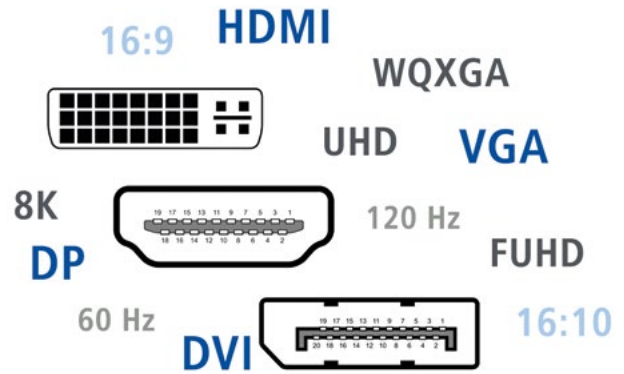


# GRAPHICS INTERFACES

## THE MOST IMPORTANT (MOST COMMON) GRAPHIC INTERFACES AT A GLANCE

Standardized interfaces (connectors, cables) are used for the connection between PC or graphics card and monitor. Today, a main distinction is made between analog and digital transmission types.

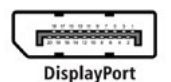
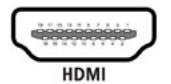
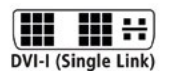
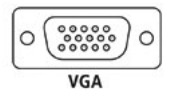
Originally, the signals were transmitted purely analog. This transmission type is supported by the VGA connection. With the spread of digital LCD monitors, there has also been a change to digital signal transmission. The DVI interface is used for the pure transmission of digital image signals between graphics card and monitor. If not only image and video signals but also audio signals are transmitted, this is called multimedia signal transmission. HDMI and DisplayPort are typical examples.



Depending on the selected transmission standards, different picture resolutions and aspect ratios (width to height) are possible.

## COMMON RESOLUTIONS

Interface	Maximal Resolution	Image frequency	Designation	Ratio
VGA	2.048 x 1.536	60 Hz	SUXGA	4:3
DVI Single Link	1.920 x 1.200	60 Hz	WUXGA	16:10
DVI Dual Link	2.560 x 1.600	60 Hz	WQXGA	16:10
HDMI 1.3	2.560 x 1.440	60 Hz	WQHD, 1440p	16:9
HDMI 1.4a	3.840 x 2.160	24 Hz	UHD 4K, 2160p	16:9
HDMI 1.4b	3.840 x 2.160	30 Hz	UHD 4K, 2160p	16:9
	4.096 x 2.160	24 Hz	4K2K	16:10
HDMI 2.0	2.560 x 1.600	60 Hz	WQXGA	16:10
	3.840 x 2.160	60 Hz	UHD 4K, 2160p	16:9
HDMI 2.1	3.840 x 2.160	120 Hz	UHD 4K, 2160p	16:9
	7.680 x 4.320	60 Hz	FUHD, 8K, 4320p	16:9
DisplayPort 1.1	2.560 x 1.600	60 Hz	WQXGA	16:10
	3.840 x 2.160	30 Hz	UHD 4K, 2160p	16:9
DisplayPort 1.2	3.840 x 2.160	60 Hz	UHD 4K, 2160p	16:9
	5.120 x 2.880	60 Hz	UHD+, 5K	16:9
DisplayPort 1.3	7.680 x 4.320	30 Hz	FUHD, 8K, 4320p	16:9
	3.840 x 2.160	120 Hz	UHD 4K, 2160p	16:9
DisplayPort 1.4	7.680 x 4.320	60 Hz	FUHD, 8K, 4320p	16:9



# GRAPHICS INTERFACES

## CABLE LENGTHS

### VGA

The analog VGA connection is still used, although DVI, HDMI and DisplayPort have become established as digital video and graphics interfaces. However, old tube screens, cheap flat screens and beamers are still fed with picture signals via the old VGA interface.

The big advantage of VGA. At low resolutions, e.g. 1,024 x 768 for beamer projections, you can bridge up to 15 m or more with a very high-quality cable. This is not easily possible with DVI, HDMI and DisplayPort.

However, you have to consider that the picture quality gets worse and worse with increasing resolution and longer cables.

### DVI UND HDMI

In general, a DVI or HDMI cable should not be longer than 3 to 5 meters. If the cable is shielded and of high quality construction there should be no problems up to about 7 meters. Provided the signal source gives a sufficiently strong signal. Beyond that it becomes critical.

### DISPLAYPORT

Also with the DisplayPort one cannot make general assumptions. A cable length of 3 to 5 meters is the normal case here as well. Furthermore, the possible line length varies considerably depending on the cable and signal source.

### COMPATIBILITY OF DISPLAY CONNECTORS

In a previous TIP we have already dealt with the topic of which graphic interface can be adapted with the help of an adapter.

You can find the information **here** ->