

## FCC USER INFORMATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

## PRODUCT DESCRIPTION

The NVT Model NV-ET1804 Four-Port PoE+ Transmitter is a compact media converter that allows 10/100 BaseT Ethernet and PoE, PoE+, or high-power PoE to be transmitted using coax, UTP, or other cable. These devices are typically used in legacy installations where existing coax or other wire is redeployed as part of an upgrade to IP. 56VDC class 2 power at one transceiver is distributed to multiple remote transmitters, and their PoE cameras (or other devices).

These transceivers are extremely simple to use, with no IP or MAC address configuration required. Status LEDs indicate power, link quality, and link connectivity/activity for RJ45 and BNC ports.

The NV-ET1804 is backed by NVT's award winning customer support and limited lifetime warranty.

## INSTALLATION INSTRUCTIONS

**Before installing, NVT recommends downloading and reading the complete installation manual from [www.nvt.com](http://www.nvt.com).**

**Transceivers must be configured prior to use. See page 2.**

Use one NV-ET1804 Transmitter at the remote (camera) end. Multiple remote transceivers and cable runs may be connected to the control room Receiver using any combination of star and daisy-chaining.

Data signals over the coax are capable of extended distances, however voltage-drop in the 56V power distribution will often vary, depending on the camera's current draw and wire resistance.

56VDC power is typically supplied to the whole system by the control-room transceiver, however power may also be provided locally if desired.

**WARNING:** For safety, never use more than two power supplies within a TBus channel. Never use more than one 60 watt remote power supply on each TBus channel.

## IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with a dry cloth.
- 7) Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) 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. This installation should be made by a qualified service person and should conform to all local codes.
- 13) Low Voltage Connections: The installation shall be in accordance with the applicable provisions of the National Electrical Code ANSI/NFPA 70, Article 800.90 and Canadian Electrical Code Part 1, Section 60-504.

**WARNING:** This installation should be made by a qualified service person and should conform to all local codes.

**WARNING:** Do not install the unit in an environment where the operating ambient temperature exceeds 185° F (85° C). The ventilation should not be impeded by covering the unit with items, such as newspapers, table-cloths, curtains, etc. No naked flame sources, such as lighted candles should be placed on the apparatus.

**WARNING:** Do not interconnect multiple power supply outputs. **Never use more than two power supplies within a TBus channel. Never use more than one 60 watt remote power supply on each TBus channel.** Do not connect additional loads which would exceed the marked output current rating of the power supply.

**WARNING:** The 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:** Use only a Certified power cord and plug (coupler / mains) assemblies for location installed.

**WARNING:** Power cord is regarded as main disconnect.

**WARNING:** The appliance coupler (power cord/ mains) shall remain readily operable.

**WARNING:** For safety, never put NVT signals in the same conduit as high-voltage wiring.

This product is intended to be supplied by a certified power source marked "Class 2" or "LPS" and rated 56 VDC, 30mA minimum, 1,600mA maximum, which may or may not be provided with the product.

Power supplies, when provided, are external inline, with an IEC380-C14 power inlet and 6 ft (1.8 m) line-cord. Input Voltage is 100 ~240 VAC 50-60 Hz. Output voltage is 56VDC, 1.07A or 1.6A. A molded P1J 5.5 mm barrel connector provides a Class 2 (SELV) 56 VDC regulated output. Line cord UL approved type SPT-2, SVT, or SJT, 18/3 AWG Min. 300VAC, 60° C Max. 15 ft (4.5 m) long. One end with IEC380-C13 appliance coupler and the other end with NEMA 1015P or equivalent for country.

Complies with these regulatory agency certifications and directives.



UL Listed to IEC/UL 60950-1 Complies with FCC part 15A limits



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

WARNING: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

# CONFIGURATION INSTRUCTIONS

The NV-ET1804 TBus transmitter delivers high bandwidth encrypted Ethernet signals over virtually any kind of wire (Coax, UTP, STP, Un-twisted wire, etc.). To provide utmost signal integrity and security, the NV-ET1804 transceivers **must be configured** to communicate exclusively with other transceivers within their **TBus Network Group**. This group typically consists of one or more remote Transmitters, typically located at the IP camera and one Receiver, typically located at the control-room. Transmitters may be the NV-ET1801 or NV-ET1804. The Receiver may be the NV-ET1801, NV-ER1804, NV-ER1808i, or NV-ER1816i.

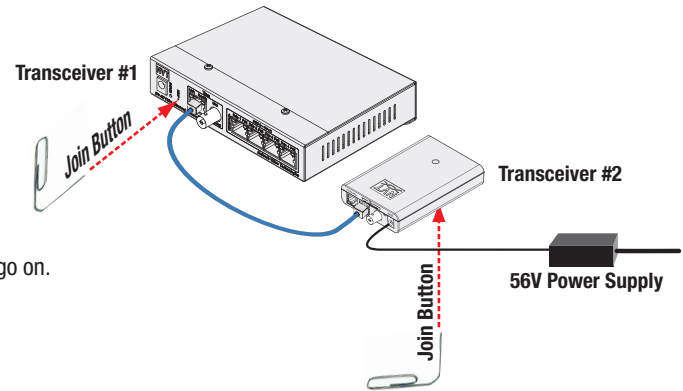
Before functioning on the network, **each NV-ET1804 must learn which other transceivers are to be part of that group**. This simple process is called **Joining**. It is recommended that transceivers in each Network Group be configured **prior to deployment** using these instructions:

## Step One: Gather Materials

- All 1800 series Transceivers
- RJ45 patch-cord
- Small paper-clip, partially straightened
- Device labels
- IP Network Documentation Log

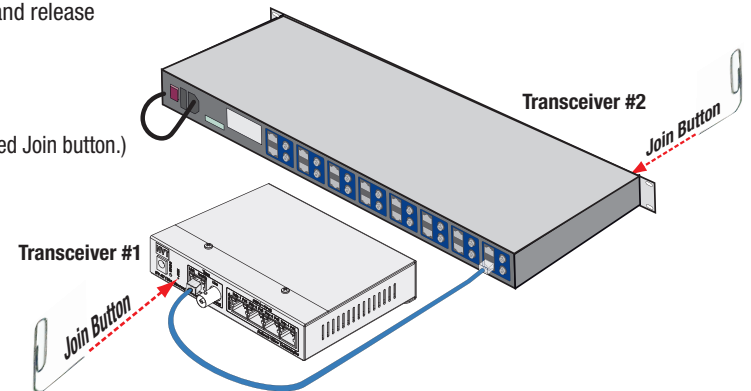
## Step Two: Connect Hardware

- Remove and discard the "Configure Before Use" labels.
- Use an RJ45 patch to connect the TBus ports of two Transceivers.  
**CAUTION: Never connect the RJ45 TBus port to an RJ45 ethernet port.**
- Apply power to one of the TBus devices.
- The blue POWER LED on each Transceiver will blink for 8 seconds and then go on.
- After 20 seconds, verify that the green TBus Link LED on each transceiver is off.  
If a TBus Link LED is on, the Transceiver has been previously joined.  
Perform the un-joining process below before proceeding.



## Step Three: Joining

- On Transceiver #1, using the straightened paper-clip, momentarily depress and release the small JOIN push-button located on the front of the unit.  
Its blue Power LED will begin blinking.
- Depress and release the same push-button on the Transceiver #2.  
Its blue Power LED will begin blinking.  
(The NV-ER1808i and NV-ER-1816i Receiver Hubs also have a web browser-based Join button.)
- Both Transceivers have now entered **Join Mode**.  
They will find each other and establish encrypted communication.  
In about 10 seconds, the blue Power LEDs on both Transceivers will return to a steady on condition, and their green TBus Link LEDs will illuminate, indicating a successful **Join**.
- One TBus Link LED will remain on solid. The other may wink with data.



## Step Four: Adding Transceivers (if required)

- Disconnect Transceiver #1 and replace it with a new un-joined Transceiver.
- Repeat steps two and three to add additional Transceivers to the same Network Group.

## Step Five: Documentation

- Label the configured Transceivers with a unique Network Group ID of your choice.  
This will help you identify them after they have been deployed.
- Record this Network Group information in your IP Network Documentation Log:
  - Camera Number
  - Camera Position/Location
  - Camera Make & Model
  - Camera MAC & IP Address
  - Camera Login & Password
  - Camera-end NVT Transceiver MAC Address
  - NVT Transceiver Network Group Name
  - Control Room NVT Transceiver MAC Address
  - Control Room Router Port Number

This log may include essential documentation which will help you identify all system devices during and after deployment. The NV-ER1808i and NV-ER1816i have data entry fields for this purpose.

## Un-Joining a Transceiver

If you need to move a Transceiver from one Network Group to another, it must first un-learn its previous Network Group and be returned to an un-joined state. Do this by:

- Apply power.
- The blue POWER LED on each Transceiver will blink for 8 seconds and then go on.
- Using the straightened paper-clip, depress the small JOIN push-button until the blue Power LED goes off (about 13 seconds).
- Un-joining is now complete.

If you are not sure that un-joining has been successful, remove and then re-apply power, and repeat.