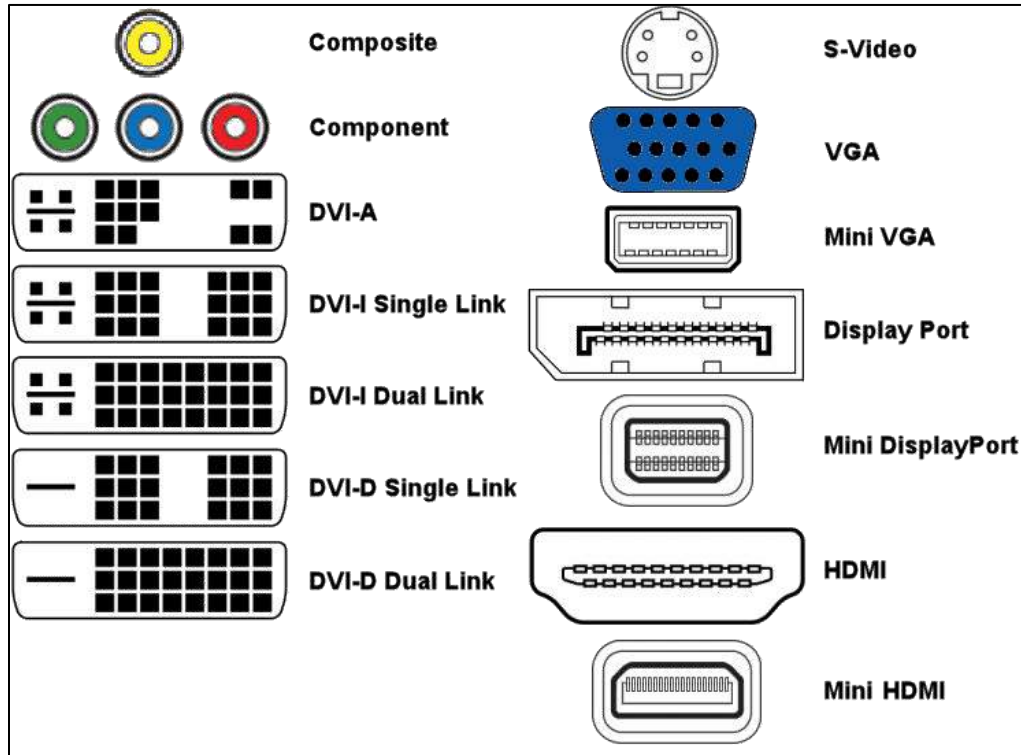


### **Executive Summary**

This technical bulletin discusses the availability and limitations of video format converters, as in HDMI to DisplayPort, etc. No converters are available to convert VGA to DisplayPort. With that exception, it appears to be possible to convert all other formats, although some are more common than others.

### **Video connectors**



Composite and Component are both analog and are generally associated with television. S-Video is Analog. None of these apply to Elo products.

VGA is the oldest computer standard; it's analog.

DisplayPort and HDMI are digital. Both support audio as well as video.

DVI-A is analog only.

DVI-D is digital only.

DVI-I is both analog and digital.



Video Converters	TB000011	REV. B
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For all DVI, single link supports resolutions up to 1920 x 1200; dual link supports resolutions up to 2560 x 1600 (at 60 frames per second for both). DVI does not support audio.

## Video Conversion Generalities

- “Passive” means cable only/simple re-routing connections.
- “Active” means connection re-routing plus active electronics are used.
- When searching for a specific converter, ***you must read carefully to make sure the converter works in the direction you want***; most will convert in only one direction.
- Pay close attention to gender – some extra cables may be necessary to complete the connection
- Be sure to check the resolution limit – many converters can’t go beyond 1920 x 1200.

## DVI to VGA and VGA to DVI

### Computer's DVI output to monitor's VGA input (DVI with analog signals)

As long as the device with DVI has the analog part (as in, it's not DVI-D), then these apply:

- Passive and bidirectional – one converter can go from either to the other
- Plentiful, inexpensive and compact – often just a connector block
- Gender of the connectors can vary; a cable may be required



### Computer's DVI-D output to monitor's VGA input (DVI with digital only signals)

DVI-D is digital only, so in the past it has not been readily convertible to analog VGA. However, a recent chip development now allows inexpensive and compact DVI-D to VGA converters. These are active converters but the CH7010 chip allows them to be packaged in a small connector, and some don't need an external power supply. Price varies, but it's probably best to stay away from the super-cheap ones. If you need DVI-D to VGA, search specifically for that or you may get one that's only analog.



### Computer's VGA output to monitor's DVI input

- Active, requires powered circuitry
- Very UNcommon, pricy

[https://www.monoprice.com/Product?p\\_id=8214&gclid=CKywvpyv1NMCfdgQgQodl0kAcg](https://www.monoprice.com/Product?p_id=8214&gclid=CKywvpyv1NMCfdgQgQodl0kAcg)



It's not small:

5" x 3" x 1"

- Monoprice VD-101W
- \$140 (as of 1/31/19)
- 1920 x 1200 max resolution
- 9 vdc "wall wart" power supply included

## DisplayPort to DVI and DVI to DisplayPort

### Computer's DisplayPort output to monitor's DVI input

- **Some** DisplayPort ports are built to be compatible with DVI internally, and can use *passive* adapters.
    - In these situations it will appear as though the Displayport is being "converted" to DVI, but it's actually the hardware outputting a DVI signal through a Displayport connector.
  - If a passive Displayport-to-DVI cable doesn't work, an active converter will be needed
    - Google "active dp to dvi" or similar
      - Look for the word "active" in the descriptions
      - Capabilities vary; when in doubt, pay more
  - Gender varies – you may need additional cables
  - No audio; DVI does not carry audio
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### Computer's DVI output to monitor's DisplayPort input:

- C2G: <https://www.cablestogo.com/product/41379/dvi-to-displayport-adapter-converter>
- (\$52 as of 1/31/19)
- 1920 x 1080 max resolution



- StarTech:
- <https://www.amazon.com/DVI-DisplayPort-Adapter-Power-Converter/dp/B077FYJTDL>
- (\$32 as of 1/31/19)
- 1920 x 1200 max resolution



## DisplayPort to HDMI and **HDMI to DisplayPort**

**This direction is simple: Computer's DisplayPort output to monitor's HDMI input**

- Passive, simple signal re-routing
- Very common, easy to find, inexpensive – just google “dp to hdmi”
- \$2 to \$16, depending on length and cables

***This direction is not simple:* Computer's HDMI output to monitor's DisplayPort input:**

- Active, requires powered circuitry
- Very UNcommon, pricy

<https://www.amazon.com/StarTech-com-HDMI-DisplayPort-Converter-Adapter/dp/B0144NS4Z6>



- StarTech HD2DP
- \$69 retail, \$42 on-line (as of 1/31/19)
- 1280x720 (720p), 1920x1080 (1080p), 1920x1200, 4k x 2K (Ultra HD) at 30 Hz
- Supports audio too
- No power supply required, powered by a USB connection
- Requires a DisplayPort cable
- Does not support HDCP 2.2

<https://www.amazon.com/dp/B01BXMOREI?psc=1>



- **gofanco® HDMI to DisplayPort 4Kx2K Converter with USB Power**
- \$60 retail, \$40 on-line (as of 1/31/19)
- Similar to the StarTech, above

## HDMI to VGA and VGA to HDMI

### Computer's HDMI output to a monitor's VGA input: Active

- These seem to be very common and inexpensive

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### VGA output to a monitor's HDMI input: Active

- These are less common and a bit more expensive, but still quite affordable.

<https://www.amazon.com/gp/product/B00IDFGK1W?gclid=Cl67pv3X1tMCFdgPgQodlwCYg>



- **Cable Matters 103070**, about \$20 (as of 1/31/19)
- "This converter is NOT bi-directional. It only converts from VGA to HDMI"
- "VGA Resolutions: 1024x768 / 1280x720 / 1280x768 / 1280x960 / 1280x1024 / 1600x1200 / 1080p"
- USB provides audio

<http://www.siig.com/portable-vga-usb-audio-to-hdmi-converter.html>



- **Siig CE-VG0U11-S1**, \$35 - \$60 (as of 1/31/19)
- Similar to above
- "Supports 1080p and PC resolution up to 1280x1024@60Hz"

### HDMI to DVI and DVI to HDMI

- Passive and bidirectional – one converter can go from either to the other
- Plentiful, inexpensive and compact – often just a connector block
- Gender can vary; one or both cables may be required



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### DisplayPort to VGA and ~~VGA to DisplayPort~~

#### Computer's DisplayPort output to monitor's VGA input

- Active, self-powered
- Very common, easy to find, inexpensive – just google “dp to vga”

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#### Computer's VGA output to monitor's DisplayPort input:

- **These do not exist.**