# MANUAL

## EVT-PB1-H05Q

## Video, Power and Data Balun with Voltage Booster




DC DC

The ENFORCER EVT-PB1-H05Q Video, Power and Data (VPD) Balun with Voltage Booster combines the flexibility of a VPD Balun with the ability to boost insufficient voltage for use in CCTV applications. Boosted DC power is regulated to provide stable power suitable for voltage sensitive cameras.

- Transmit video up to 2000' over Cat5
- Selectable 12/24VDC output via jumper
- Regulated and filtered output.
- Output current protection – 500mA
- Small size for easy installation.
- Dual-colored LED power output indicator:
  Red: 12VDC
  Blue: 24VDC
- Green power input LED indicator.
- Built-in overload and short-circuit protection.

SECO-LARM® SLI®

RoHS CE

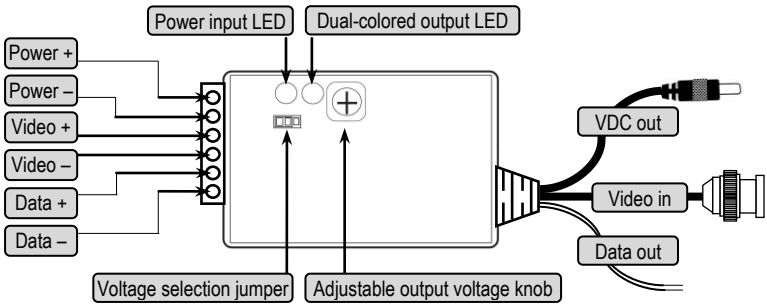
NOTE: Products with a model number that ends with "Q" or have a round green "Q" sticker represent RoHs compliant products.

## Specifications:

| | | EVT-PB1-H05Q | | |
|---|---|---|---|---|
| Voltage Booster | Output voltage | 5/12/24VDC selectable by jumper (default 12VDC) | | |
| | Operating voltages | Input voltage | | Regulated output voltage |
| | | 7~12VDC/VAC | | 12VDC |
| | | 12~24VDC/VAC | | 24VDC |
| | Output current | 500mA @ 5/12/24 VDC | | |
| | Voltage input LED indicator | Green | | |
| | Voltage output LED indicator | Red | | 5/12VDC |
| | | Blue | | 24VDC |
| | Current protection | PTC 500mA | | |
| Video | Range | 2,000' (610m) B/W, 1,300' Color (400m) | | |
| | Video format | RS170, NTSC, PAL, SECAM, CCIR | | |
| | Maximum input | 1vp~p | | |
| | Insertion loss | < 2dB per pair from DC ~ 5 Mhz | | |
| | Return loss | >-15dB from DC ~ 5 Mhz | | |
| | Common mode rejection | 60dB, 15KHz~5MHz | | |
| | Frequency response | DC ~ 5 Mhz | | |
| | Power | No power required for video | | |
| Connections | Wire type | UTP (unshielded twisted pair) | | |
| | Wire category | 20 - 24 AWG @ screwless terminal blocks | | |
| | | CAT2 or better, CAT5 ideal, CAT6 improves range | | |
| | Connectors | In | | Removable terminal block |
| | | Out | Video | Pigtail BNC |
| | | | Power | Pigtail DC plug (center pin positive) |
| | | | Data | Wire |
| | Attenuation | DC ~ 5 Mhz, 1.5 dB max | | |
| | Impedance | Coax, male BNC: 75 Ohms@ 1 MHz | | |
| | | Terminal block: 100 Ohms @ 1 MHz | | |
| Other | Dimensions | 3 1/4" x 2 9/16" x 3/4" (81 x 65 x 20mm) | | |
| | Humidity range | 0 ~ 95% | | |
| | Temperature Range | 14°~165°F (-10°~74°C) | | |
| | Case | ABS Plastic | | |

NOTE: The VPD balun with voltage booster's efficiency rating is 85%. For more information see "Voltage Booster Efficiency Rate" on page 3.

## Figure 1: Video, Power and Data Balun with Voltage Booster Detail



## Installation:

1. Run UTP cable to the camera where the VPD balun is being installed.
2. Remove the cover by simultaneously pressing down on the top cover, and lifting up on the side mounting tabs. This will release the tight seal between the top and bottom covers.
3. Set the desired output voltage using the selection jumper according to table 1 below.
4. Connect output wires from the power supply to the power input terminal blocks on the balun. Observe correct polarity
5. Apply power and use table 2 and 3 below to check the status of the input and output voltages. **NOTE: To avoid potential damage, use a voltage meter to ensure proper voltage is present at the input and output terminal blocks. Observe correct polarity.**
6. Connect the camera to the DC plug on the balun. If the output voltage is too low, then turn the rotary knob clockwise to increase the voltage or counter-clockwise to decrease the voltage.
7. Connect the video input male BNC input in from the VPD Balun to the camera.
8. If using a RS-485 controlled camera, connect the data in wires to the camera.
9. Using the input terminal blocks, connect data and video wires to the balun according to Figure 1. **IMPORTANT: Correct polarity must be observed on all connections.**
10. Replace the cover on the voltage booster.

### Table 1: Adjustable Output Voltage

| Input Voltage | Output Voltage | Adjustable voltage range | Jumper Settings |
|---|---|---|---|
| 7~12VDC | 12VDC | 12.5 ± 5%VDC |  |
| 12~24VDC | 24VDC | 24.0 ± 10%VDC |  |

### Table 2: Wiring Distance 12 VDC Voltage Drop

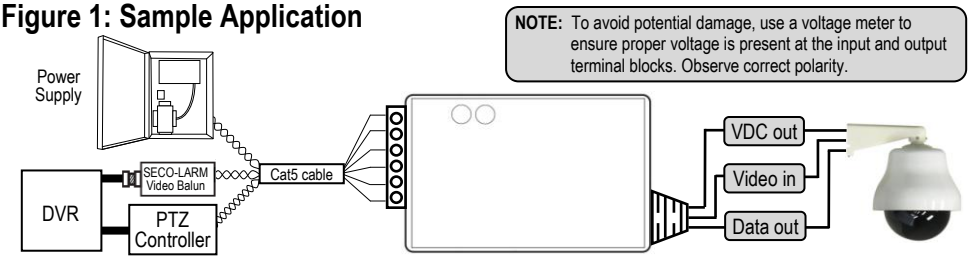
| 24 AWG Wire | 1 Pair | 2 Pairs | 3 Pairs |
|---|---|---|---|
| **250mA** | 90' | 220' | 550' |
| **500mA** | 45' | 110' | 285' |
| **750mA** | 30' | 75' | 190' |
| **1A** | 20' | 55' | 140' |

### Table 3: LED Indicators

| LED colors | Status |
|---|---|
| Green | Power is connected |
| Red | Output is 12VDC |
| Blue | Output is 24VDC |

**NOTE:** Chart is based on standard Cat5 24AWG wire and an allowable 10% voltage drop.

### Figure 1: Sample Application




## Also Available from SECO-LARM:

Passive VGA Balun



**EVT-SBP-GQ**

Passive & Active Video Baluns



**EVT-PB1Q**
(shown)

BNC-to-VGA Converter



**VC-1BAQ**

VPD Balun with Voltage Booster



**EVT-PB1-H05Q**

## Voltage Booster Efficiency Rate:

The EVT-PB1-H05Q has a power efficiency rating of 85%. Under typical conditions, the booster will provide sufficient power to compensate for long cable runs. The following formulas can be used to determine if enough power is present at the power input of the voltage booster:

1. Calculate the amount of power measured in Watts:
   Voltage x Current = Power
2. For example, if the voltage is 12VDC, and the current is 750mA:
   12VDC x .75 = 9 Watts
3. Then calculate the amount of power using the voltage booster with the following formula:
   Power Input x Efficiency Rate = Power Output.
4. Using the 9 Watts in the previous example, calculate power input of the booster:
   9 Watts x .85 = 7.65 Watts
5. After the power has been calculated, the output current is calculated from the following formula:
   Power / Voltage = Current
6. Using the example of 9 watts present at the power input, and 7.65 Watts at the power output:
   7.65 Watts / 12VDC = 640mA of available current

Use Table 3 to determine if additional pairs of Cat5 cable will be needed to transmit power.
For more information see the Technical Bulletin for the ST-HB105-TTQ at www.seco-larm.com

## Troubleshooting:

| | |
|---|---|
| Output voltage is low/high | • Check voltage jumper settings<br>• Check output voltage adjustment.<br>• Check input voltage to make sure it meets the input requirements |
| Green input LED not on | • Check input power connections with multimeter to verify correct input voltage |
| Blue/red output LED not on | • Check to see if the load exceeds the maximum limit<br>• Temporarily disconnect power input and output wires for 30 seconds before connecting |

**WARRANTY** This SECO-LARM product is warranted against defects in material and workmanship while used in normal service for a period of one (1) year 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's 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.

**NOTICE:** The information and specifications printed in this manual are current at the time of publication. However, the SECO-LARM policy is one of continual development and improvement. For this reason, SECO-LARM reserves the right to change specifications without notice. SECO-LARM is also not responsible for misprints or typographical errors. Copyright © 2008 SECO-LARM U.S.A., Inc. All rights reserved. This material may not be reproduced or copied, in whole or in part, without the written permission of SECO-LARM.

**SECO-LARM® U.S.A., Inc.**
16842 Millikan Avenue, Irvine, CA 92606
Tel: 800-662-0800 / 949-261-2999 Fax: 949-261-7326
Website: www.seco-larm.com
E-mail: sales@seco-larm.com