ENFORCER®

EB-P116-60HQ

4-in-1 HD 16-Channel Passive Balun Hub

Manual

Features:

- 4-in-1 TVI / CVI / AHD / Analog video up to 1080p
- Transmits up to 1,476ft (450m) depending on format, resolution, and cable used
- PAL / NTSC / SECAM Compatible
- Built-in TVS surge protection
- Anti-static and wave filters
- Lightning protection – Grade III

- 60dB Crosstalk and noise immunity
- Exceptional interference rejection
- Passive operation – No external power required
- Real-time transmission over low-cost Cat5e/6 cable instead of costly coaxial cable
- Removable terminal blocks or RJ45 connectors
- Rack, wall, or desk mountable

SECO-LARM® SLI®

FC CE RoHS

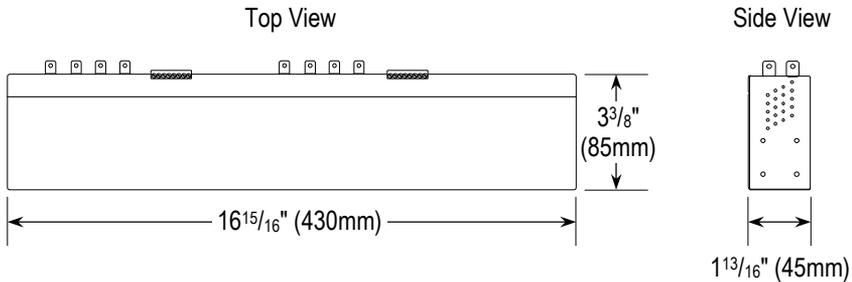## ENFORCER 4-in-1 HD 16-Channel Passive Balun Hub

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Introduction:

The ENFORCER 4-in-1 HD 16-Channel Passive Balun Hub allows HD CCTV cameras to connect to a DVR, video switcher, or multiplexer via inexpensive Cat5e/6 unshielded twisted pair (UTP) cable. This balun hub is a great way to cut the cost and complexity of security networks by eliminating the need to run expensive coaxial cable to multiple HD CCTV cameras.
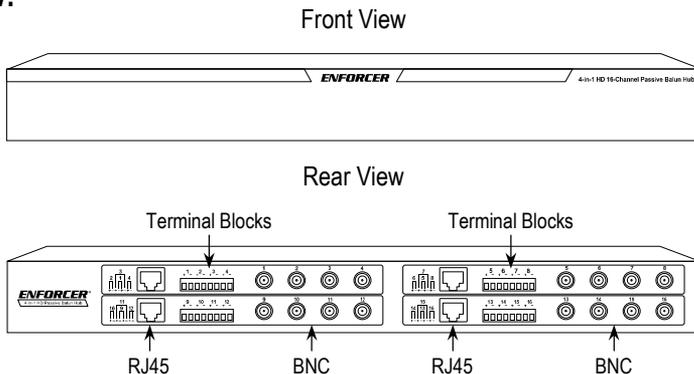
Parts List:

1x Balun hub	4x Rubber feet	8x Mounting screws
2x Mounting brackets	1x Screwdriver	1x Manual

Dimensions:

Top View

Side View

3³/₈" (85mm)

16¹⁵/₁₆" (430mm)

1¹³/₁₆" (45mm)

Overview:

Front View

Rear View

Terminal Blocks

Terminal Blocks

RJ45

BNC

RJ45

BNC

Specifications:

Video	Range*	TVI	720p: 623ft (190m) / 1080p: 623ft (190m)
		CVI	720p: 1,443ft (440m) / 1080p: 754ft (230m)
		AHD	720p: 1,049ft (320m) / 1080p: 820ft (250m)
		Analog	B/W: 1,476ft (450m) / Color: 1,312ft (400m)
	Video format		NTSC, PAL, SECAM
	Frequency response		DC~42MHz
	Common/differential mode rejection		60dB, 15kHz~42MHz
Connections	Wire type		UTP (Unshielded Twisted Pair) 24~16 AWG
	Wire category		Cat2~Cat6
	UTP Connection		Nickel plated
	Attenuation		1.5dB max.
	Impedance	Coax, male BNC	75Ω@1MHz
		Screwless terminal	100Ω@1MHz ±20Ω
Protection	Surge protection		Renewable solid state surge protection
	Video input		2KV (common mode), 10/700µs IEC6100-4-5/1955 (GB/T 1726, 5-1999)
	Video output		2KV (differential mode), 10/700µs IEC6100-4-5/1955 (GB/T 1726, 5-1999)
Other	DC Loop resistance		52Ω/1000' (18Ω/100m)
	Differential capacitance		19pF/ft max. (62pF/m max.)
	Power		No external power required
	Operating temperature		-4°~158° F (-20°~70° C)
	Storage temperature		-40°~185° F (-40°~85° C)
	Humidity range		0~95 % (Non-condensing)
	Case		Galvanized steel
	Weight		2-lb 12-oz (1250g)
	Dimensions		$16^{15}/_{16}$"x$3^3/_8$"x$1^{13}/_{16}$" (430x85x45 mm)

Actual range depends on format, resolution, and cable quality.

T568-B Wiring Specifications:

| Pair #	Wire	Pin #	Configuration
1, 5, 9, 13	White/Blue	5	Video (+)
	Blue	4	Video (-)
2, 6, 10, 14	White/Orange	1	Video (+)
	Orange	2	Video (-)
3, 7, 11, 15	White/Green	3	Video (+)
	Green	6	Video (-)
4, 8, 12, 16	White/Brown	7	Video (+)
	Brown	8	Video (-)

Mounting Methods:

Shelf or Table Mounting:

1. Units may be stacked one on top of the other, or with other equipment.

   NOTE: Do not stack more than 70-lbs on top of the passive video balun hub.

2. Make sure the rubber feet are firmly attached to the base of the passive video balun hub.
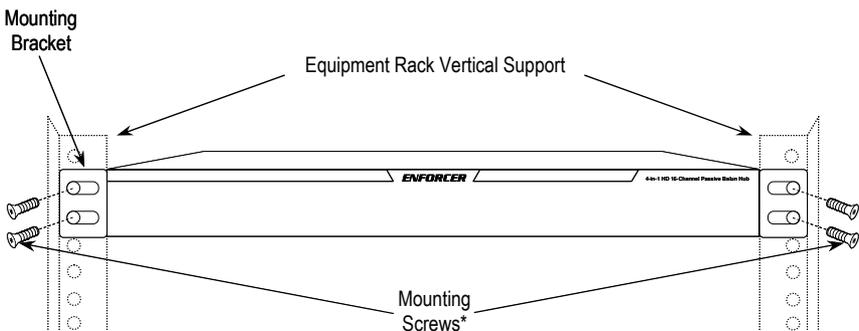
Adhesive Rubber Foot
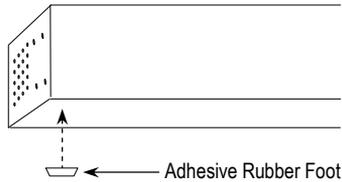
Wall Mounting:

1. Screw the mounting brackets on, facing downward.

2. Use mounting screws or bolts (not included) to mount the unit in the desired location.

   NOTE: Make sure that the screws/bolts and mounting surface can support the weight of the unit.
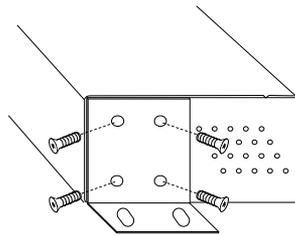
Rack Mounting:

1. Screw the mounting brackets onto the unit facing forward.

2. Find 1U of space in your equipment rack and screw the unit in place.

   NOTE: No rear support rails are needed. The unit can be fully supported using the mounting brackets provided.

Mounting Bracket

Equipment Rack Vertical Support

ENFORCER   4-in-1 HD 16-Channel Passive Balun Hub

Mounting Screws*

*The screws included with the unit are for installing the mounting brackets. Screws for mounting the unit to an IT rack are not included.

Installation:

1. Use mounting screws or bolts (not included) to mount the unit in the desired location (see "Mounting Methods," pg. 4).

    NOTE: Ensure that the screws/bolts and mounting surface can support the weight of the unit.

2. Run a Cat5e/6 UTP cable from each camera through the wall or through a conduit to the EB-P116-60HQ.

3. Connect a video balun or multi-channel passive video transceiver to a pair of wires from the UTP cable near the CCTV camera, and then connect the video balun to the camera.

4. Connect the matching pair of wires on the other end of the cable to the desired terminal blocks on the back of the EB-P116-60HQ.

    NOTE: The ENFORCER 4-in-1 HD 16-Channel Passive Balun Hub also has the option of connecting Cat5e/6 cables through RJ45 instead of terminal blocks. Please see "T568-B Wiring Specifications," pg. 3 for wiring specifications.

5. Test the connection by powering up the CCTV camera and remote video device to make sure they operate as expected.
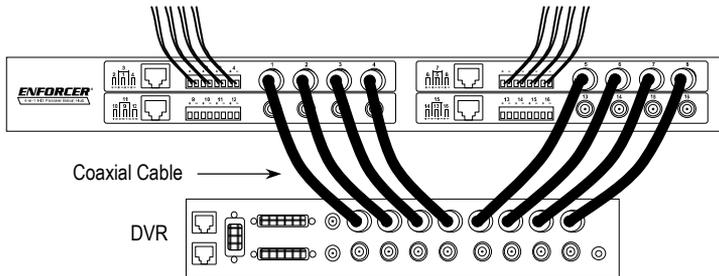
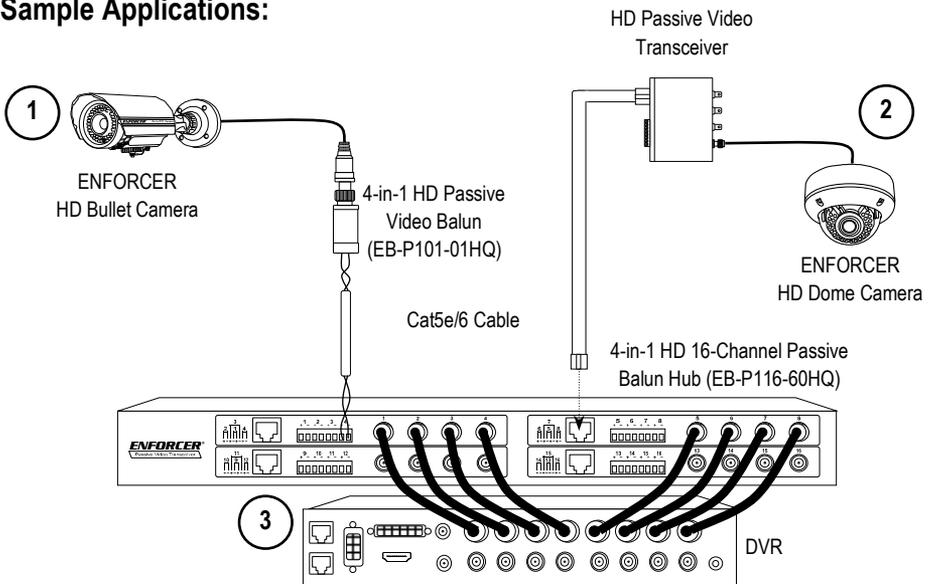Using an RJ45 Connection   Using Passive HD Baluns

Cat5e/6
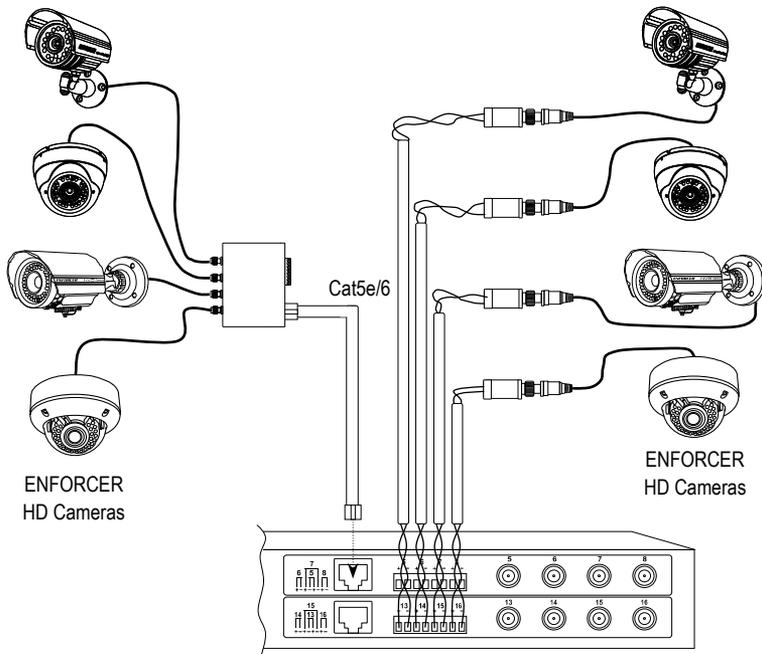
ENFORCER
HD Cameras

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HD Cameras

Connecting to a DVR, Video Switcher, or Multiplexer:

1. Run one coaxial cable (not included) from the Video Out on the EB-P116-60HQ to the corresponding Video In port of the DVR, video switcher, or multiplexer (not included).

2. Repeat the above as necessary until each occupied channel is connected to the DVR, video switcher, or multiplexer.
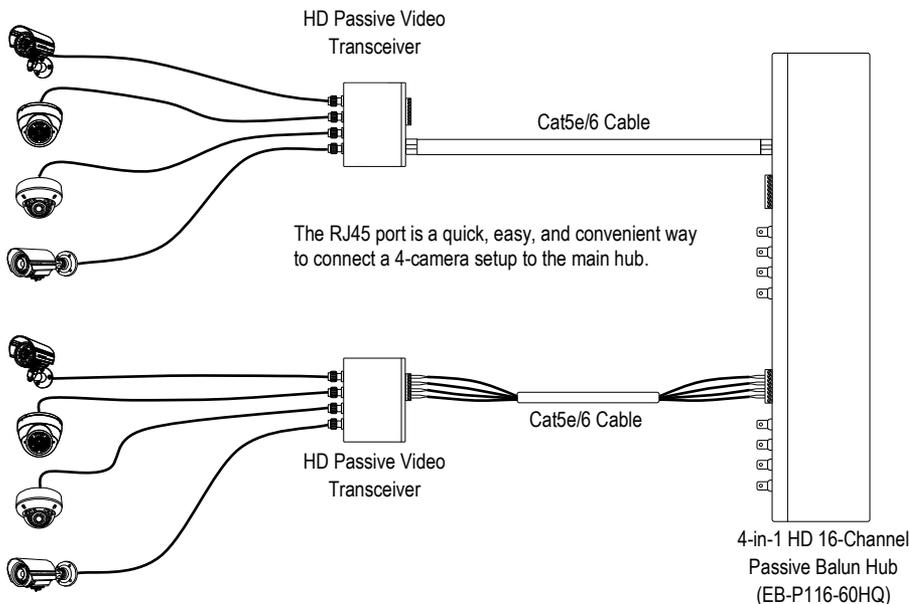

Coaxial Cable →

DVR

Sample Applications:

HD Passive Video Transceiver

1 ENFORCER HD Bullet Camera

4-in-1 HD Passive Video Balun (EB-P101-01HQ)

Cat5e/6 Cable

2 ENFORCER HD Dome Camera

4-in-1 HD 16-Channel Passive Balun Hub (EB-P116-60HQ)

3 DVR

1. The ENFORCER HD Bullet Camera is connected to the 4-in-1 HD 16-Channel Passive Balun Hub (EB-P116-60HQ) through a 4-in-1 HD Passive Video Balun (EB-P101-01HQ shown).

2. The ENFORCER HD Dome Camera is connected to the 4-in-1 HD 16-Channel Passive Balun Hub (EB-P116-60HQ) through a 4-Channel HD Passive Video Transceiver via the RJ45 port. Terminal blocks may be used instead.

3. The 4-in-1 HD 16-Channel Passive Balun Hub is connected to a DVR.

Sample Applications (Continued):

Connecting with RJ45 vs. Terminal Block

HD Passive Video
Transceiver

Cat5e/6 Cable

The RJ45 port is a quick, easy, and convenient way
to connect a 4-camera setup to the main hub.

Cat5e/6 Cable

HD Passive Video
Transceiver

4-in-1 HD 16-Channel
Passive Balun Hub
(EB-P116-60HQ)

Troubleshooting:

Wavy or ghost image if connected to image processor (e.g., multiplexer or DVR), but not if directly to monitor	• Move the Cat5e/6 cable away from possible sources of interference. • Ensure that the same twisted pair connects to a balun at both ends of the cable. • Replace the cable with a new Cat5e/6 cable.
Image background flutters between dark and light	• Remove a local power source, or adjust the monitor's brightness and contrast.
Image is wavy and shakes	• Try reversing polarity of the two wires at one end of the Cat5e/6 cable.
Image is weak or faded	• Reduce the Cat5e/6 cable length. • Replace with a higher-grade cable. Cat5e cable meets the specifications in the manual. Cat6 cable allows longer range.
No image	• Double-check that the Cat5e/6 and BNC cables are connected properly. • Run a continuity test on all wires in the cable. • Check that the camera and monitor are powered up. • Ensure that the polarity of the Cat5e/6 connections is correct.

Also Available from SECO-LARM®:

4-in-1 HD Video Baluns	4-in-1 HD Video Baluns with 6" pigtail	4-in-1 HD Video, Power, and Data Combiners
EB-P101-01HQ	EB-P101-20HQ	EB-P304-01MQ shown Rack-mount and 16-channel versions available

4-in-1 HD Video Distributors	4-in-1 HD to HDMI Converter	Rack-Mount CCTV Power Supplies
VA-1102B-WYQ 1 input, 2 outputs	VC-3YAQ	PH-U1612-PULQ shown 12VDC and 24VAC available

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