



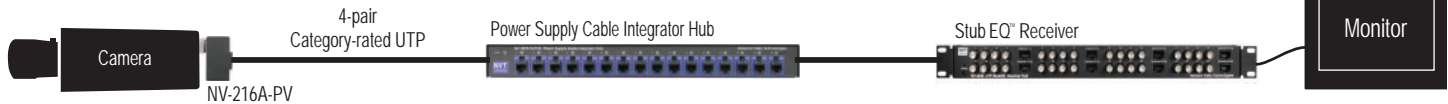
# StubEQ™ Receiver Hub Installation Manual

## Models NV-442, NV-842, NV-1642 and NV-3242

CCTV Application Figure 1



PVD Application Figure 2



### 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) Do not block any ventilation openings.
- 8) Install in accordance with the manufacturer's instructions.
- 9) Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including DVRs) that produce heat.
- 10) 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.
- 11) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 12) Only use attachments/accessories specified by the manufacturer.
- 13) Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tipover.
- 14) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 15) 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.

**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.**

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 120° F (50° C). The ventilation should not be impeded by covering the ventilation openings 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 outputs.

**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.

**WARNING** - Do not restrict airflow around any active powered NVT products.

The StubEQ™ Receiver Hub is an active (amplified) hub that allows the transmission of real-time monochrome or color video for distances up to 1,500ft (460m), (2,000ft (600m) if the transmitter is a NV-653T). using Category-2 or better Unshielded Twisted-Pair (UTP) wire. The receiver hub continuously and automatically compensates for cable attenuation, and ground-loops, independent of the video signal image. The 1U high hub is equipped with multi-stage transient protection.

### Wire Type

The StubEQ™ UTP Receiver Hub operates best with Category-rated Unshielded twisted-pair (UTP) wire. It may also be used with Category-rated foiled twisted-pair (FTP) wire, or with multi-pair wire with an overall shield (6 or more pairs). Wire gauges of 24 to 16 AWG (0,5 to 1,3mm) are supported.

The video signal may co-exist in the same wire bundle as other video, telephone, data, control signals, or low-voltage power. It is also OK to run NVT signals near electromagnetic fields (in accordance with National Electrical Code, and other local safety requirements).

Do NOT use shielded twisted-pair wire unless it is Category rated. Multi-pair wire with an overall shield (6 or more pairs) is OK.

Do NOT use un-twisted wire.

Due to near-end crosstalk, do not send a transmit and a receive signal in the same wire bundle. Exception: Up to 1,000ft (300m); or 1,500ft (460m) Category 5 or better.

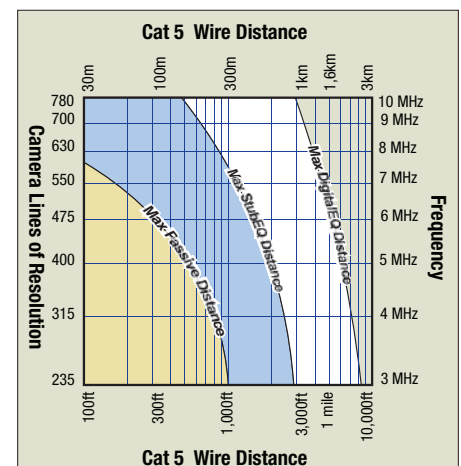
Up-the-Coax Pan/Tilt/Zoom telemetry signals are NOT supported. Use a second wire-pair for RS-422 or RS-485 signals instead.

NVT recommends the use of factory-crimped RJ45 patch cables rather than unreliable field-crimped RJ45s to connect between the NVT device and an adjacent female RJ45 jack.

### Wire Distance

It is recommended that the wire distance be measured to ensure that it does not exceed 1,500ft (460m), 2,000ft (600m) if the transmitter is a NV-653T).

### Recommended Wire Distance:



All measured distances include any coax in the path. Wire resistance may be measured with an ohm-meter by shorting the two conductors together at the far end, and measuring the loop-resistance out and back.

### Loop Resistance per 1,000ft (300m)

24 AWG (0,53 mm)	=	52 ohms
23 AWG (0,57 mm)	=	42 ohms
22 AWG (0,64 mm)	=	33 ohms
20 AWG (0,81 mm)	=	21 ohms
19 AWG (0,91 mm)	=	16 ohms
18 AWG (1,02 mm)	=	13 ohms

Wire in underground conduit or wet locations must be polyethylene-jacketed, gel-filled. Wire in plenum environments must be plenum-rated, per local codes.

### Connecting the Camera End

Use any NVT passive transceiver, (such as the NV-214A-M) or qualified OEM camera with built-in UTP output, or the NV-653T Active Transmitter. Install per the instructions that come with the transmitting device.

### Connecting the Monitor End

The StubEQ™ Receiver Hub has RJ45 jack input connections for the video signals, with four signals grouped onto each RJ45 jack.

## UTP Pinouts



Ch. 2, 6, 10, 14, 18, 22, 26, or 30

Ch. 1, 5, 9, 13, 17, 21, 25, or 29

Ch. 4, 8, 12, 16, 20, 24, 28, or 32

Ch. 3, 7, 11, 15,  
19, 23, 27, or 31

The NV-442 supports channels 1 through 4.  
The NV-842 supports channels 1 through 8.  
The NV-1642 supports channels 1 through 16.  
The NV-3242 supports channels 1 through 32.

If screw-terminal connections are desired, use the supplied NV-RJ45A-to-screw-terminal adaptor accessory. Torque screws to 2in-lb (0,2Nm). For RJ45 connectivity, bring all UTP-based video signals into a punch-block or RJ45 patch panel near the Hub. Connect the Hub's outputs to DVRs, Monitors, Matrix switches, Encoders, etc. as required.

## Connecting the Power

The StubEQ™ UTP Receiver Hub is powered by an external power supply (included). Connect the power supply output to the power jack on the front left side of the Hub. Connect the power inlet cable from the power supply to a nearby electrical outlet.

The blue POWER LED will blink and then go on steady. A red POWER LED indicates a power supply fault, typically due to the use of a non-NVT power supply with a grounded outer conductor.

## Rack / Wall Mounting

### Mounting

The StubEQ™ ships with rack mounting ears attached for front-facing rack applications.



Notch for the power-cord, if needed.



The StubEQ™ may be recessed for cable accessibility, or close cabinet door applications.



It may be reversed, allowing cables to be accessed from the rear of the rack.



Mounted under-cabinet.



Operated without ears.



Or mounted vertically, such as inside the rear area of a rack when rack-space is at a premium.

Each ear is held in place with two screws.



NV-442 with Rack Mount using NV-RM810.

## Technical Specifications

**Video** NTSC or PAL  
**Frequency Response** DC to 10 MHz  
**Equalization** Automatic (no adjustment)  
0 to 1,500ft (460m) or 2,000ft (600m) if transmitter is NV-653T  
**Common Mode / Differential Mode Rejection** DC to 10 MHz 60 dB typ

### Connectors and Impedance

**UTP input** RJ45 100 ± 20 ohms  
**Coax output** BNC 75 ohms

### LED

**Power** Blue=OK Red=Fault

### Environmental

**Ambient temperature** +32 to +122°F (0 to +50 °C)  
**Minimum airflow** 4 ft<sup>3</sup>/min (0,1m<sup>3</sup>/min)  
**Humidity (non-condensing)** 0 to 95%  
**Transient Immunity** per ANSI / IEEE 587 C62.41

### Power

StubEQ™ Power Input:

12VDC, Class II, (without earth ground) floating,  
Standard P1J DC Inlet receptacle 2.1 x 5.5mm,  
center positive

- 4 Channel: 350mA, 4.2W (ungrounded / non-polarized)
- 8 Channel: 425mA, 5W (ungrounded / non-polarized)
- 16 Channel: 700mA, 8.5W (ungrounded / non-polarized)
- 32 Channel: 1A, 12W, (ungrounded / non-polarized)

**External Power Supply (included):**

**Input** 100 to 240 VAC, 50/60 Hz,  
IEC320/C8 AC Line Power Receptacle  
**Output** 12 VDC, Class II, 1A via 6ft (1.8m) cord  
with molded P1J center positive plug

**Power Cord / Mains AC line connect (included):**

Use only the power cord provided with the unit or equivalent UL approved type SPT-2, SVT, or SJT, 18/2 AWG, 100/240 VAC, 2.5 A 60 degree C, Max. 15ft (4.5m) long. One End with IEC320/C7 unpolarized appliance coupler and the other end with NEMA 1-15P or equivalent for country.

**Mechanical** (Excluding brackets and connectors)

### Dimensions

**NV-442**  
W 9.65" (24,5cm) H 1.7" (4,4cm) D 1.9" (4,8cm)

**NV-842**  
W 17" (43,2cm) H 1.7" (4,4cm) D 1.875 (4,8cm)

**NV-1642**  
W 17" (43,2cm) H 1.7" (4,4cm) D 1.875 (4,8cm)

**NV-3242**  
W 17" (43,2cm) H 1.7" (4,4cm) D 1.875 (4,8cm)

### Weight

**NV-442**  
Product Weight 0.9lb (0,41kg)  
Packaged Weight 2.13lb (0,9kg)

**NV-842**  
Product Weight 2.15lb (0,97kg)  
Packaged Weight 2.88lb (1,30kg)

**NV-1642**  
Product Weight 2.45lb (1,1kg)  
Packaged Weight 3.28lb (1,48kg)

**NV-3242**  
Product Weight 3.0lb (1,36kg)  
Packaged Weight 3.86lb (1,75kg)

**Accessories** (Included)

**Mounting** Rack mount "L" brackets for front,  
rear, or wall installations;

**NV-442** 1 NV-RJ45A RJ45-to-screw-terminal adaptor  
**NV-842** 2 NV-RJ45A RJ45-to-screw-terminal adaptor  
**NV-1642** 4 NV-RJ45A RJ45-to-screw-terminal adaptor  
**NV-3242** 8 NV-RJ45A RJ45-to-screw-terminal adaptor

## Agency

These NVT products are listed and/or conform to the following certifications and directives:



UL Listed to UL2044 or UL/IEC 60065.

cUL Listed to CAN/CSA22.2 No. 1 for Canada.

CE Mark under EMC and low voltage Directives for the European Union. Complies with FCC part 15B limits

## Customer Support

If you are experiencing problems, attempt to simplify your setup. Test each cable segment separately. For example, test the camera and monitor together without the other equipment. Then add in the NVT transceivers back-to-back. Test each segment of a long cable run independently. Attempt to isolate the problem. NVT customer support can be reached 8:00 AM to 5:30 PM Monday through Friday, PST.

US office: (+1) 650.462.8100 • FAX: (650) 326-1940  
www.nvt.com/email • nvt.com

UK office: (+44) 0208 977 6614  
FAX: (+44) 0208 973 1855  
www.nvt.com/email • nvt.com

## Returns

Please call before returning units to NVT. Returned materials must have a "Returned Materials Authorization" (RMA) number from NVT marked on the outside of the shipping carton.

## Limited Lifetime Warranty

NVT warrants that the product conforms to NVT's applicable published specifications and is free of defects for the life of the product. There shall be no other warranties, express, statutory, or otherwise, including any implied warranty of merchantability, of fitness, or any other obligation on the part of NVT with respect to any of the products.

In the event that any of the products is damaged, altered, or modified without the express written consent of NVT, any warranty for those products will cease and NVT will have no further liability as it pertains to those products.

NVT assumes no responsibility for damages or penalties incurred resulting from the use of this product in a manner or location other than for which it is intended.

NVT's liability under any warranties shall be discharged by replacing or repairing any part or parts which do not conform to the applicable warranty under normal and proper use. NVT's liability with respect to any product shall not exceed a refund of the price received by NVT for that product, and in no event shall NVT have any liability for any incidental, consequential, special, or indirect damages.

Some states do not allow the exclusion or limitation of special, incidental, or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Specifications subject to change without notice.