ETHERNET OVER COAX
HIGHWIRE®

HIGHWIRE, Ethernet over coax adaptor is a fast way to use existing cables when upgrading analogue to IP cameras

HIGHWIRE® allows IP network cameras to communicate over existing coax

HIGHWIRE® supports mega-pixel cameras, uses legacy cables and cuts your installation costs. It is highly reliable and very easy to install.

| Simple retro-fit of IP cameras in place of analogue

| Full 100Base-TX Ethernet performance

| Supports multiple IP cameras (with switch)

| Fully automatic - no configuration required

| Up to 300m on RG59, 500m on RG11

| Powered by legacy PSU at camera end

| Rack mount option for control room end

veracity

High-Speed Ethernet over legacy video cable

HIGHWIRE® units are used in pairs and installing them is extremely simple and fast. Just plug them in.

Why HIGHWIRE cuts installation costs

| Uses legacy analogue video cabling
| No IP address or other setup required
| Supports mega-pixel cameras
| Supports any network device - fully transparent 100Base-TX Ethernet
| Fast install - less time on site
| Full-speed over 300m of RG-59
| Compact - fits inside camera housings
| Flexible low voltage input - can use old camera supply
| Rack-mount option for control room

Signal Adaptor

HIGHWIRE turns any existing analogue video cable (coax) into a high-speed Ethernet connection. This allows a networked IP camera to replace an analogue CCTV camera, without installation of any new cabling. Thus the investment in the original cabling (usually around 30% of any system installation cost) can be retained and exploited for new-generation networked IP camera systems. HIGHWIRE is especially suited to mega-pixel IP camera applications or even multiple IP cameras as it supports high data rates.

Simple Installation

HIGHWIREs are used in pairs and installing them is extremely simple. One HIGHWIRE unit is connected to each end of the co-axial cable with the BNC connectors, thus providing a straight RJ45 to RJ45 network connection from end to end across the existing cabling. A HIGHWIRE to HIGHWIRE connection instantly operates as a full-duplex 100Base-TX Ethernet connection and is completely transparent to any network device. HIGHWIRE has no MAC address or IP address and requires no set-up at all.

Application

In the application shown above, a high-resolution mega-pixel IP camera replaces a standard analogue CCTV video camera. The IP camera's standard Ethernet TCP/IP connection is linked to a HIGHWIRE device with a short CAT5 patch cable (straight through or cross-over). Both the camera and the HIGHWIRE are powered from the same power supply, and both may be fitted inside a standard external camera housing. The HIGHWIRE link runs across the existing installed 75ohm co-axial video cable, and the rest of the network is connected at the other end (normally the control or equipment room). One, several, or many such links may feed into the network to an NVR. As the network link is full speed and fully - transparent, the IP camera appears on the network as a completely normal IP connection.

The NVR will "see" the IP address of the IP camera as if it were a normal direct Cat5 connection.

Universal Application

Although designed for IP video, the HIGHWIRE connection is a universal 100Base-TX network link that can be

ETHERNET OVER COAX APPLICATION DIAGRAM

ETHERNET

VHW-HW

VHW-HW

IP CAMERA

DATA ONLY

NETWORK SWITCH

HIGHWIRE®

HIGHWIRE®

COAXIAL VIDEO CABLE
◀ 300M ON RG59   500M ON RG11 ▶

POWER   LOW VOLTAGE POWER

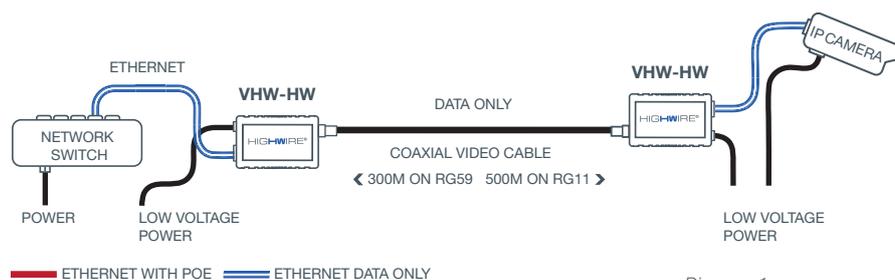LOW VOLTAGE POWER

▬ ETHERNET WITH POE   ▬ ETHERNET DATA ONLY

Diagram 1.
A pair of HIGHWIRE adapters deliver full-bandwidth Ethernet over existing coaxial cabling without requiring any settings or other configuration.

HIGHWIRE Powerstar Duo and Quad

HIGHWIRE Powerstar Base 4 and Base 8

used for any application. Any legacy coaxial cable can be used, or new coaxial cable can be installed, to deliver an extended network that's a rugged, low-cost alternative to fibre. Although designed for 75ohm cable, HIGHWIRE can operate over 50ohm cable with full performance with only a slight reduction in the maximum distance attainable.

HIGHWIRE Wall Mount Bracket
This simple metal bracket provides a fast, efficient method of fixing HIGHWIRE units to walls or other flat surfaces, including mounting inside enclosures.

HIGHWIRE DIN-Rail Mount
The HIGHWIRE wall mount bracket is also available with a DIN rail mount clip for fitting to standard DIN rails.

HIGHWIRE Powerstar Quad or Duo
HIGHWIRE Powerstar QUAD shown in the diagram below integrates Veracity's HIGHWIRE Ethernet over

coaxial cable technology with a four-port POE switch. This means that up to four IP cameras can be installed in place of one old analogue video camera. Legacy coax cabling can be used as the network connection, and an existing 12V DC or 24V AC supply can be converted into universal Power over Ethernet (POE) for the new IP cameras. If only two-ports are needed, use HIGHWIRE Powerstar Duo.

See datasheeets for more info about HIGHWIRE Powerstar Duo & Quad and HIGHWIRE Powerstar Base 4 & 8.

Applications
HIGHWIRE Powerstar Duo or Quad can be used to expand the numbers of cameras in an installation without running new cables. Whilst most commonly used with IP security cameras, HIGHWIRE Powerstar Duo or Quad can be used for any networking application such as VOIP, IP access control, wireless access points, or any combination of these.

HIGHWIRE Rack
The HIGHWIRE accessory range includes a 19" 1U adaptor plate which allows 8 standard HIGHWIRE units to be neatly rack-mounted in a control room. There are also HIGHWIRE Powerstar Base 4 and Base 8 units available, see separate datasheets.

HIGHWIRE with POE
For any applications requiring the transmission of POE-over-coax™, please refer to Veracity's HIGHWIRE Powerstar datasheets.

Power Supplies
There are many Veracity Power Supply's options available that are specifically tailored for a variety of combinations of Ethernet over coax or Power over coax applications.

All our datasheets for products, accessories and power supplies are available online please go to www.veracityglobal.com

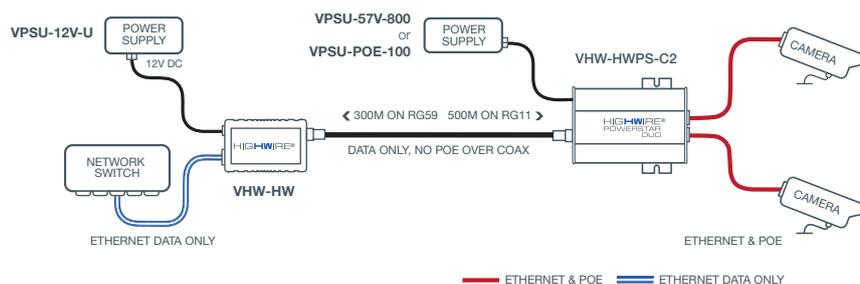## ETHERNET AND POWER OVER COAX APPLICATION DIAGRAM

Diagram 2.
A single HIGHWIRE at the switch end, combined with a HIGHWIRE Powerstar

Quad provides Ethernet connectivity for up to four POE IP devices (typically IP cameras) over existing coaxial cabling.

TECHNICAL **SPECIFICATION**

HIGHWIRE INTERFACE

Connector	BNC 75ohm
Cable	75ohm (RG59 or similar)
Range	Up to 300m [1100ft] on RG59, 500m on RG11 [1600ft] at full rate
Bandwith	200Mbps (total up + down)

ETHERNET INTERFACE

Connector	RJ45
Cable	Straight through or cross-over, auto detected
Rate	100Base-TX, full duplex with auto negotiation

LED INDICATORS

Green – Constant	Power OK, full HIGHWIRE data link
Green – Blink	Power OK, no HIGHWIRE link
Green – Off	No power
Amber – Constant	Ethernet link On
Amber – Blink	Network traffic

POWER

Unit Power	1.5 watts
Connector	Screw terminals with detachable plug
Power Supply	IEC Class II isolated only
Operating Voltage	8-57V DC or 20-28V AC (type and polarity auto detected)
Supply Current	120mA (12V), 60mA (24V)

PHYSICAL/ENVIRONMENTAL

Dimensions	L 104mm (83mm excluding connectors) W 54mm H 24mm
Weight	74g [2.6oz]
Operating Temperature	-10ºC to 50ºC [14ºF to 122ºF]
Relative Humidity	85% non-condensing
Grounding	Chassis should be grounded and is connected to the BNC shield
Compliance	CE, FCC, RoHS, UKCA, UL

PRODUCT CODES

VHW-HW	**HIGHWIRE Ethernet over coax video cable adaptor**
VHW-HWPS-C2	Ethernet over coax camera unit with integrated 2-port POE switch
VHW-HWPS-C4	Ethernet over coax camera unit with integrated 4-port POE switch
VHW-WMB	Wall mounting bracket (1 HIGHWIRE unit)
VHW-DMB	DIN rail mounting bracket kit
VHW-1U	Rackmount kit (bracket for 8 units in 1U high)
VHW-RMPSU-UK/EU/US	Power supply for rackmount kit (8 units) with UK or EU or US cable
VPSU-12V-U	12V DC power supply (normally not required)
VPSU-57V-800	57V DC 800mA PSU Optional 40 watt PSU for Quad /Duo
VPSU-57V-1500	57V DC 1500mA PSU Optional 78 watt PSU for Quad /Duo

Surge Protection
All Veracity products have been independently tested to verify their resilience to the stringent immunity levels of international standards. Users should note that no electronic equipment can be guaranteed to be completely protected at levels beyond the defined standard; therefore product warranty cannot include damage to products which has been caused by surges exceeding those of the standards specified, for example lightning strike activity.

It is the user's responsibility to implement relevant surge protection measures, as appropriate to the installation. This may include the fitting of additional surge protection devices where required.

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