

ETHERNET & POE OVER COAX  
**HIGHWIRE™**  
 POWERSTAR  
 BASE 4



## Four-Channel Ethernet and POE over coax unit designed for video encoder replacement

HIGHWIRE Powerstar Base 4 replaces existing analogue video encoders and enables easy replacement of analogue cameras with high-resolution IP cameras

- | Re-use existing coax currently used for analogue cameras
- | Replace typical 4-channel video encoders with a full IP system
- | Reliably power new IP cameras with POE over coax
- | Fully automatic installation - no set-up of EOC\* adaptor required
- | Simple fast, cost-effective installation, less time on site
- | Compatible with HIGHWIRE Powerstar Camera EOC\* adaptors
- | Gigabit Ethernet network uplink and optional SFP port



\* EOC = Ethernet over Coax



## A true plug-and-play solution for connecting and powering IP cameras over legacy coaxial cabling

The HIGHWIRE Powerstar product family offers reliable power delivery and long-range extension even over low-grade coaxial cable and now enables direct replacement of existing analogue video encoders to allow cost-effective upgrade to IP cameras

### Existing Video Encoders

Many CCTV installations made the first step to IP video by using analogue video encoders to digitise their existing analogue cameras and stream IP video onto their network. This allowed the analogue cameras running over existing coaxial cables to be used with modern network video recorders (NVRs) and to be streamed anywhere on the network (to a video wall, operator screen or display monitor for example). Video encoders were frequently used to get the video onto a network at the most convenient point thus avoiding having to run coax cable very long distances all the way to the

equipment room end. Digitising and networking the video also added some flexibility to the system in terms of how the video data was routed and used, and indeed this is part of the power of IP Video systems.

### Legacy Video Encoders

Existing video encoders come in many forms, but by far the most common is the stand-alone four-channel encoder, as manufactured by hundreds of different companies around the world. All have very similar characteristics: Four BNC connections for the coax cables, a network connection and a power connection.

### PTZ Control/Audio

Some video encoders also had RS232 or RS485 ports for controlling analogue PTZ cameras. Of course, such serial connections are not required for IP PTZ cameras, as all control signals go through the Ethernet network connection along with the digital video. Likewise, some analogue encoders had audio I/O, but again, separate audio connections are not required for IP cameras, as the signals are incorporated into the network data and recorded by the NVR.

HIGHWIRE Powerstar Base 4 directly replaces the analogue encoder unit.

### EXAMPLE OF A TYPICAL ANALOGUE ENCODER INSTALLATION

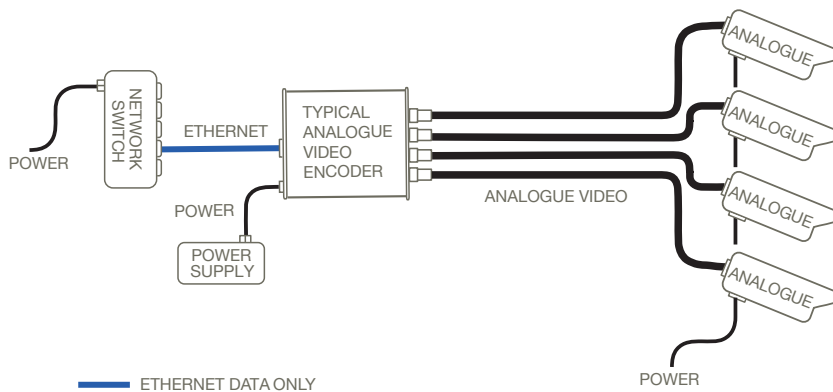


Diagram 1. A typical four-channel analogue video encoder installation is illustrated here

ETHERNET AND POWER OVER COAX INSTALLATION DIAGRAM

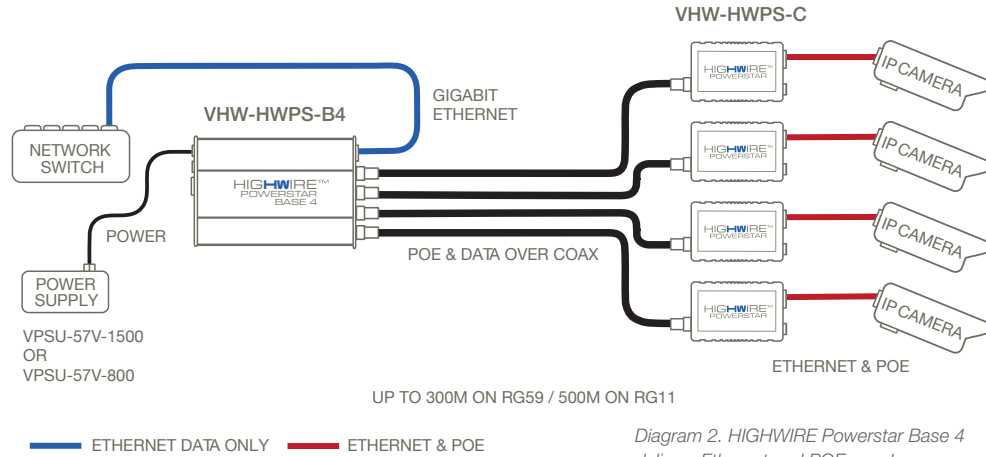


Diagram 2. HIGHWIRE Powerstar Base 4 delivers Ethernet and POE over legacy coax, for maximum reliability and with no rewiring.

**Direct Encoder Replacement**

HIGHWIRE Powerstar Base 4 builds on the market-leading HIGHWIRE range of Ethernet-over-coax (EOC) adaptors from Veracity, and is designed as a direct replacement for legacy analogue video encoders.

powered analogue cameras are replaced by high-resolution POE powered IP cameras. A Gigabit Ethernet uplink connection on the HIGHWIRE Base 4 ensures there is no network bandwidth limit on available image quality and resolution.

**EOC Base and Camera Units**

In Diagram 2 above, the legacy analogue encoder is replaced by a HIGHWIRE Base 4 unit and the coax cables are connected to four separate single-channel HIGHWIRE Powerstar Camera adaptors. Note that Duo and Quad Camera adaptors are also available. The low-resolution, locally

**Automatic connection**

As soon as the power is supplied to the Base 4 unit, a connection is established automatically with the Camera units, the IP cameras are powered up and the camera IP addresses will be available on the network. The HIGHWIRE units require no configuration, do not require IP

address settings and are completely transparent to the network.

**Recommended Power Supplies**

There are two PSU options available for HIGHWIRE Powerstar Base 4 units. They are 57V DC to provide the maximum power and distance possible within the POE standard. (IEEE 802.8af and 802.3at)

The options provide 40W or 80W. The 40W unit provides 10W per channel over the coax on the Base 4 unit, which is sufficient for most static IP cameras. The 80W unit provides up to 20W per channel on Base 4.

POE-OVER-COAX RANGE TABLE

RANGE TABLE	CAMERA POWER (watts)				
	5W	10W	15W	20W	25W
<b>RG-11 (14AWG core)</b> <i>Copper Core</i>	500m 1640ft	500m 1640ft	500m 1640ft	500m 1640ft	500m 1640ft
<b>RG-59 (22/20AWG core)</b> <i>Copper Core</i>	300m 1000ft	300m 1000ft	300m 1000ft	300m 1000ft	300m 1000ft
<b>RG-59 (22AWG CCS)</b> <i>Copper coated steel</i>	270m 880ft	265m 870ft	185m 610ft	140m 460ft	110m 360ft

**POE-over-Coax™ Range**

HIGHWIRE Powerstar delivers reliable power at long range, even over low grade CCS cable. No set-up is required and the coax connection is automatically established on power-up.

The table shows the range achievable by cable type and camera wattage.

## TECHNICAL SPECIFICATION

HIGHWIRE™  
POWERSTAR  
BASE 4**HIGHWIRE INTERFACE**

Connector type	BNC 75 Ohm x 4
Cable type	Any 75 Ohm coaxial (other impedances supported)
Range	Up to 300m [1000ft] on RG59 or 500 metres [1640 feet] on RG11 at full rate.
Bandwidth	200 Mbps (total up + down) x 4

**ETHERNET INTERFACE**

Connector type	RJ45 with optional SFP socket for fibre.
Cable type	Cat 5/6 Patch or crossover, auto-detected or as per optional SFP device.
Rate	Gigabit Ethernet, Full duplex (1000Base-Tx) with auto-negotiation

**LEDS**

Status indicators	HIGHWIRE coax link Ethernet link/activity (BASE) POE-over-coax See Quickstart Guide for LED indicator table and diagnostics
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**POWER**

Unit power	5W rising to 10W under full POE load
POE Out	IEEE 802.3af (POE) or IEEE 802.3at (POE Plus) up to 25W per channel
Power input	57V DC, up to 6A via a 2 pin detachable screw terminal (supplied) or a 2 pin Micro-Fit power connector

**PHYSICAL/ENVIRONMENTAL**

Dimensions	L 173mm (including BNC connectors) W 110mm H22mm
Weight	356g [12.5oz]
Operating temperature	0°C to 40°C [32°F to 104°F]
Relative humidity	85% non-condensing
Compliance	FCC, CE, RoHS, REACH

**PRODUCT CODES**

VHW-HWPS-B4	HIGHWIRE Powerstar Base 4™ - four channel EOC base unit
VHW-HWPS-B8	HIGHWIRE Powerstar Base 8™ - eight channel EOC base unit (optional rackmount)
VHW-HWPS-C	HIGHWIRE Powerstar™ single channel EOC adaptor for camera end
VHW-HWPS-C2	HIGHWIRE Powerstar Duo™ - dual channel EOC adaptor for camera end
VHW-HWPS-C4	HIGHWIRE Powerstar Quad™ - four channel EOC adaptor for camera end
VPSU-57V-800	57V DC, 800mA (40W) power supply
VPSU-57V-1500	57V DC, 1500mA (80W) power supply

EOC = Ethernet over Coax

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