTP cable lengths when paired with a FLEX-Link or FLEX-Link-C adapter

        (5)   converts conventional Ethernet to a signal that can be carried by various types of UTP cable

        (6)   uses previously installed UTP cable to connect IP network end-points such as IP cameras, IP phones, network switches, DVR/NVRs, PCs, and printers

        (7)   capable of being powered via a PoE switch, FLEX 24 switch or local external power supply

2.03   INTERFACES

    A.   Ethernet (Uplink)

        (1)   One Ethernet RJ45 connector. This connection supports a standard Ethernet cable: patch or crossover Cat5e/Cat6.

        (2)   The RJ45 shall support 10/100 BaseT full or half duplex and auto-negotiation of the transmission rate.

    B.   Ethernet (Downlink)

        (1)   The FLEX-Base shall have a single RJ45 connector for the downlink port. It will support 1-pair, 2-pair or 4-pair UTP cable with a nominal characteristic impedance of 100 ohms.

        (2)   Maximum cable distances are specified as:

            (a)   4-Pair UTP/STP – 100Mbps to 610m (2000ft),

            (b)   2-Pair UTP/STP – 100Mbps to 305m (1000ft),

            (c)   2-Pair UTP/STP – 10Mbps from 305m (1000ft) to 610m (2000ft)

            (d)   1-Pair UTP/STP – 10Mbps to 610m (2000ft) – [Only with FLEX-Link locally powered]

    (3) The maximum data through-put shall be 200Mbps (total up plus down) and shall auto adapt to the cable conditions. This will support 100Mbps communication in both directions.

    (4) The Ethernet Downlink port shall support either 10Mbps or 100Mbps (cable & distance dependant) with no bandwidth sharing.

    (5) There shall be no signal degradation from 0m to the maximum supported distances.

C. Power Input

    (1) The FLEX-Base shall have a single DC in barrel connector capable of supporting a power barrel plug with the dimensions 2.1mm ID and 5.5mm OD

2.04 INDICATORS

A. Ethernet Uplink

    (1) The Ethernet RJ45 connector shall have two LEDs to indicate network connection status: Link status (green) and activity status (amber).

    (2) The link status LED indicates the following: Off – no connection, On – link good.

    (3) The activity status LED indicates the following: Off – no activity, Flashing – network activity.

B. Ethernet Downlink

    (1) The downlink port shall have two LEDs to indicate connection status: Link/speed status (green or amber) and activity status (amber).

    (2) The link/speed LED indicates the following status: Off – no link, green – link good with network speed of 100Mbps, Amber – link good with network speed of 10Mbps.

    (3) The activity status LED indicates the following; Off – no activity, Flashing – network activity.

2.05 PoE

A. The FLEX-Base shall provide up to 50 watts of power over the UTP connection to the end-point device on a 4-pair cable and 30 watts on a 2-pair cable.

B. The FLEX-Base shall be capable of being powered via PoE from a PoE switch or the FLEX 24 switch

C. The FLEX-Base Ethernet uplink port shall follow standard PoE power negotiation.

D. The FLEX-Base Ethernet downlink port shall be PoE 'always-on'

E. The end-point device must be IEEE 802.3af, 802.3at compliant or Cisco UPoE compatible in order to be powered using PoE.

2.06 ELECTRICAL

A. Power

    (1) Sources

        (a) PoE Switch

        (b) FLEX 24 Switch

        (c) Local External DC PSU, Class II, Efficiency VI, Input voltage 100-240VAC, 50-60Hz, Output voltage 55VDC / 1A or 2A, Output connector: power barrel plug, (2.1mm ID and 5.5mm OD)

    (2) Power consumption

        (a) 1.5W (not including PoE end-points)

    (3) Power injection (PoE)

(a) -54VDC, 50W – end-point devices must be IEEE 802.3af/at compliant or Cisco UPoE compatible to use the power injection

B. Connectors
    (1) Ethernet
        (a) RJ45 (1) – Ethernet uplink port
        (b) RJ45 (1) – long reach Ethernet + power connection
    (2) External power
        (a) DC power: 1 DC barrel connector

2.07   MECHANICAL AND ENVIRONMENTAL
A. Housing material: Powder coated steel
B. Mounting   Desk or Wall Mountable
C. Dimensions (H x W x D):   3.46in. x 2.16in. x 0.98in. (88mm x 55mm x 25mm)
D. Weight: 114g
E. Thermal: Air cooled
F. Temperature
    (1) Operating: -40°C to 70°C (40°F to 158°F)
    (2) Storage: -40°C to 85°C (-104°F to 185°F)
G. Humidity: 10 – 95%, non-condensing @ 35°C
H. MTBF (Mean Time Between Failure):   20+ Years (175,200+ Hours)

END OF SECTION

PART 3 EXECUTION

3.01   INSTALLERS

    A.   Contractor personnel

3.02   PREPARATION

    A.   The network design and configuration shall be verified for compatibility and performance with the camera(s)

    B.   Network configuration shall be tested and qualified by the Contractor prior to camera installation.

3.03   INSTALLATION

    A.   Before permanent installation of the system, the system shall be factory tested in conditions simulating the final installed environment

       (1) A report indicating successful test results shall be produced.

3.04   STORAGE

    A.   The product shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION