datavideo

4K HDMI Distribution
Amplifier 1x4

VP-840
Instruction Manual

www.datavideo.com

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Disclaimer of Product & Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks,

and will void your warranty. Refer all service issues to qualified service personnel.

13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
    a. When the power cord is damaged or frayed;
    b. When liquid has spilled into the unit;
    c. When the product has been exposed to rain or water;
    d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
    e. When the product has been dropped or the cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

Warranty
Standard Warranty

- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period begins on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.
- All non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.

- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.

- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, Camera module, PCIe Card are covered for 1 year.

- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.

Disposal

For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

CE Marking is the symbol as shown on the left of this page. The letters "**CE**" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

Introduction

The Datavideo VP-840 is an HDMI 1x4 Distribution Amplifier featuring the capability to repeat HDMI source to 4 displays simultaneously. The VP-840 supports data rate up to 18 Gpbs and resolutions of 4K2K@60Hz, and is compliant with HDMI 2.0 and HDCP 2.2.

The VP-840 features EDID management with auto downscale function, thus providing multiple EDID options for various output resolutions between all devices and ensuring that the HDMI source content is displayed correctly on the monitors.

Features

- Supports 4K2K@60 4:4:4 8bits
- Supports High Dynamic Range (HDR), which is 4K2K@60 4:2:0 10bits
- Video bandwidth: 18 Gbps
- Wide frequency range: 25MHz – 600MHz
- HDMI 2.0a compliant, HDCP 2.2 and 1.4 compliant
- Supports Deep Color & 3D
- Supports Dolby Digital, DTS-HD and Dolby TrueHD audio
- Supports default EDID and EDID learning from display
- Auto downscale function
- Front panel LED indicators

Connections and Controls

The VP-840 comes in two different forms.

On the old model, the mode select switch and the firmware upgrade port are located on the right of the front panel. At the rear of the device, you should find one HDMI IN port at the center of the rear panel with each end having two HDMI OUTs. As for the new model, the mode select switch and the firmware upgrade port are on the left of the front panel. On the rear panel, the HDMI IN port is found on the left with all four HDMI OUTs sitting on the right of the HDMI IN.

In terms of functionalities, the new model is equipped with the auto downscale function which automatically adjusts the output resolution to the resolution acceptable by the connected monitor if the VP-840 is set to the EDID-1 mode, i.e. the automatic EDID learning mode. For example, if a 4K video source is connected to the HDMI IN port, then of the four HDMI outputs, two are connected of 4K monitors and two are connected of 1080p monitors, setting the VP-840 to the Auto EDID Analysis Learning Mode will allow the all four monitors to display the input video at the respective monitor resolutions. However, on the old model, only the 4K monitors will be able to display the input video and nothing will be displayed on the 1080p monitors.

In addition, the new and old models offer the user different firmware upgrade procedures. See relevant sections at the end of this manual for details.

Note: The extra pin of the mode select switch on the new model allows the user to switch between the normal operation and firmware upgrade modes. Whereas on the old model, the user is allowed to directly change the EDID setting without having to activate the working mode first.

Front Panel (Old)
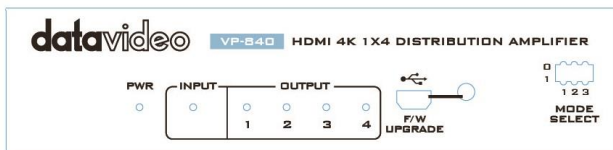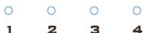
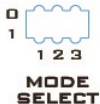|	
PWR ○	**Power LED** Turned **ON** when power adapter is connected.
INPUT ○	**Input LED** Turned **ON** when an HDMI source player is connected.
OUTPUT ○ ○ ○ ○ 1 2 3 4	**Output LED** Turned **ON** upon connection of HDMI monitors.
F/W UPGRADE	**F/W Upgrade** Connect the PC to this port for firmware upgrade. Please see the **Firmware Update** section for details of the firmware upgrade process.
MODE SELECT	**Mode Select** The **Mode Select** switch allows the user to select the desired EDID mode. The table below contains detailed descriptions of each EDID mode.

000	EDID-1	Auto EDID Analysis Learning Mode
001	EDID-2	Ultra-HD (4K2K@60) – 8/10/12 bit 3D HDR Video & 7.1 CH Audio
010	EDID-3	Ultra-HD (4K2K@60) – 8/10/12 bit 3D HDR Video & 2 CH Audio
011	EDID-4	Ultra-HD (4K2K@30) (4K2K@60 420) – 8 bit 3D HDR Video & 7.1 CH Audio
100	EDID-5	Ultra-HD (4K2K@30) (4K2K@60 420) – 8 bit 3D HDR Video & 2 CH Audio
101	EDID-6	Full-HD (1080p@60) – 12 bit 3D Video & 7.1 CH Audio
110	EDID-7	Full-HD (1080p@60) – 8 bit 2D Video & 2 CH Audio
111	EDID-8	Learn Port 1 EDID

EDID-1 Mode

Automatic EDID learning mode (EDID-1) detects all the connected HDMI monitors and analyzes the respective EDID contents. The EDID with minimal resolution support will be the reference EDID for incoming HDMI source players.
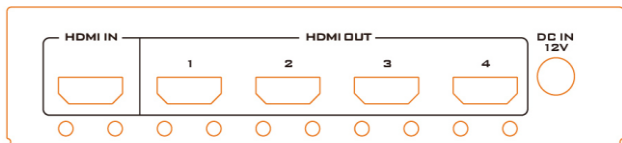
While connecting a new monitor to the VP-840 in mode 1 (**Auto EDID Analysis Learning Mode**), experiencing a short period of time without display might be expected. The VP-840 will do automatic EDID learning and generate the best Extended Display Identification Data (EDID) among all connected monitors.

EDID-8 Mode

To make sure the VP-840 is always configured to the EDID of the monitor with the lowest capability, simply plug the lowest resolution HDMI monitor to output port 1 and set the VP-840 to **mode 8 (EDID-8)**. Once the VP-840 is set to EDID-8, it will always learn the EDID information from output port 1.

To re-learn EDID from output port 1, please set the Mode Select switch to other modes and then switch to EDID-8 to trigger the learning mode.

Rear Panel (Old)

HDMI OUT
Connects four individual HDMI monitors on which the HDMI source images are displayed.

HDMI IN
Connects an HDMI source such as a Blu-Ray Disc player.
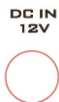
DC IN
DC in socket connects the supplied 12V PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.

Front Panel (New)

PWR

Power LED
Turned **ON** when power adapter is connected.

INPUT

Input LED
Turned **ON** when an HDMI source player is connected.

OUTPUT
1 2 3 4

Output LED
Turned **ON** upon connection of HDMI monitors.

F/W UPGRADE

F/W Upgrade
Connect the PC to this port for firmware upgrade.

Please see the **Firmware Update** section for details of the firmware upgrade process.

MODE SELECT

Mode Select
The **Mode Select** switch allows the user to select the desired EDID mode. To select the appropriate EDID setting, first set PIN 1 to 0, then adjust pins 2, 3, and 4 according to the EDID setting table below.

PIN 1		Mode
0		Working mode
1		Firmware upgrade mode
PIN 2 / 3 / 4		**EDID Setting**
000	**EDID-1**	Auto EDID Analysis Learning Mode
001	**EDID-2**	Ultra-HD (4K2K@60) – 8/10/12 bit 3D HDR

12

		Video & 7.1 CH Audio
010	**EDID-3**	Ultra-HD (4K2K@60) – 8/10/12 bit 3D HDR Video & 2 CH Audio
011	**EDID-4**	Ultra-HD (4K2K@30) (4K2K@60 420) – 8 bit 3D HDR Video & 7.1 CH Audio
100	**EDID-5**	Ultra-HD (4K2K@30) (4K2K@60 420) – 8 bit 3D HDR Video & 2 CH Audio
101	**EDID-6**	Full-HD (1080p@60) – 12 bit 3D Video & 7.1 CH Audio
110	**EDID-7**	Full-HD (1080p@60) – 8 bit 2D Video & 2 CH Audio
111	**EDID-8**	Learn Port 1 EDID

EDID-1 Mode
Automatic EDID learning mode (EDID-1) detects all the connected HDMI monitors and analyzes the respective EDID contents. The EDID with minimal resolution support will be the reference EDID for incoming HDMI source players.

While connecting a new monitor to the VP-840 in mode 1 (**Auto EDID Analysis Learning Mode**), experiencing a short period of time without display might be expected. The VP-840 will do automatic EDID learning and generate the best Extended Display Identification Data (EDID) among all connected monitors.

EDID-8 Mode
To make sure the VP-840 is always configured to the EDID of the monitor with the lowest capability, simply plug the lowest resolution HDMI monitor to output port 1 and set the VP-840 to **mode 8 (EDID-8)**. Once the VP-840 is set to EDID-8, it will always learn the EDID information from output port 1.

To re-learn EDID from output port 1, please set the Mode Select switch to other modes and then switch to EDID-8 to trigger the learning mode.

Rear Panel (New)

HDMI OUT

Connects four individual HDMI monitors on which the HDMI source images are displayed.

HDMI IN

Connects an HDMI source such as a Blu-Ray Disc player.

DC IN

DC in socket connects the supplied 12V PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.

Hardware Installation

Follow the steps outlined below to set up your VP-840 system.

(1) Switch off all devices, including monitors.
(2) Connect the output ports of the VP-840 to the displays.
(3) Connect an HDMI source (such as a Blu-ray Disc player) to the VP-840 HDMI IN.
(4) Plug in 12 V DC power adapter to the VP-840.
(5) Set the **Mode Select** switch to the desired **EDID** mode.
(6) Power ON the HDMI monitors.
(7) Power ON the HDMI source.

Firmware Update

Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the VP-840 firmware as they wish or contact their local dealer or reseller for assistance.

This section outlines the firmware upgrade process which should take *approximately 10 minutes to complete*.

The existing VP-840 settings should persist through the *firmware upgrade process, which should not be interrupted once started* as this could result in a non-responsive unit.

Successful firmware upgrade on VP-840 requires:

➢ The latest firmware file, which can be obtained from your local Datavideo dealer or office.
➢ Mini-USB Cable
➢ Windows PC
➢ EPConsole UI

Firmware Upgrade Procedure (Old)

1. Connect the USB Upgrade port of the VP-840 to the PC via a mini-USB cable. The USB Upgrade port can be found on the front panel of the VP-840.

2. On the PC, open EP Console and depending on your system setup, select the detected COM port and set the Baud (recommended Baud is 57600 bps). In the example below, COM3 is the detected COM port.
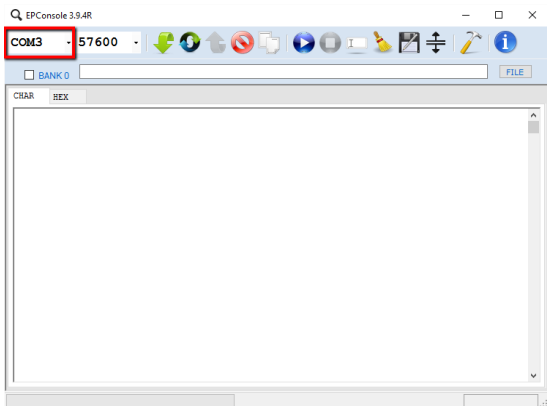
3. Click the FILE button to browse the hard drive for the firmware file. Double click the *.H00 file to import the firmware file, which should automatically bring in the *.H01 and *.H02 files.
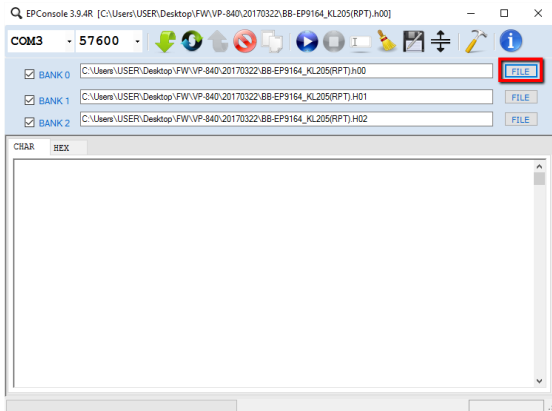
4. Press the F/W Upgrade button on the front panel of the VP-840 while connecting the 12V power adapter to the device.
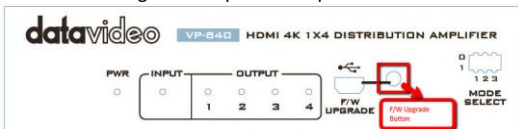
5. Release the F/W Upgrade button approximately 5 seconds after the 12V power adapter is connected.

6. Click the Program MCU button (highlighted by a red rectangle shown in the diagram below) on the EP Console interface.
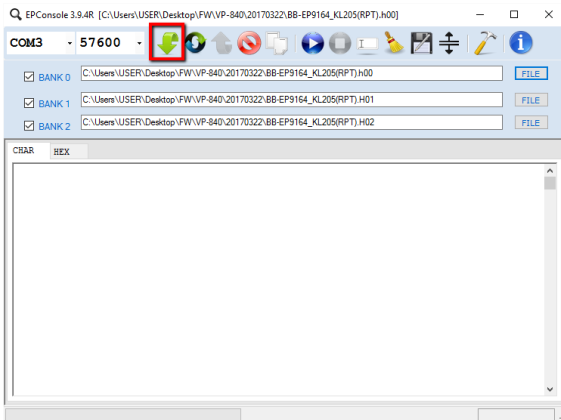
7. The firmware update is complete as soon as "BANK0 BANK1 BANK2 OK" appears in the progress bar which is found at the bottom of the EP Console interface.

8. Power cycle the device to finish the firmware upgrade process.

Firmware Upgrade Procedure (New)

1. Set **PIN 1** of the mode select switch on the front panel to 1.

2. Connect the F/W Upgrade port to the PC via a mini-USB cable then power **ON** the VP-840.

3. Download the firmware update zip file from the product page then unzip the file.

4. Double click the ITESHFU.exe file icon in the unzipped folder.

5. As shown in the diagram below, the firmware will be automatically updated after the firmware update program is started.
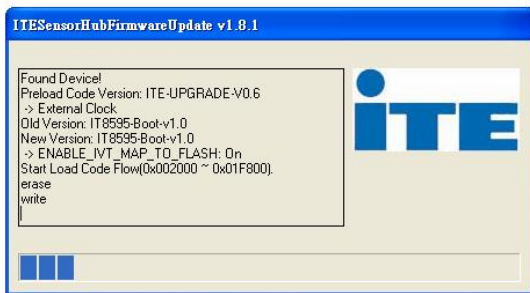
6. The firmware update is complete when the text dialogue box shows **SUCCESS** and the program exits itself.

Note: The latest firmware file IT6664_1-to-4_V114****.bin and the firmware update program must be in the same folder.

Frequently-Asked Questions

This section describes problems that you may encounter while using the **VP-840**. If you have questions, please refer to related sections and follow all the suggested solutions. If problem still exists, please contact your distributor or the service center.

No.	Problems	Solutions
1.	**I cannot get output display on any of the monitors.**	Try setting the VP-840 to **EDID-7** or **EDID-8**. In the **EDID-7** mode, as long as one of your monitors supports Full HD, the source video will be displayed successfully. In the **EDID-8** mode, the VP-840 will automatically learn the EDID information from output port 1. Please ensure that the lowest resolution monitor is connected to the output port 1.
2.	**If the EDID mode is set to EDID-1 (Auto EDID learning), hot-plugging any HDMI output port will result in short signal loss at all other HDMI output ports. However, the video display will restore shortly after.**	This is because the VP-840 needs to re-learn the EDID information.
3.	**Resolution change sometimes results in image color distortion and loss of audio.**	Disconnect and then reconnect the HDMI IN connection will restore correct video display.

Dimensions

Old Model
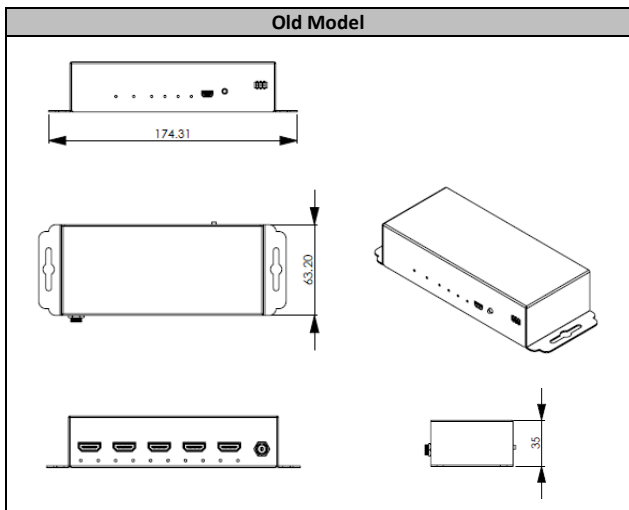
All measurements in millimeters (mm)

New Model
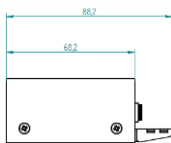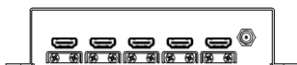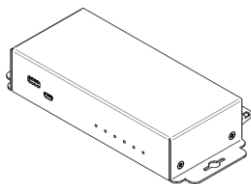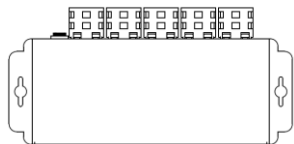
All measurements in millimeters (mm)

Specifications

Interfaces	
Video Inputs	HDMI Type A x 1
Video Outputs	HDMI Type A x 4
EDID Mode Selection	DIP Switch
Indicator	Power LED x 1, Input Signal x 1, Output Signal x 4
Power Supply	DC Jack 5.5 mm lock-type 12 V / 0.5A Power Input
FW Upgrade	Mini USB Port x 1
Features	
HDMI Compliance	HDMI 2.0a
HDCP Compliance	HDCP 2.2
Video Bandwidth	Single-link 600MHz [18Gbps]
Video Support	HDMI Supported Resolutions 4096x2160p 60 / 59.94 / 50 4096x2160p 30 / 29.97 / 25 /24 / 23.98 3840x2160p 60 / 59.94 / 50 3840x2160p 30 / 29.97 / 25 /24 / 23.98 1080p 60 / 59.94 / 50, 1080p 30 / 29.97 /25 /24 / 23.98 1080i 60 / 59.94 / 50, 720p60 / 59.94 / 50 480p, 576p, 480i, 576i PC Supported Resolutions 640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x720@60Hz, 1280x768@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@ 60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1680x1200@60Hz, 1920x1080@60Hz, 1920x1200@60Hz
Video Processing	• HDR 4K2K@60 4:2:0 10 bits • 4K2K 60 Hz YCbCr4:4:4 8 bits /

	YCbCr4:2:0 10 bits
	• 4K2K 30Hz YCbCr4:4:4 8 bits
Audio Support	DTS-HD Master Audio, Dolby TrueHD, Dolby Digital, DTS, DVD-Audio, LPCM, SACD, MPCM
General	
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	10% to 80%
Dimensions (mm)	174.31 x 63.2 x 35
Weight	0.35 Kg

Service & Support

It is our goal to make your products ownership a satisfying experience. Our supporting staff is available to assist you in setting up and operating your system. Please refer to our web site www.datavideo.com for answers to common questions, support requests or contact your local office below.

Please visit our website for latest manual update.
www.datavideo.com/product/VP-840

www.datavideo.com

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