

# Multi-Channel Passive Transceiver Hubs Installation Sheet

## Introduction

GE Security Multi-Channel Passive Transceiver Hubs transmit or receive base-band video signals over unshielded twisted pair (UTP) wires, point-to-point, for distances up to 750 feet (228 m). They also provide support for the “up the coax” Pan/Tilt/Zoom (PTZ) control signals.

These passive hubs are 1U in height and can be wall, desk or rack mounted. They use Category 2-7 twisted pair wires and do not require power. They provide built-in surge suppression to protect video equipment against damaging voltage spikes and provide noise immunity to ensure quality images.

The included RJ-45 adapter provides an easy way to connect the passive hubs to other GE VPD products via Cat-5 cables and RJ-45 connectors. These passive hubs are bidirectional and support Up-the-Coax Pan/Tilt/Zoom telemetry signals. Any unused pair of UTP cables can also be used for transporting other telemetry signals.

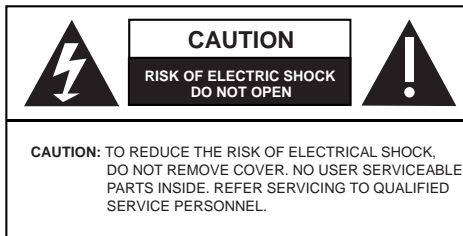
The following model numbers are covered in this document:


- **GEC-4VPHUB**
- **GEC-8VPHUB**
- **GEC-16VPHUB**
- **GEC-32VPHUB**





# 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) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) 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.



 **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 mains socket outlet with a protective earthing connection.

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

 The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

 The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.

# Wiring Technical Notes

These technical notes should all be considered prior to installing these devices.

- Use point to point unshielded twisted pair wire 24-16 AWG (0, 5-1, 3 mm) stranded or solid, Category 2 or better.
- The video signal may coexist in the same wire bundle as other video, telephone, data, control signals, or low-voltage power. You can run GE video signals in or near electromagnetic fields (in accordance with National Electrical Code, local or other local safety requirements).
- DO NOT USE SHIELDED TWISTED PAIR WIRE. Multi-pair (8 pair or more) wires with an overall shield are fine.
- DO NOT USE UN-TWISTED WIRE.
- DO NOT place a transmit and a receive signal in the same wire bundle. It may cause interference.
- DO NOT send **Up-the-Coax** Pan/Tilt/Zoom signals through active (amplified) GE transmitters or receivers. Passive GE transceivers can transmit video and **Up-the-Coax** P/T/Z control signals up to 750 ft. (228 m).
- We recommend using short 18 AWG solid wires for ground connections.
- GE VPD products follow the EIA/TIA 568 standard. There are two wire color-code standards: EIA/TIA 568A and EIA/TIA 568B. Either standard can be used for making connections as long as the RJ-45 jacks at both ends of each cable follow the same standard.
- Measure wire distance by:
  1. Shorting the two conductors together at the far end, and measuring the loop-resistance by an Ohmmeter.
  2. Use the **Loop Resistance** table to calculate the distance.
- DO NOT connect coax cables longer than 100 ft. (30 M) to the BNC connectors of any GE UTP equipment.
- All measured distances should include any coax cables in the path.
- Verify camera current requirements and wire resistance limits for the maximum distance that power can travel. Use the **Power Distance Chart** to verify the wire distance.
- GE VPD products require Unshielded Twisted-Pair (UTP) wires Category 2 or better, 24 AWG (0,5 mm) or thicker.

Table 1: Loop Resistance per 1000 feet

Wire Type	Resistance
24 AWG /0,53 mm	52 ohms
23 AWG /0,57 mm	42 ohms
22 AWG /0,64 mm	33 ohms

Table 2: Power Distance Chart

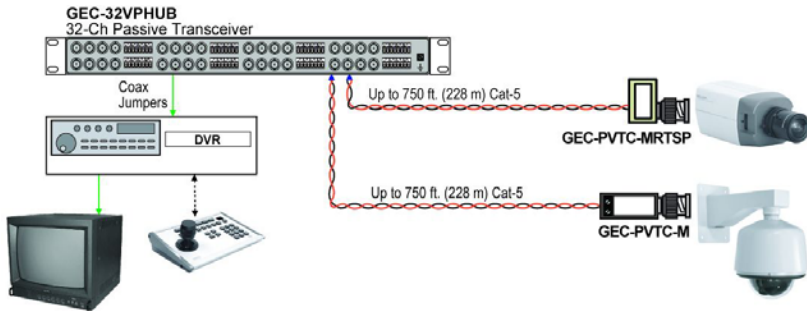
Power Supply Voltage		12 VDC	24 VAC	28 VAC
Voltage at the Camera		10.8 VDC	21.6 VAC	21.6 VAC
100 mA Camera	Dual 24 AWG	448 ft. / 137 m	896 ft. / 273 m	2,388 ft. / 728 m
	Dual 23 AWG	564 ft. / 172 m	1,130 ft. / 345 m	3,012 ft. / 918 m
300 mA Camera	Dual 24 AWG	150 ft. / 46 m	300 ft. / 92 m	796 ft. / 243 m
	Dual 23 AWG	190 ft. / 58 m	378 ft. / 115 m	1,004 ft. / 306 m
1 AMP Camera	Dual 24 AWG	46 ft. / 14 m	90 ft. / 28 m	240 ft. / 73 m
	Dual 23 AWG	58 ft. / 18 m	114 ft. / 35 m	300 ft. / 92 m

## Important Safety Warnings

- Installation should be made by a qualified service person and should conform to all local codes.
- DO NOT bundle UTP 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 GE equipment.
- DO NOT block ventilation openings to let sufficient airflow to the UTP devices.
- Only unplugging the power cord is considered as a main power disconnect.
- DO NOT connect multiple outputs together.
- Make sure that the mains Voltage input is set to the proper local voltage.

# Application Drawing

Figure 1: Multi-channel short-range, passive-to-passive, UTP application



## Camera End Installation

### UTP:

- Connect the UTP wires carrying video signals to the terminal block input of the receiver hub. If the UTP is terminated with a RJ-45 connector, then use either the RJ-45 connector or the provided RJ-45 adapter to connect to the transceiver hub.
- Make sure that the same UTP pair and polarity are used on both the transmit and receive sides.

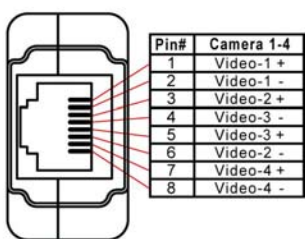
### Video:

- Connect the baseband Video signal output of the camera to the BNC of the Transceiver.

## Control Room Installation

### UTP:

- Connect the UTP wires carrying video signals to the terminal block input of the receiver hub. If the UTP is terminated with a RJ-45 connector, then use either the RJ-45 connector or provided RJ-45 adapter to connect to the transceiver hub.
- Make sure that the same UTP pair and polarity are used on both transmit and receive sides.



### Video:

- Use the provided 2-foot (60cm) coax patch cords to connect the BNC video inputs of video receiving devices such as DVRs or matrix switches.
- Confirm that your receiving device is terminated with a single 75-ohm terminator.

### Ground:

- Connect the ground screw connector to a qualified earth ground using a short thick wire.
- If the picture is scrambled change the polarity of the twisted pair wires on the corresponding terminal block.

## Technical Specifications\*

### Electrical

Video Format	NTSC, PAL, SECAM
Frequency	20 Hz to 6 MHz
Coax	75 Ohm
Input Current	2.4 A at 115 VAC / 1.2 A at 230 VAC (GEC-8PVPDTCHUB) 4.8 A at 110 VAC / 2.4 A at 220 VAC (GEC-16PVPDTCHUB)
Twisted Pair	100 Ohms +/- 20%, 24 AWG minimum, Category 2-7 up to 750 ft. (228m)
CMRR	60 dB
Power	No power required

Connectors	UTP inputs: Detachable terminal blocks, and RJ-45 adapter (GEC-4VPHUB) Video Outputs: BNC Ground: Ground screw
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## Mechanical

Material	Black ABS plastic, UL rating of 94 V-0 (GEC-4VPHUB) Extruded Aluminum and sheet metal
Dimensions (W x H x D)	<b>GEC-4VPHUB:</b> 4.5 x 1.73 x 1 in. (11.5 x 4.4 x 2.5 cm) <b>GEC-8VPHUB:</b> 17 x 1.74 x 3 in. (43 x 4.2 x 7.6 cm) <b>GEC-16VPHUB:</b> 17 x 1.74 x 3 in. (43 x 4.2 x 7.6 cm) <b>GEC-32VPHUB:</b> 17 x 1.74 x 3 in. (43 x 4.2 x 7.6 cm)
Weight	<b>GEC-4VPHUB:</b> 0.2 lb. (90 g) <b>GEC-8VPHUB:</b> 3.3 lb. (1500 g) <b>GEC-16VPHUB:</b> 3.3 lb. (1500 g) <b>GEC-32VPHUB:</b> 3.3 lb. (1500 g)

## Environmental

Humidity	0 to 95%, noncondensing
Temperature	Operating: -10° to +50° C Storage: -30° to +70° C

\*Specifications are subject to change without notice.

## Included Accessories

### GEC-4VPHUB

- RJ-45 Adapter

## Included Accessories

### GEC-8VPHUB/GEC-16VPHUB/GEC-32VPHUB

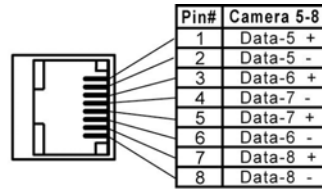
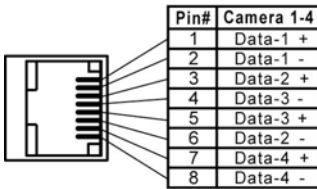
- Mounting brackets for front, rear or wall installations
- Rubber feet for desk applications
- (8, 16, or 32) 2 ft. (60 cm) coax jumper cables

# EIA/TIA 568A, B Color Codes

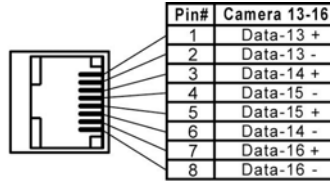
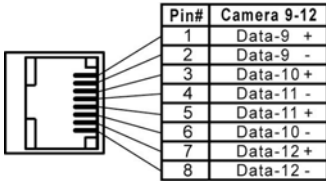


## Midspan/Control Room Data Connections

GEC-4VPHUB (Cameras 1-4) GEC-8VPHUB/GEC-16VPHUB/GEC-32VPHUB (Cameras 1-8)





GEC-16VPHUB/GEC-32VPHUB (Cameras 9-16)





# Regulatory information

Manufacturer	GE Security, Inc.  HQ and regulatory responsibility: GE Security, Inc., 8985 Town Center Parkway, Bradenton, FL 34202, USA  EU authorized manufacturing representative: GE Security B.V., Kelvinstraat 7, 6003 DH Weert, The Netherlands
Regulatory information	 N4131
North American standards	UL 60065
FCC Compliance	<p>This equipment has been tested and found to comply with the limits for a Class B 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:</p> <ul style="list-style-type: none"><li>• Reorient or relocate the receiving antenna.</li><li>• Increase the separation between the equipment and receiver.</li><li>• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.</li><li>• Consult the dealer or an experienced radio/TV technician for help.</li></ul>
	2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: <a href="http://www.recyclethis.info">www.recyclethis.info</a> .

## Contact information

For contact information see our Web site: [www.gesecurity.com](http://www.gesecurity.com).

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