

VPD (Video/Power/Data) Combiners Manual



(EB-P304-01MQ shown)



(EB-C304-01EQ shown)

Midpoint VPD Combiners:				
Model #	Power	Channels		
EB-P304-01MQ	Passive	4		
EB-P316-60MQ	Passive	16		
EB-D304-01MQ*	12VDC	4		
EB-D316-60MQ*	12VDC	16		
EB-C304-01MQ*	24VAC	4		
EB-C316-60MQ*	24VAC	16		

Endpoint VPD Combiners:

Model #	Power	Channels
EB-P304-01EQ*	Passive	4
EB-P316-60EQ	Passive	16
EB-D304-01EQ*	12VDC	4
EB-D316-60EQ*	12VDC	16
EB-C304-01EQ	24VAC	4
EB-C316-60EQ*	24VAC	16

*Special Order Only

ENFORCER VPD (Video/Power/Data) Combiners work in conjunction with standard passive VPD baluns and RJ45 cables to simplify and organize a large scale CCTV installation. Using this allows for increased flexibility and simplified, more organized cable installation, providing power to cameras while delivering high quality video all over a single CAT5e/6 cable. Troubleshooting is therefore greatly simplified and clutter reduced. ENFORCER VPD Combiners are compatible with all HD analog, including HD-AHD, HD-CVI, and HD-TVI, as well as traditional analog formats.

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Introduction:

All **ENFORCER VPD Combiners** are capable of transmitting the various HD Analog formats such as HD-AHD, HD-CVI, or HD-TVI. These formats are supported in addition to traditional analog formats.

ENFORCER VPD Passive Midpoint Combiners are typically installed between the camera and DVR combining data, video, and camera power via CAT5e/6 cable to simplify installation and allow for easy expandability and serviceability. The passive combiner allows for the use of any external **ENFORCER** low voltage power supply or a compatible third party low voltage power supply.

ENFORCER VPD Active Midpoint Combiners provide the same benefits as the Passive Midpoint Combiners, but include either an integrated 12VDC or 24VAC (for greater distances) power supply.

ENFORCER VPD Passive Endpoint Combiners are typically installed near the DVR and include BNC connectors to connect directly to the DVR. This combines data, video, and camera power via CAT5e/6 cable to simplify installation and allow for easy expandability and serviceability. The passive combiner allows for the use of any external **ENFORCER** low voltage power supply or a compatible third party low voltage power supply.

ENFORCER VPD Active Endpoint Combiners provide the same benefits as the Passive Endpoint Combiners, but include either an integrated 12VDC or 24VAC (for greater distances) power supply.

All 16 channel versions are rack mountable or wall/desk mountable.

IMPORTANT: Only low voltage power supplies may be used.

Parts List:			
1x VPD Combiner	2x Wall mount brackets	4x Screws for brackets ¹	1x Manual
1x Power cord (4ft) ²	1x Spare glass fuse ²	4x Rubber feet	
¹ 16ch models include 6x scr ² Powered models only	ews for brackets		

Specifications: Midpoint VPD Combiners

ilapoint vPl	D Combin	ers							
Model #		EB-P304-01MQ	EB-P316-60MQ	EB-D304-01MQ*	EB-D316-60MQ*	EB-C304-01MQ*	EB-C316-60MQ*		
Туре		Passive Midpoint 12VDC Midpoint 24V/		24VAC	AC Midpoint				
Channels		4	16	4	16	4	16		
	CVBS	984' (300m)							
Video rongo	HD-AHD	720p: 1050' (320m); 1080p: 722' (220m)							
Video range HD-CVI		720p: 1476' (450m); 1080p: 820' (250m)							
	HD-TVI			720p/1080p	: 820' (250m)				
Video format				NTSC, PA	L, SECAM				
Maximum input				1V	р-р				
Frequency resp	onse			DC to	60MHz				
CMMR				60dB , 20k	Hz~60MHz				
Wire category				CAT5e	~CAT6				
BNC Connectio	n		Nickel-plated						
Impedance	Coax	75Ω@1MHz							
Impedance	RJ45	100Q@1MHz							
Max. amperage)	1A@12VDC/24VAC		1A@12VDC		1A@2	1A@24VAC		
Data range		2,400' (800m)							
DC Loop resista	ance			29Ω/1,000'	(9.5Ω/100m)				
Differential capa	acitance			19pF/ft max	(62pf/m max)				
Output voltage		N	N/A 13.5VDC 26VAC				/AC		
Fuse				1.5A n	nax/CH				
Input power		N	/A	90~24	10VAC	110	VAC		
Input power fus	Input power fuse		/A	F2AL250V	F8AL250V	F2AL250V	F8AL250V		
Operating temp	erature			-14~140°F	(-10~60°C)				
Humidity range		0~95%, non-condensing							
Case material		Steel							
Weight		0.89-lbs	1.93-lbs	2.98-lbs	8.49-lbs	5.64-lbs	18.81-lbs		
weight		(404g)	(876g)	(1350g)	(3850g)	(2558g)	(8532g)		
Dimensions				See Dimen	sions (pg. 5)				

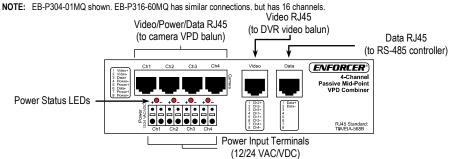
Endpoint VPD Combiners

Model #		EB-P304-01EQ*	EB-P316-60EQ	EB-D304-01EQ*	EB-D316-60EQ*	EB-C304-01EQ	EB-C316-60EQ*
Туре		Passive Endpoint		12VDC Endpoint		24VAC Endpoint	
Channels		4	16	4	16	4	16
	CVBS	984' (300m)					
Video range HD-AHD HD-CVI		720p: 1050' (320m); 1080p: 722' (220m)					
		720p: 1476' (450m); 1080p: 820' (250m)					
	HD-TVI	720p/1080p: 820' (250m)					
Video format				NTSC, PA	L, SECAM		
Maximum input					р-р		
Insertion loss					om 20kHz~60Mhz		
Frequency resp	onse				60MHz		
CMMR		60dB , 20kHz~60MHz					
Wire category		CAT5e~CAT6					
BNC Connectio		Nickel-plated					
Impedance	Coax	75Ω@1MHz					
•	RJ45	100Ω@1MHz					
	Max. amperage 1A@12VDC/24VAC		DC/24VAC		2VDC	1A@2	24VAC
Data range					(800m)		
DC Loop resista				,	(9.5Ω/100m)		
Differential capa	acitance				(62pf/m max)		
Output voltage		N	/A	13.5VDC 26VAC		/AC	
Fuse					nax/CH		
Input power			I/A		IOVAC		VAC
	nput power fuse N/A		F2AL250V F8AL250V F2AL250V F8AL250V				
Operating temp					(-10~60°C)		
Humidity range		0~95%, non-condensing					
Case material Steel		40.47 lb					
Weight		0.96-lbs	2.2-lbs	3.06-lbs	8.75-lbs	5.72-lbs	19.17-lbs
		(436g)	(998g)	(1388g)	(3968g)	(2596g)	(8694g)
Dimensions	1	See Dimensions (pg. 5)					
pecial Order Or	ny						

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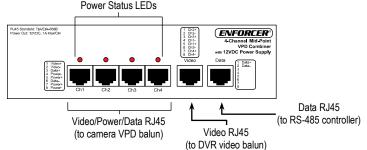
Overview:

Passive Midpoint VPD Combiners:



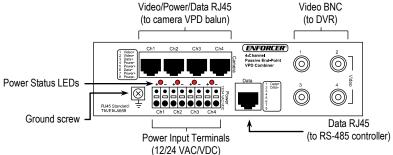
Active Midpoint VPD Combiners:

NOTE: EB-D304-01MQ shown. EB-C304-01MQ has similar connections. EB-D316-60MQ and EB-C316-60MQ have similar connections, but have 16 channels. Power switch and fuse on the back of the unit are not shown.



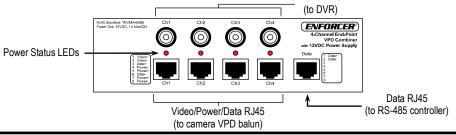
Passive Endpoint VPD Combiners:

NOTE: EB-P304-01EQ shown. EB-P316-60EQ has similar connections, but has 16 channels.



Active Endpoint VPD Combiners:

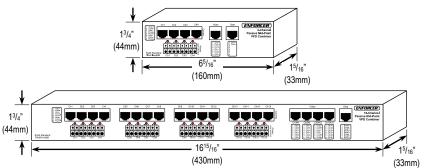
NOTE: EB-D304-01EQ shown. EB-C304-01EQ has similar connections. EB-D316-60EQ and EB-C316-60EQ have similar connections, but have 16 channels. Power switch and fuse on the back of the unit are not shown. Video BNC



Dimensions:

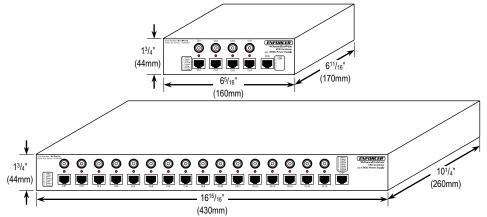
Passive VPD Combiners:

NOTE: EB-P304-01MQ and EB-P316-60MQ shown. EB-P304-01EQ and EB-P316-60EQ have the same dimensions (respectively).



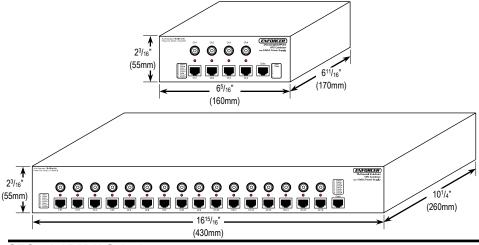
12VDC VPD Combiners:

NOTE: EB-D304-01EQ and EB-D316-60EQ shown. EB-D304-01MQ and EB-D316-60MQ have the same dimensions (respectively).



24VAC VPD Combiners:

NOTE: EB-C304-01EQ and EB-C316-60EQ shown. EB-C304-01MQ and EB-C316-60MQ have the same dimensions (respectively).

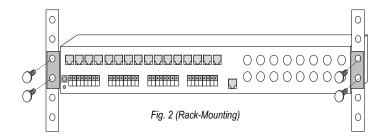


ENFORCER VPD Combiners

Installation:

- 1. Location: Install the unit in a ventilated, dry location where it will not be disturbed by other activities. A data center room is ideal.
 - **NOTE:** For indoor use only. Make sure there is a cool air flow around the unit to prevent it from overheating.
 - a. Install the **Passive Midpoint VPD Combiners** near the power supply at a point between the cameras and DVR.
 - b. Install the **Active Midpoint VPD Combiners** at a point between the cameras and DVR. A power supply is already included in these models.
 - c. Install the **Passive Endpoint VPD Combiners** near the power supply and DVR ideally in the same room.
 - d. Install the **Active Endpoint VPD Combiners** near the DVR ideally in the same room. A power supply is already included in these models.
- 2. Mounting:
 - a. Wall-mounting attach the two included mounting brackets to the sides of the VPD Combiner (see fig. 1). Then attach to a wall with the four included screws and, if needed, optional screw anchors.
 - Back-mounting attach the two included mounting brackets to the front or back of the VPD Combiner (see fig. 2). Then attach to a standard 19" rack with the four included screws.
 NOTE: Rack-mounting is available for 16-channel models only.

Fig. 1 (Wall/Desk-Mounting)

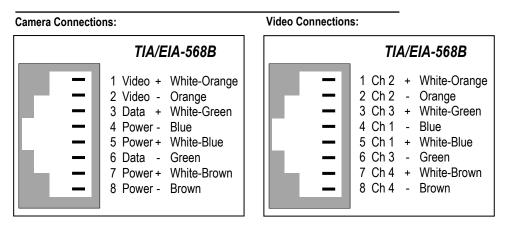


Power Range:

Use this chart to determine the maximum distance between the VPD Combiner and the cameras when powering cameras at extended distances.

Power Supply Voltage	26VAC	13VDC
Resultant Camera Voltage	20VAC	10VDC
100mA Camera	1,960ft (600m)	984ft (300m)
300mA Camera	656ft (200m)	328ft (100m)
500mA Camera	394ft (120m)	197ft (60m)
1A Camera	197ft (60m)	98ft (30m)

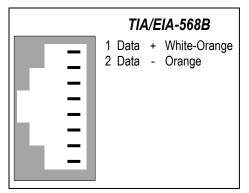
RJ45 Connections:



16-channel models.

Data Connections:

4-channel models:



TIA/EIA-568B			
	 Data A+ White-Orange Data A- Orange Data B+ White-Green Data C- Blue Data C+ White-Blue Data B- Green Data D+ White-Brown Bata D- Brown 		

NOTE: A is channels 1~4, B is channels 5~8, C is channels 9~12, D is channels 13~16.

Wiring the Passive Midpoint VPD Combiners (EB-P304-01MQ and EB-P316-60MQ):

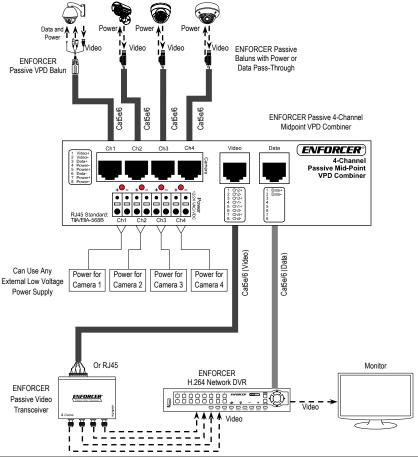
- 1. Connect cameras to VPD baluns (such as the EB-P101-20VQ) and run them via CAT5e/6 to the "Camera" ports on the VPD Combiner.
- Run 12 or 24 VDC power to the "Power In" press-fit terminals on the VPD Combiner, depending on each camera's power requirements. For each camera port connected to the VPD balun, the corresponding power input must be connected to power.
 NOTE: Observe polarity when connecting power.
- 3. Run a CAT5e/6 cable from the "Video Out" port on the VPD Combiner to baluns or a multiplechannel passive video transceiver on the DVR side.

NOTE: Consult the balun or video transceiver manual for range information.

4. Run a CAT5e/6 cable from the "Data Out" port on the VPD Combiner to the DVR or PTZ Controller.

Sample Installation:

NOTE: EB-P304-01MQ shown. EB-P316-60MQ has similar connections, but has 16 channels.

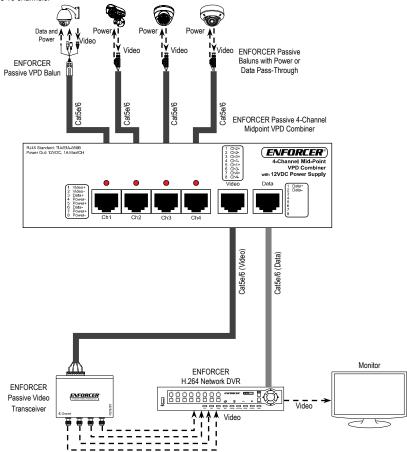


Wiring the Active Midpoint VPD Combiners (EB-D304-01MQ, EB-D316-60MQ, EB-C304-01MQ and EB-C316-60MQ):

- 1. Connect cameras to VPD baluns (such as the EB-P101-20VQ) and run them via CAT5e/6 to the "Camera" ports on the VPD Combiner.
- Run a CAT5e/6 cable from the "Video Out" port on the VPD Combiner to baluns or a multiplechannel passive video transceiver on the DVR side.
 NOTE: Consult the balun or video transceiver manual for range information.
- Run a CAT5e/6 cable from the "Data Out" port on the VPD Combiner to the DVR or PTZ
- 3. Run a CAT56/6 cable from the "Data Out" port on the VPD Combiner to the DVR c Controller.

Sample Installation:

NOTE: EB-D304-01MQ shown. EB-C304-01MQ has similar connections. EB-D316-60MQ and EB-C316-60MQ have similar connections, but have 16 channels.



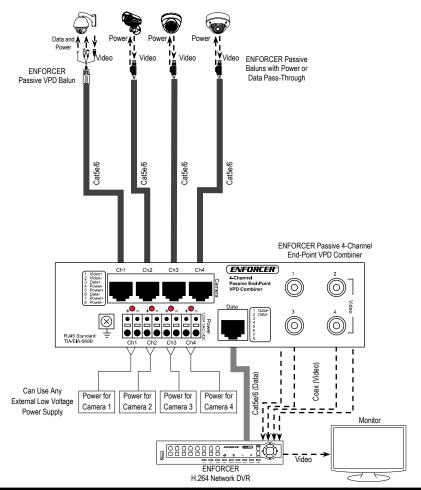
ENFORCER VPD Combiners

Wiring the Passive Endpoint VPD Combiners (EB-P304-01EQ, EB-P316-60EQ):

- 1. Connect cameras to VPD baluns (such as the EB-P101-20VQ) and run them via CAT5e/6 to the "Camera" ports on the VPD Combiner.
- Run 12 or 24 VDC power to the "Power In" press-fit terminals on the VPD Combiner, depending on each camera's power requirements. For each camera port connected to the VPD balun, the corresponding power input must be connected to power.
 NOTE: Observe polarity when connecting power.
- 3. Run coaxial cables from the BNC ports on the VPD Combiner to the BNC ports on the DVR.
- 4. Run a CAT5e/6 cable from the "Data Out" port on the VPD Combiner to the DVR or PTZ Controller.

Sample Installation:

NOTE: EB-P304-01EQ shown. EB-P316-60EQ has similar connections, but has 16 channels.

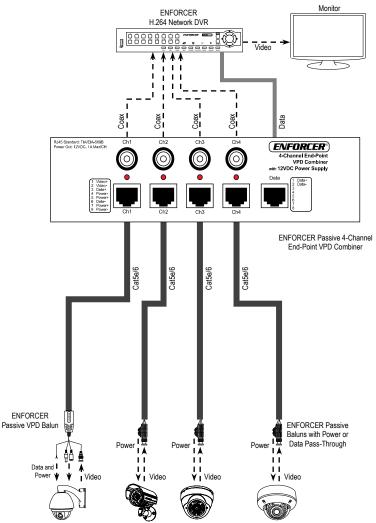


Wiring the Active Endpoint VPD Combiners (EB-D304-01EQ, EB-D316-60EQ, EB-C304-01EQ and EB-C316-60EQ):

- 1. Connect cameras to VPD baluns (such as the EB-P101-20VQ) and run them via CAT5e/6 to the "Camera" ports on the VPD Combiner.
- 2. Run coaxial cables from the BNC ports on the VPD Combiner to the BNC ports on the DVR.
- Run a CAT5e/6 cable from the "Data Out" port on the VPD Combiner to the DVR or PTZ Controller.

Sample Installation:

NOTE: EB-D304-01EQ shown. EB-C304-01EQ has similar connections. EB-D316-60EQ and EB-C316-60EQ have similar connections, but have 16 channels.



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 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.
PTZ Controls do not work.	Reduce the Cat5e/6 cable length.Refer to your PTZ camera manual.
Power LEDs are OFF	Check that the power supply is ON.

Also Available from SECO-LARM:



WARRANTY: This SECO-LARM product is warranted against defects in material and workmanship while used in normal service for one (1) year from the date of sale to the original 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 the 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 damage of any kind to the purchaser or anyone else.

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