GE
Security

Single Channel VPD Combiner-Transceiver Installation Sheet

GEC-VCR GEC-VPDBC GEC-VCR12V

Introduction

GE Security Single-Channel Video-Power-Data Combiner-Transceivers combine video, camera power and PTZ data over a single 4-pair UTP cable to simplify CCTV installations in structured wiring environments. These units feature a passive transceiver that may be paired with other GE Security single and multi-channel combiner-transceivers for distances up to 750 ft. (228 m), or with GE Security multi-channel combiners and active UTP receivers to extend the video range up to 3,500 ft. (1,067 m).

They feature excellent crosstalk and noise immunity, which provides quality video up to the maximum distance. They are compact in size, easy to install. The **GEC-VCR12V** includes a built-in 24 VAC to 12 VDC converter to power cameras.

These combiner-transceivers have an RJ-45 connector to connect to a standard Category 5 cable along with set of break-out cables: one pair for power, one pair for PTZ data and an attached BNC connector or a coax cable with BNC connector for video input.

The following model numbers are covered in this document:

- **GEC-VCR**
- **GEC-VPDBC**
- **GEC-VCR12V**

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 Security 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 Security transmitters or receivers. Passive GE Security 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 Security 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 Security UTP equipment.
- All measured distances should include any coax cables in the path.
- Verify camera current requirement and wire resistance limits for the maximum distance that power can travel. Use the **Power Distance Chart** to verify the wire distance.
- GE Security VPD products require Unshielded Twisted-Pair (UTP) wires Category 2 or better, 24 AWG (0,5 mm) or thicker.

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) Only use attachments/accessories specified by the manufacturer.

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

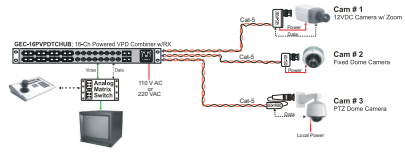
Table 2: GEC-VCR/VPDBC Power Distance Chart

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

Camera End Installation

Figure 1 shows the Combiners in a typical application.

Figure 1: Application diagram



Video: Connect the baseband Video signal output of the camera to the BNC connector of the GEC-VCR.

Data: There is no data connection on the GEC-VCR.

Power: Connect the power UTP pigtail (Black/Red) wires of the GEC-VCR to the power connector of the camera.

Cat-5 Cable: Connect the RJ-45 connector of the Cat-5 cable coming from the camera to the RJ-45 jack of the GEC-VCR. Make sure that the pin-outs of the RJ-45 connector match the pin-outs of the GEC-VCR.

Video Data and Power Connections

Camera side RJ-45 Connections

Figure 2: GEC-VCR RJ-45 connections

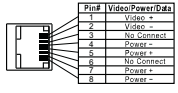
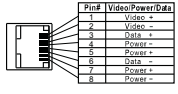
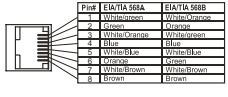


Figure 3: GEC-VCR-12V and GEC-VDPBC RJ-45 connections



EIA/TIA 568A, B Color Codes



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Technical Specifications*

Electrical

Video Format	NTSC, PAL, SECAM
Frequency	DC to 10 MHz
Coax	75 Ohm
Twisted Pair	100 Ohms +/- 20%, 24 AWG MINIMUM Category 2-7
Input Voltage	Pass through (GEC-VCR and GEC-VDPBC) 30 – 16 VAC/DC, Class II SELV (GEC-VCR12V)
Output Voltage	12 VDC Regulated, 30 mV ripple maximum (GEC-VCR12V)
Output Power	600 mA maximum (GEC-VCR12V)
Insertion Loss	0.3 dB
CMRR	60 dB
Connectors	**UTP:** RJ-45 connector **Data:** 9 in. twisted pair **Power:** 9 in. twisted pair **Video:** BNC connector (GEC-VCR and GEC-VCR12V) 9 in. pigtail coax and male BNC (GEC-VPDBC)

Mechanical

Material	ABS plastic, UL rating 0f 94V-0
Dimensions (W x H x D)	**GEC-VCR:** 0.88 x 0.88 x 0.68 in. (2.3 x 2.3 x 1.72 cm) **GEC-VDPBC:** 0.72 x 2.3 x 0.7 in. (1.8 x 5.8 x 1.77 cm) **GEC-VCR12V:** 1.25 x 1.5 x 0.8 in. (7.1 x 3.8 x 2 cm)
Weight	**GEC-VCR**: 0.08 lb. (35 g) **GEC-VDPBC:** 0.06 lb. (25 g) **GEC-VCR12V:** 0.09 lb. (40 g)

Environmental

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

*Specifications are subject to change without notice.

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 **Note: C-Tick mark applies to model GEC-VCR12V**
North American standards	UL 60065
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.

Contact information

For contact information see our Web site: www.gesecurity.com.

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