Vi2701RX UTP Ethernet and PoE Extender Installation Manual

The MaxiiCopper Model Vi2701RX is a revolutionary transmission device that extends full-duplex High-Speed Ethernet and High power PoE over existing UTP infrastructures. It extends 10BaseT signals up to 3,000 feet (914 m) and 100BaseT up to 2,100 feet (640m). It employs MaxiiCopper™ innovative and unique Ethernet extension technology that is designed to take full advantage of high-bandwidth networking cables and maintain a full-duplex 10 or 100 Mb/s Ethernet connection up to the maximum range with minimum transmission error and latency.

The Vi2701RX is installed at the control room and can provide up to 74W power to Vi2701TX at the camera side. The Vi2701TX supports both single PD or dual PD IP cameras. The Vi2701TX also provides an extra 40-56VDC output that can be used for auxiliary equipment related to the camera. The Vi2701TX can operate with Vi2701RX and Vi2500 series, while Vi2701RX operates with Vi2701TX or Vi2300A series.

The Vi2701RX includes unique features that assure high performance required to support the largest Megapixel cameras. It is equipped with LEDs to provide link status and configured data rate. No IP setting or configurations are required and it is completely transparent to the corporate IP network and higher layer protocols. The UTP cable needs to be point to point without any branches. Multiple segments can be joined together using UTP couplers.

Important Safety Warning

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with a dry cloth.
- Install in accordance with the manufacturer's instructions.
- This installation should be made by a qualified service person and should conform to all local codes.
- DO NOT bundle UTP or Coax signals in the same conduit as high-voltage wiring.
- To reduce the risk of fire or electrical shock, do not expose these products to rain, moisture, dripping or splashing.
- No objects filled with liquids, such as vases, shall be placed on Vigitron equipment.
- DO NOT install the unit in a place where the operating ambient tempera ture exceeds 75° C.
- Make sure that the external power supply output voltage is in the recom mended range.
- Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including DVRs) that produce heat.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power supply cord or plug is damaged, liquid has been spilled, or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- The mains plug is used as the disconnect device and shall remain readily operable.

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚠ WARNING! - To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. This apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases shall be placed on the apparatus.

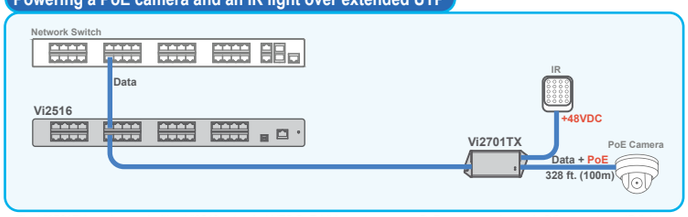
⚠ WARNING! - This apparatus is a Class I product. This product must be connected to a main socket outlet through an AC to DC Power supply.

⚠ WARNING! - The main plug is used as the disconnect device and shall remain readily operable.

Application Drawings

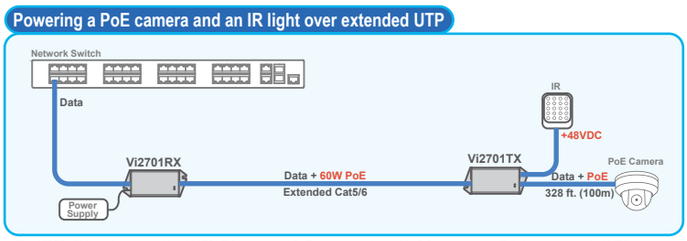
Cat 5/6

Powering a PoE camera and an IR light over extended UTP



The Vi2701TX can be used with a Vi2516 extended UTP PoE Midspan to power a PoE camera and provide DC power to an IR light.

Powering a PoE camera and an IR light over extended UTP



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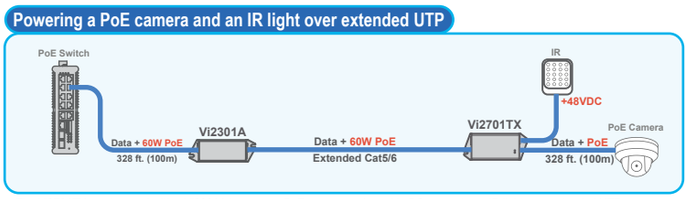


The Vi2701TX can be used with a Vi2301A to power a PoE camera and provide DC power to an IR light over extended UTP.

IP Camera-end Installation

- Install a Vi2701TX at the camera side. It can be powered in 2 ways.
1- Using Local Power Supply: Connect the 48-56 VDC power supply to the power connector of the Vi2701TX. A power adapter connector is provided to simplify connection.
2- Using PoE: If no local power supply is plugged in, the unit will use PoE power provided by the Vi2701RX or Vi2500 series at the head-end.
- Connect the IP camera RJ45 connector to the "10/100BaseT Ethernet" port of Vi2701TX using a standard Cat5/6 cable of maximum 100m in length.
- Connect one end of the long UTP cable to the "Extended Ethernet" RJ45 connector of Vi2701TX.
The link LED on the 10/100 connector should be "ON" to indicate proper connection between the camera and Vi2701TX.

Ethernet Switch/NVR-end Installation

There are 3 options for the equipment installed at the control room:

1- Use Vi2701RX:
You can use a Vi2701RX to connect to Vi2701TX at the camera location.
- Connect the Vi1120 or a similar 52-57 VDC at 70W or more power supply to the power connector of the Vi2701RX. A power adapter is provided to simplify connection if needed.
- Connect the RJ45 connector of the Ethernet switch to the 10/100BaseT Ethernet port of Vi2701RX using a standard Cat5/6 cable of maximum 328 feet (100 m) in length.
- Connect one end of the long UTP cable to the "Extended Ethernet" RJ45 connector of Vi2701RX.
The link LED on the 10/100 Ethernet connector should be "ON" to indicate proper connection between the switch and Vi2701RX.
When Vi2701RX and Vi2701TX make a connection, the Vi2701RX will provide power to Vi2701TX and the camera. While the Link LED, Orange for 100BaseT and Green for 10BaseT, is in a steady state it will indicate confirmed connection between extenders.

2- Use Vi2508/Vi2516 (port 1-4)
- Connect an Ethernet port of the Network switch to the one of the port 1-4 of Vi25xx using a standard Cat5/6 cable of maximum 328 feet (100 m) in length.
- Connect one end of the long UTP cable to the "Extended Ethernet" RJ45 connector of Vi25XX.

The link LED on the 10/100 Ethernet connector should be "ON" to indicate proper connection between the switch and Vi25XX.

Ethernet Switch/NVR-end Installation (cont.)

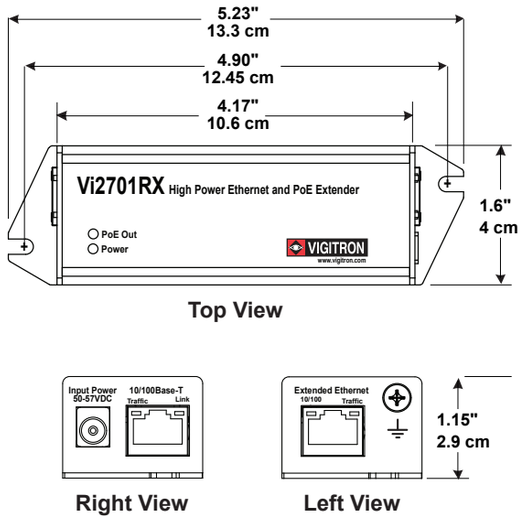
When Vi25XX and Vi2701TX make a connection, the Vi25XX will provide power to Vi2701TX and the camera. While the Link LED, Orange for 100BaseT and Green for 10BaseT, is in a steady state it will indicate confirmed connection between extenders.

3- Using Vi2208A/16A (port 1-4) and a Vi2301A or Vi2300A

- Power up the Vi22XXA.
- Connect the RJ45 connector of the Ethernet switch to the 10/100BaseT Ethernet port of Vi22XXA using a standard Cat5/6 cable of maximum 328 feet (100 m) in length.
- Connect an output port (port 1-4) of Vi22XXA to the 10/100BaseT Ethernet port of Vi2301A using a short standard Cat5/6 cable.
- Connect one end of the long UTP Cat5/6 cable to the “Extended Ethernet” RJ45 connector of Vi2301A.

When Vi22XX, Vi2301A and Vi2701TX make a connection, the Vi22XX will provide power to Vi2301A, Vi2701TX and the camera. While the Link LED, Orange for 100BaseT and Green for 10BaseT, is in a steady state it will indicate confirmed connection between extenders.

Drawings



Top View

Right View

Left View

Technical Specifications*

Electrical

Ethernet Interface	Standard 10/100BaseT
Ethernet Rate	10/100 Mb/s, Auto selectable Full speed / full duplex at maximum rated distance
UTP**	100 Ohm +/- 20%, 3,000 feet (914 m) at 10BaseT 2,100 feet (640 m) at 100BaseT
Power Supply	52-57 VDC, 80 W min.
PoE Output	56V, @ 74W max
Status LEDs	Power Standard Ethernet: Traffic, Link Extended Ethernet: Traffic, 10/100BaseT
Connectors	Ethernet Interface: RJ-45 Connector Extended Interface: RJ-45 Connector Input Power: Round DC Jack
RFC	2544 TCP/IP Packet Transmission
Compatible with	IEEE 802.3af PoE, IEEE 802.3at PoE, UPoE
RFC	768 UDP, 2068 HTTP, 793 TCP 791 IP, 1783 TFTP, 894 IP over Ethernet

Regulatory

Safety	CE, UL, cUL
Environmental	RoHS

Environmental

Humidity	0 to 95%, non-condensing
Temperature	Operating: -20°C to +75°C Storage: -40°C to +80°C

Mechanical

Dimensions	1.15x1.6x4.2 in., 2.9x4x10.5 cm (HxWxL)
Weight	0.28 lb, 127 g
Material	Extruded Aluminum

Accessories

Vi1120, 57VDC 120W power supply (optional)

*Specifications subject to change without notice.
**Distance figures are obtained using in house testing mirroring installations. Factors such as cabling, connections, use of power and environmental conditions may affect actual distances and should be taken into consideration.

Status LEDs

LED Name	Color	Status	Function
Power	RED	OFF	Power is OFF
		ON	Power is ON
Traffic (Extended Side)	YELLOW	OFF	No Traffic
		FLASHING	Traffic
10/100 BaseT (Extended Side)	GREEN	ON	Connection is OK, 10BaseT Mode
	ORANGE	ON	Connection is OK, 100BaseT Mode
Traffic (Standard Side)	GREEN	OFF	No connection
		FLASHING	Connection is OK with Traffic
Link (Standard Side)	YELLOW	OFF	No connection
		ON	Connection is OK
PoE	GREEN	OFF	PoE Power is Off
		ON	PoE Power is On

Ordering Information

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Part No.	Description
Vi2701RX	Ethernet and High-Power PoE Extender (Local Unit)

Related Products

Part No.	Description
Vi2701TX	Ethernet and High-Power PoE Extender (Remote Unit)
Vi2508	8-port High-Power Extended UTP Midspan
Vi2516	16-port High-Power Extended UTP Midspan

Data and PoE Distance**

Data Rate	Data Only	Data + 802.3af PoE	Data + 802.3at PoE	Data + 50W PoE
10BaseT	3,000 ft. 914 m	3,000 ft. 914 m	1,500 ft. 457 m	750 ft. 228 m
100BaseT	2,100 ft. 640 m	2,100 ft. 640 m	1,500 ft. 457 m	750 ft. 228 m

Limited Lifetime Warranty

Vigitron, Inc. warrants that all Vigitron products (“Product”), if used in accordance with these instructions, will be free of defects in material and workmanship for lifetime defined as the duration period of time until product end of life is announced. After which, Vigitron will continue to provide warranty services for a period of 3 years. Period covering valid warranty will be determined by proof of purchase in the form of an invoice from an authorized Vigitron dealer.

Warranty will only be provided for as long as the original end user purchaser owns the product. Warranty is not transferrable. At Vigitron's option, defective product will be repaired, replaced or substituted with a product of equal value. This warranty does not apply if, in the judgment of Vigitron, Inc., the Product fails due to damage from shipment, handling, storage, accident, abuse or misuse, or if it has been used or maintained not conforming to Product manual instructions, has been modified, or serial number removed or defaced. Repair by anyone other than Vigitron, Inc. or an approved agent will void this warranty. Vigitron, Inc. shall not under any circumstances be liable to any person for any incidental, indirect or consequential damages, including damages resulting from use or malfunction of the product, loss of profits or revenues or costs of replacement goods. The maximum liability of Vigitron, Inc. under this warranty is limited to the original purchase price of the Product only.

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