

# Multi-Channel VPD Combiners Installation Sheet

## Introduction

GE Security Multi-Channel VPD Combiners combine video, PTZ data, and camera power over a single 4-pair UTP cable to simplify CCTV installations in a structured wiring environment. They support up to 16 cameras. The GEC-8VPDCHUB and the GEC-16VPDCHUB models come with built-in AC power supplies. They receive 110/220 VAC power and provide up to 16 ports of 24/28 VAC isolated power to the cameras. Each port is individually equipped with a resettable fuse plus a 2A glass fuse that is easily accessible from front.

For short runs install the GEC-16VPDCHUB close to the video receiver unit at the control end. For long runs place the GEC-8VPDCHUB or GEC-16VPDCHUB at a mid span point close to the camera end to minimize the loss of voltage over twisted pair.

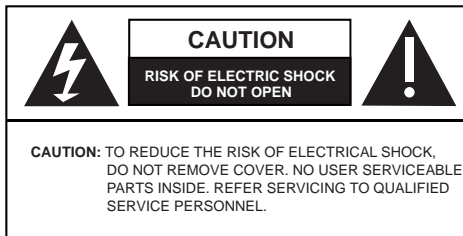
The following model numbers are covered in this document:


- **GEC-4VDPC**
- **GEC-16VDPC**
- **GEC-8VPDCHUB (powered)**
- **GEC-16VPDCHUB (powered)**





# 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.

## 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.
- The Main fuse for models with built-in AC power supply is 5 A at 110 VAC or at 3 A 220 VAC. Each camera power fuse is 2 A and can be accessed by removing the front panel. Fuses may be replaced by a qualified service person only when the unit is off and AC power cord is unplugged.
- Use only the power cord and plug supplied with the unit for connecting to AC outlets.
- 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.

## 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

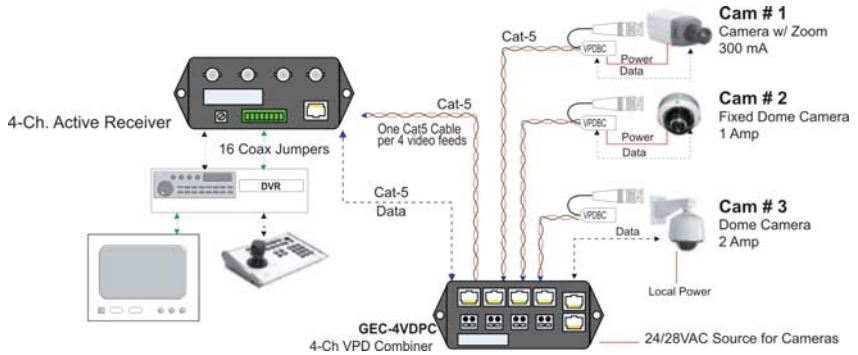
Wire Type	Resistance
24 AWG /0,53 mm	52 ohms
23 AWG /0,57 mm	42 ohms
22 AWG /0,64 mm	33 ohms

Table 2: Power Distance Chart

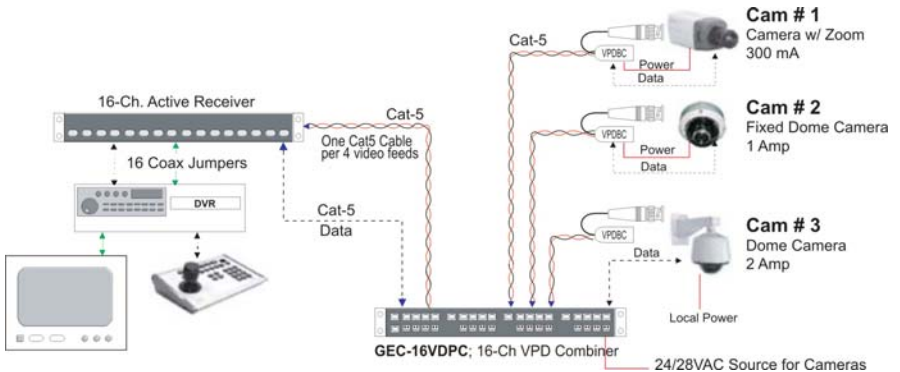
Power Supply Voltage		12 VDC	24 VAC	28 VAC
Voltage at the Camera		10.8 VDC	21.6 VAC	21.6 VAC
100 mA Camera	Dual 24 AWG	448 ft. / 137 m	896 ft. / 273 m	2,388 ft. / 728 m
	Dual 23 AWG	564 ft. / 172 m	1,130 ft. / 345 m	3,012 ft. / 918 m
300 mA Camera	Dual 24 AWG	150 ft. / 46 m	300 ft. / 92 m	796 ft. / 243 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

## Application Drawings

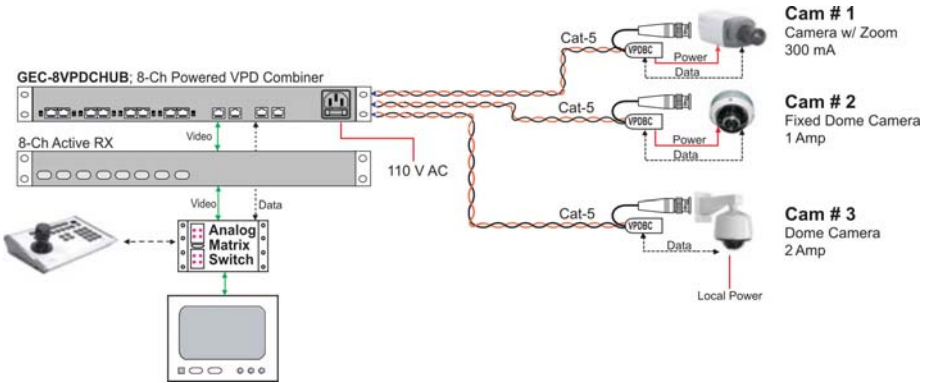
### GEC-4VDPC



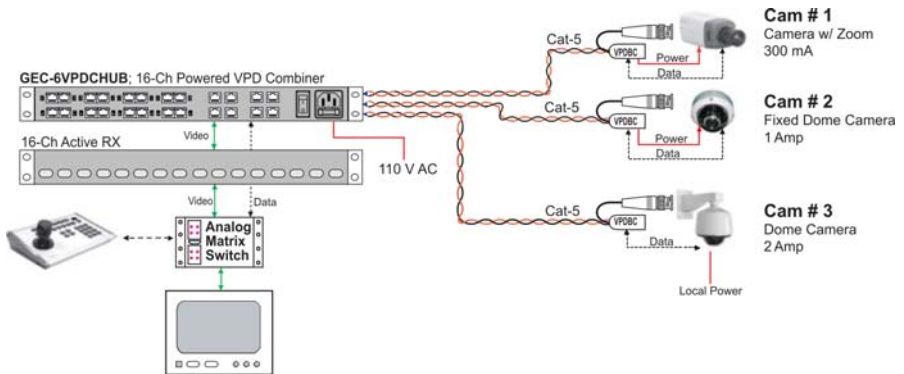
### GEC-16VDPC



## GEC-8VPDCHUB



## GEC-16VPDCHUB



## Mid-Span Installation

### GEC-4VDPC and GEC-16VDPC

Turn off external power supply.

**Video:** Connect each RJ-45 video connector to a Cat-5 cable carrying 4 video signals to the control room.

**Data:** Connect each RJ-45 data connector to a Cat-5 cable carrying 4 data signals to the control room.

**Camera Cable:** Connect each camera RJ-45 connector to the appropriate camera Cat-5 cable.

**Power:** Connect the power input connectors to the external class II power supply. Make sure that the power requirement is within the recommended range. Turn on the external power supply.

### **GEC-8VPDCHUB and GEC-16VPDCHUB**

**Turn off external power supply.**

**Video:** Connect each RJ-45 video connector to a Cat-5 cable carrying 4 video signals to the control room.

**Data:** Connect each RJ-45 data connector to a Cat-5 cable carrying 4 data signals to the control room.

**Camera Cable:** Connect each camera RJ-45 connector to the appropriate camera Cat-5 cable.

**Power:** Make sure that the power requirement is within the recommended range. Connect the AC power cord to the AC power outlet and turn on the power switch to the unit.

## **Control Room Installation**

**Video:** Connect each Cat-5 cable carrying 4 video signals to the Active Receiver Hub. If Cat-5 is terminated in RJ-45, use provided RJ-45 adapter for the connection.

**Data:** Connect each Cat-5 cable carrying 4 data signals to a DVR or PTZ controller.

## **Diagnostic LEDs**

### **GEC-4DVDPC and GEC-16VDPC**

There is one diagnostic LED per channel:

Green LED:

**OFF:** No camera is connected

**ON:** Camera is connected and current flows

### **GEC-8VPDCHUB and GEC-16VPDCHUB**

There are 2 diagnostic LEDs per channel:

Green LED:

**OFF:** No camera is connected

**ON:** Camera is connected and current flows

Red LED:

**OFF:** Fuse is blown or not installed

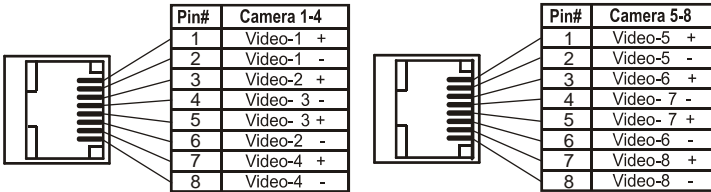
**ON:** Fuse is OK, power is available at RJ45 connector

## EIA/TIA 568A, B Color Codes

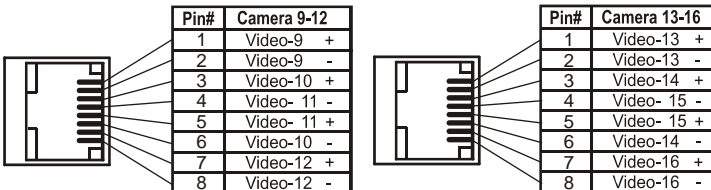


## Midspan/Control Room Video Connections

GEC-4VDPC, GEC-16VDPC, GEC-8VPDCHUB, and GEC-16VPDCHUB  
(Camera 1-8)



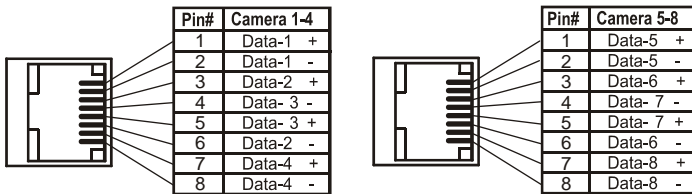
GEC-16VDPC and GEC-16VPDCHUB (Camera 9-16)



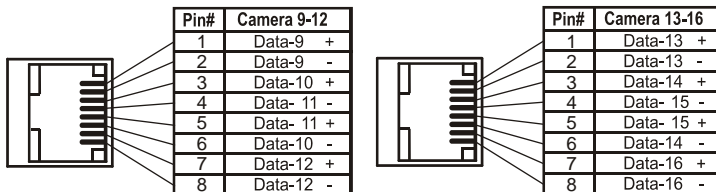


# Midspan/Control Room Data Connections

## GEC-4VDPC, GEC-16VDPC, GEC-8VPDCHUB, and GEC-16VPDCHUB (Camera 1-8)



## GEC-16VDPC and GEC-16VPDCHUB (Camera 9-16)



## Technical Specifications\*

### Electrical

Video Format	NTSC, PAL, SECAM
Frequency	DC to 10 MHZ
Coax	75 Ohm
Twisted Pair	100 Ohms +/- 20%, 24 AWG min., unshielded Category 2-7 up to 750 ft. (228m)
Power Protection	One self-resetting fuse at 1.5 A per channel
Input Voltage	Pass through (GEC-4VDPC, GEC-16VDPC) 115/230 VAC 50/60 Hz externally switch selectable
Input Current	2.4 A at 115 VAC / 1.2 A at 230 VAC (GEC-8VPDCHUB) 4.8 A at 110 VAC / 2.4 A at 220 VAC (GEC-16VPDCHUB)
Camera Power	<b>Voltage:</b> Isolated class II, individually switch selectable to 24 VAC, off or 28 VAC <b>Camera Current:</b> 1 A max per camera 6 A aggregated, 170 VA total power (GEC-8VPDCHUB) 12 A aggregated, 340 VA total power (GEC-16VPDCHUB)

Camera Fault Protection	2 A, 5 x 20 mm type T fuse (front panel access) plus a 2.5 A self-resetting fuse per channel
Main Fuse	4 A at 115 VAC/3 A at 220 VAC, 5x20 mm, <b>(GEC-8VPDCHUB)</b> 7 A at 115 VAC/5 A at 220 VAC, 5x20 mm, <b>(GEC-16VPDCHUB)</b>
Connectors	Camera connection: RJ-45 connector Data: RJ-45 connector Video: RJ-45 connector Power: Detachable terminal blocks (GEC-4VDPC, GEC-16VDPC)

## Mechanical

Material	<b>GEC-4VDPC:</b> Extruded Aluminum <b>GEC-16VDPC:</b> Extruded Aluminum <b>GEC-8VPDCHUB:</b> Extruded Aluminum and sheet metal <b>GEC-16VPDCHUB:</b> Extruded Aluminum and sheet metal
Dimensions (W x H x D)	<b>GEC-4VDPC:</b> 4.97 x 1.74 x 177 in. (12.6 x 4.4 x 4.5 cm) <b>GEC-16VDPC:</b> 18 x 1.74 x 1.77 in. (46 x 4.4 x 4.5 cm) <b>GEC-8VPDCHUB:</b> 17 x 1.74 x 10.5 in. (43 x 4.4 x 26.6 cm) <b>GEC-16VPDCHUB:</b> 17 x 1.74 x 10.5 in. (43 x 4.4 x 26.6 cm)
Weight	<b>GEC-4VDPC:</b> 0.44 lb. (198 g) <b>GEC-16VDPC:</b> 1.37 lb. (620 g) <b>GEC-8VPDCHUB:</b> 14.7 lb. (6.6 kg) <b>GEC-16VPDCHUB:</b> 22 lb. (10 kg)

## 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

(Excluding the GEC-4VDPB and GEC-16VDPC)

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

- RJ-45 Adapter
- Molded IEC power inlet cord 7 ft. (200 cm)

## EIA/TIA 568A, B Color Codes



Pin#	EIA/TIA 568A	EIA/TIA 568B
1	White/green	White/Orange
2	Green	Orange
3	White/Orange	White/green
4	Blue	Blue
5	White/Blue	White/Blue
6	Orange	Green
7	White/Brown	White/Brown
8	Brown	Brown

## 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



**Note: C-Tick mark applies to GEC-4VDPC and GEC-16VDPC only.**

North American standards

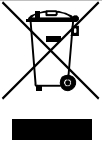
UL 60065

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## FCC Compliance

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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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.



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: [www.recyclethis.info](http://www.recyclethis.info).

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## Contact information

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

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