

# **ENFORCER<sup>®</sup>**

## **EB-P101-20VQ**

Passive Video, Power, and Data Balun

### **Installation Manual**



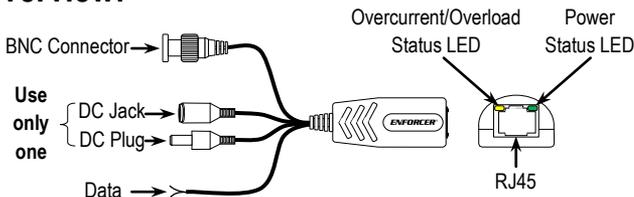
- Transmits up to 1,300ft (400m) color video or up to 1,950ft (600m) B/W video
- Transmits power for 12/24 VAC/VDC cameras (see pg. 3 for details)
- Transmits data up to 984ft (300m)
- High immunity from interference
- Includes DC plug and DC jack
- Pigtails for flexible installation
- Uses low-cost Cat5e/6 cable instead of costly coaxial cable
- RJ45 Jack for easy installation
- Passive operation – No external power required
- Built-in surge protection

## Specifications:

Video	Range*	B/W	1,950' (600m)	
		Color	1,300' (400m)	
	Video format		NTSC, PAL, SECAM	
	Maximum input		1.1Vp-p	
	Insertion loss		<2dB per pair from DC-6MHz	
	Return loss		>15dB from DC-6MHz	
	Frequency response		DC-6MHz	
	Common mode rejection		>40dB, 15kHz-6MHz	
Connections	Wire type		UTP (Unshielded Twisted Pair) 24-16 AWG	
	Wire category		Cat2-Cat6	
	Camera side	Video in		BNC
		Power out		DC Plug or DC jack
		Data out		2 Wires
	Cable side	Video out		RJ45
		Power in		RJ45
		Data in		RJ45
	BNC Connection		Silver plated	
	Attenuation		DC-6MHz, 6.6dB max.	
Impedence	Coax, male BNC		75Ω@1MHz	
	RJ45		100Ω@1MHz	
Other	Max. amperage		1.1A@12VDC	
	Power range*		656' (200m)@12/24 VAC/VDC	
	Data range*		984' (300m)	
	DC Loop resistance		52Ω/1000' (52Ω/305m)	
	Differential capacitance		19pF/ft max. (62pF/m max.)	
	Power		No power required	
	Operating temperature		32 ~131 F (0 ~55 C)	
	Storage temperature		-4 ~158 F (-20 ~70 C)	
	Humidity range		0-95 % (Non-condensing)	
	Case		ABS Plastic	
	Weight		2.3-oz (65g)	
	Cable length		5" (127mm) (longest cable)	
	Dimensions		2 <sup>3</sup> / <sub>8</sub> "x1 <sup>1</sup> / <sub>8</sub> "x1 <sup>3</sup> / <sub>16</sub> " (61x15x21 mm)	

\*Shorter range may occur when used with a DVR.

### Overview:

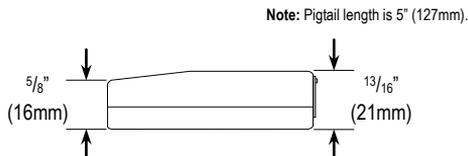
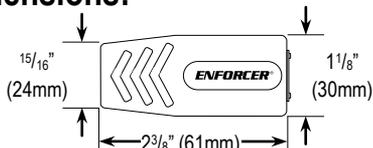


Note: Do not connect both the DC jack and DC plug. Damage to the balun and camera will occur.

### Parts List:

- 1x Passive Video, Power, and Data Balun
- 1x Manual

### Dimensions:



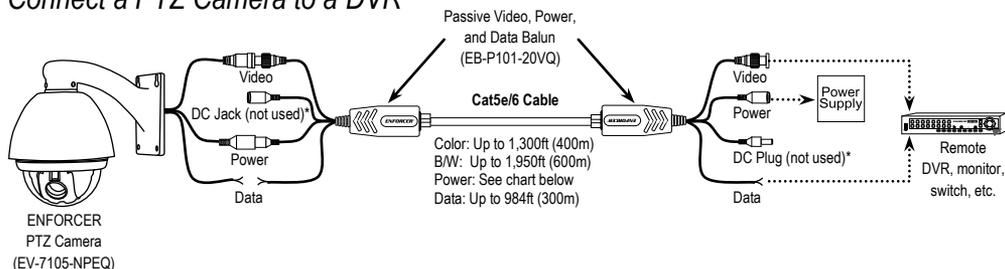
## Installation:

**IMPORTANT:** If using a balun to run power, make sure the terminals are connected to power at both ends. **Connecting a power supply to a camera's data will cause damage to the camera. Double-check all connections before powering the units.**

1. Video baluns are connected in pairs. Connect one balun to the CCTV camera. Connect another balun to a DVR or other remote device.
2. Make sure the distance between the camera and remote video device does not exceed 1,950ft for black and white video or 1,300ft (400m) for color video. **NOTE:** The distance must not exceed 984ft (300m) for data. See chart below for power.
3. Run a Cat5e/6 cable (UTP) from the remote video device to the camera. Use T568-B wiring specification (see below).
4. Connect the Cat5e/6 cable to the RJ45 port of both baluns. **NOTE:** Video baluns are polarity-sensitive.
5. Connect the DC plug of the balun on the camera end to the camera's DC connector. Connect the DC jack of the balun at the other end to the power supply's DC plug.
6. Connect the data connections of the balun on the camera end to the camera's data wires. Connect the data connections of the balun at the other end to the DVR's data connections. **NOTE:** Please note the polarity. The plain black wire is Data (+). The wire with a white stripe is Data (-).
7. Connect the BNC connector of the balun on the camera end to the camera's BNC connector. Connect the BNC connector of the balun at the other end to the DVR or remote device.
8. Test the connection by powering up the CCTV camera and remote video device to make sure they operate as expected.

## Sample Installations:

### Connect a PTZ Camera to a DVR

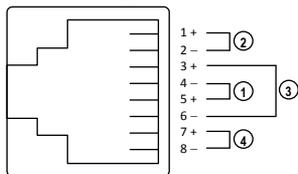


\*Protect and secure unused DC connectors for a safe installation.

**NOTE:** If using the balun for video only, connect one balun to the camera BNC connector and the other to the remote device. The DC plug/jack and data wire do not have to be connected.

**NOTE:** Shorter range may result when used with a DVR.

## T568-B Wiring Specifications:



Pair #	Wire	Pin #	Configuration
1	White/Blue	5	Power (+)
	Blue	4	Power (-)
2	White/Orange	1	Video (+)
	Orange	2	Video (-)
3	White/Green	3	Data (+)
	Green	6	Data (-)
4	White/Brown	7	Power (+)
	Brown	8	Power (-)

## Power Range:

Power Supply Voltage	DC		AC	
	12 VDC	14 VDC	24 VAC	28 VAC
100mA Camera	360' (110m)	959' (292m)	719' (219m)	1,918' (585m)
200mA Camera	180' (55m)	479' (146m)	360' (110m)	959' (292m)
500mA Camera	72' (22m)	192' (58m)	144' (44m)	384' (117m)
750mA Camera	48' (15m)	128' (39m)	96' (29m)	256' (78m)
1A Camera	36' (11m)	96' (29m)	72' (22m)	192' (58m)
Voltage at the Camera	10.8 VDC	10.8 VDC	21.6 VAC	21.6 VAC

## Troubleshooting:

Wavy or ghost image if connected to image processor (e.g., multiplexer or DVR), but not if directly to monitor.	<ul style="list-style-type: none"> <li>Move the Cat5e/6 cable away from possible sources of interference.</li> <li>Ensure that the same twisted pair connects to a balun at both ends of the cable.</li> <li>Replace the cable with a new Cat5e/6 cable.</li> </ul>
Image background flutters between dark and light.	<ul style="list-style-type: none"> <li>Remove a local power source, or adjust the monitor's brightness and contrast.</li> </ul>
Image is wavy and shakes.	<ul style="list-style-type: none"> <li>Try reversing polarity of the two wires at one end of the Cat5e/6 cable.</li> </ul>
Image is weak or faded.	<ul style="list-style-type: none"> <li>Reduce the Cat5e/6 cable length.</li> <li>Replace with a higher-grade cable. Cat5e cable meets the specifications in the manual. Cat6 cable allows longer range.</li> </ul>
No image.	<ul style="list-style-type: none"> <li>Double-check that the Cat5e/6 and BNC cables are connected properly.</li> <li>Run a continuity test on all wires in the cable.</li> <li>Check that the camera and monitor are powered up.</li> </ul>
PTZ Controls do not work.	<ul style="list-style-type: none"> <li>Reduce the Cat5e/6 cable length.</li> <li>If using a controller, make sure the controller is powered.</li> <li>Refer to your PTZ camera manual.</li> </ul>
Overload/overcurrent status LED is ON.	<ul style="list-style-type: none"> <li>Reduce the current. The maximum current the balun can handle is 1.1 Amps.</li> </ul>
Power LED is OFF	<ul style="list-style-type: none"> <li>Check that the camera and monitor are powered up.</li> </ul>

## RJ45 to Terminal Block (CA-171T – Sold Separately):



Connect the CA-171T to the EB-P101-20VQ for the option of connecting Cat5e/6 cable via terminal block



T568-B Wiring Specification:

RJ-45	Pin #	Terminal Block	Pin #
Orange/White	1	Blue/White	1
Orange	2	Blue	2
Green/White	3	Orange/White	3
Blue	4	Orange	4
Blue/White	5	Green/White	5
Green	6	Green	6
Brown/White	7	Brown/White	7
Brown	8	Brown	8

**IMPORTANT:** Users and installers of this product are responsible for ensuring this product complies with all national, state, and local laws and statutes related to monitoring and recording audio and video signals. SECO-LARM will not be held responsible for the use of this product in violation of any current laws or statutes.

**WARNING:** Incorrect mounting which leads to exposure to rain or moisture inside the enclosure could cause a dangerous electric shock, damage the device, and void the warranty. Do not open the case of this device, as there are no field-serviceable components inside.

**WARRANTY:** This SECO-LARM product is warranted against defects in material and workmanship while used in normal service for a period of two (2) years from the date of sale to the original consumer customer. SECO-LARM's obligation is limited to the repair or replacement of any defective part if the unit is returned, transportation prepaid, to SECO-LARM.

This Warranty is void if damage is caused by or attributed to acts of God, physical or electrical misuse or abuse, neglect, repair, or alteration, improper or abnormal usage, or faulty installation, or if for any other reason SECO-LARM determines that such equipment is not operating properly as a result of causes other than defects in material and workmanship.

The sole obligation of SECO-LARM, and the purchaser's exclusive remedy, shall be limited to replacement or repair only, at SECO-LARM option. In no event shall SECO-LARM be liable for any special, collateral, incidental, or consequential personal or property damages of any kind to the purchaser or anyone else.

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