btl

Live. Digital. On-site.

Trade fair construction & stands

What are the advantages of LED Walls for trade fairs and exhibition stands?

LED walls are becoming increasingly popular at trade fairs!

In the age of **multimedia technolgy and advancing digitalisation,** it is now standard practice to stage your products, ideas and services at trade fair stands in a high-quality manner using moving images.

LED walls allow for a **much more flexible and creative stand space** and open up a completely different way of designing spaces and areas. This not only generates attention, but also enables new visual possibilites.

- **Individual shapes and areas of use and integration** into stand areas possible (e. g. as floor or ceiling)
- Almost anything is possible in terms of size, **no dependence on standardised display formats**
- **Guaranteed wide visibility** as an eye-catcher
- Easily visible even in **bright ambient light** such as in exhibition halls
- Significantly **less weight** and thus more flexible integration into the entire exhibition stand

Live. Digital. On-site.

The advantages of LED walls over seamless displays and display arrays

With an LED wall, **large installations can be realised that leave a lasting impression on the viewer.** Compared to a classic video wall, which consists of several individual displays, an LED wall has several decisive advantages:

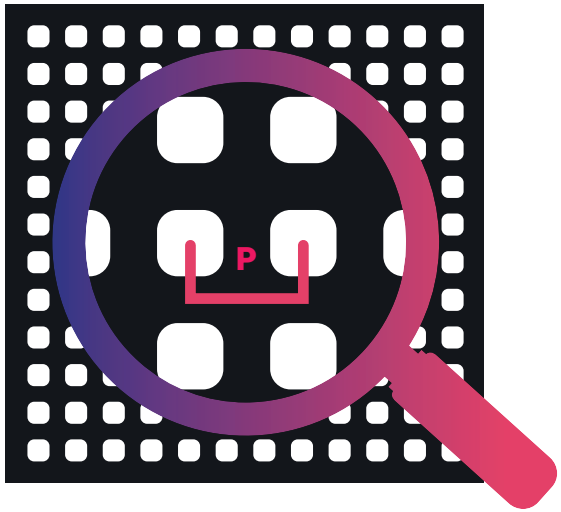
- Completely **seamless design,** no disturbing and visible frames
- Modularly scalable: **Almost anything is possible** in terms of size, including extreme landscape or portrait formats as well as special solutions – no dependence on common display formats
- Many **other design possibilities can be realised,** to a certain extent the standard modules can also be used for convex and concave shapes
- Can be used as floors and ceilings with moving images and can become a **design element in the room**
- **Significantly lower weight:** Enables a freer room or trade fair stand design, as fewer static requirements for load-bearing walls have to be taken into account and handling is much smarter
- Can be used as a **free-standing element** but also **flown or attached to a structure**
- Wide visibility even in bright ambient light an this guaranties high attention
- **High colour brilliance, homogeneous colour reproduction** and very good contrasts in all lighting conditions
- **Fewer staff needed** for assembly and dismantling
- **Maintenance via front service** and quick repair in case of malfunction / usually no failure of individual displays

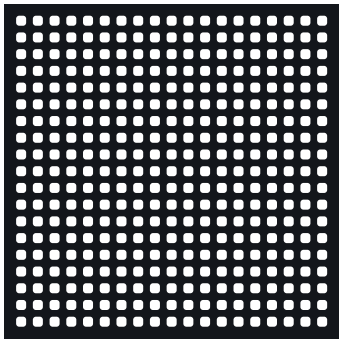
Selection factors for the right choice

1.) Pixelpitch (P)

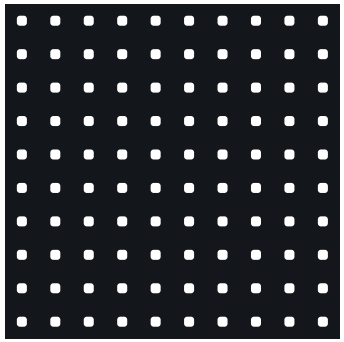
The number of pixels per LED module is decisive for image quality. In LED technology, this densitiy is called “pixelpitch”. **The pixelpitch determines the distance from one pixel centre to the next** (but says nothing about the size of the respective light emitting diode). The more pixels per module (and thus less distance), the higher the resolution. However, resolution is not the only criterion for making the right choice.

The pixelpitch (P) is the distance from one pixel centre to the next centre:





Small number for P:
small distance =
higher resolution



Large number for P:
greater distance =
lower resolution

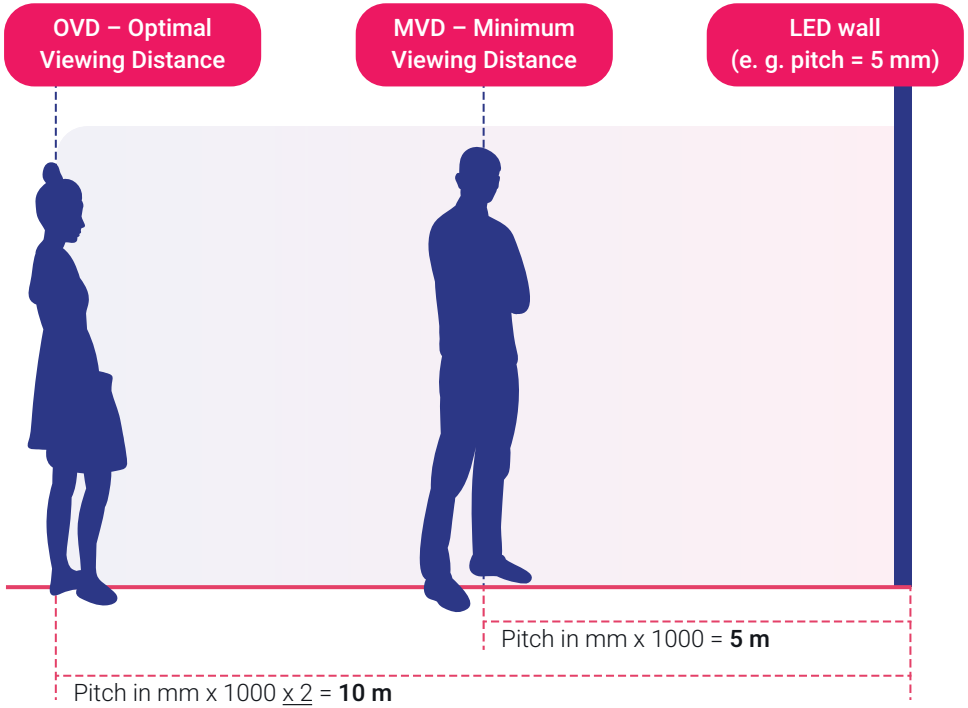
The higher the resolution, the more expensive the LED wall.

Tip Therefore, it is important to consider additional factors. The following pages show how to weigh up the different viewing distances, areas of use and content requirements.

Selection factors for the right choice

2.) Viewing Distance

It may not be necessary to spec for a low pixelpitch only because of the higher resolution. Depending on the area of application of the LED wall, higher pixelpitches are also sufficient, as the human eye will not perceive the pixels. E. g. is an LED wall flown high or stands at some distance, a higher pixelpitch is perfectly adequate.



Key figures for the Viewing Distance:

- **OVD (Optimal Viewing Distance)**
  The optimal viewing distance refers to the distance at which the eyes see a sharp, optimal overall image, but the individual pixels are no onger perceptible.
- **MVD (Minimum Viewing Distance)**
  The minimum viewing distance ist the distance at which the human eye can just make out a pixel.

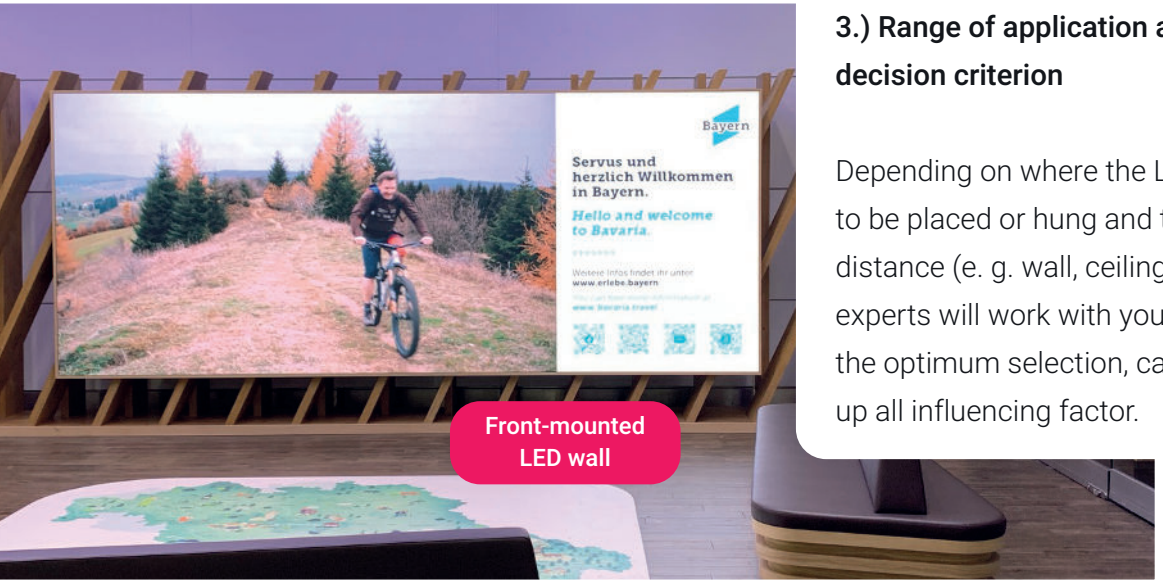
Selection factors for the right choice

Overview pixelpitch, MVD and OVD

For orientation, we have created an overview and inserted the corresponding reference values for a selection of pixelpitches:

Pixelpitch	MVD (Minimum Viewing Distance)	OVD (Optimal Viewing Distance)
P 1,95	1,95 metres	3,9 metres
P 2,5	2,5 metres	5 metres
P 2,8	2,8 metres	5,6 metres
P 3,9	3,9 metres	7,8 metres
P 5,9	5,9 metres	11,8 metres
P 10	10 metres	20 metres
P 40	40 metres	80 metres

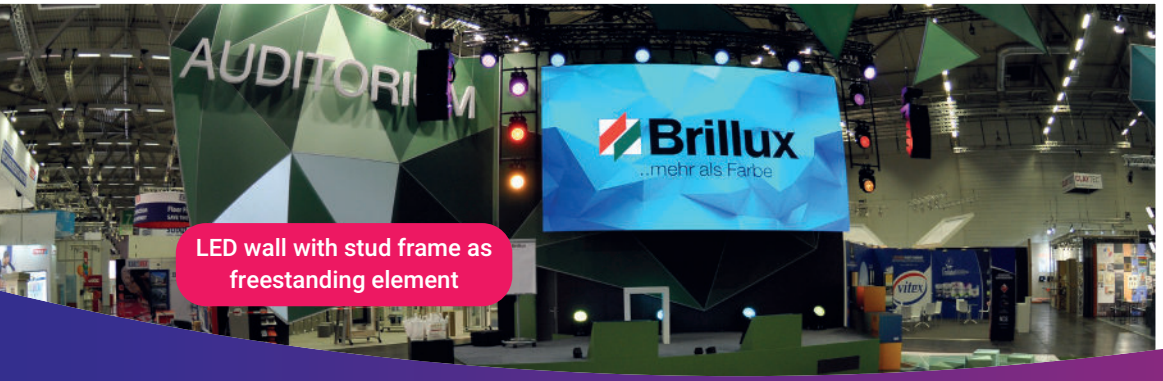
Selection factors for the right choice



Front-mounted LED wall

3.) Range of application as a further decision criterion

Depending on where the LED walls are to be placed or hung and the viewing distance (e. g. wall, ceiling, floor), our experts will work with you to determine the optimum selection, carefully weighing up all influencing factor.



LED wall with stud frame as freestanding element

LED wall, integrated into the exhibition booth as a design element

Selection factors for the right choice

4.) Content – During creation, the final dimensions must be taken into account and the overall format converted to pixels.
Since LED walls consist of modules, there are almost no limits to shape and size. However, this almost requires a graphic adaptation of the content:

- LED walls in most cases do not correspond to a standard format (e. g. in 16:9 format)
- **The overall resolution of the LED wall determines the size in which the content must be delivered = pixel-presice size adjustment to the visible format**
- If content is too small and played on a larger LED screen, visibile picture quality will deteriorate and show a disappointing result
- **If the content is not created for the final quality resolution or in an incorrect format, this will result in faulty representation,** e. g. black border bar or parts of the content are not visible because they are outside the LED wall

Tip If the content cannot be provided with pixel accuracy, a scaler must be planned (this adjusts the content resolution to a certain degree).

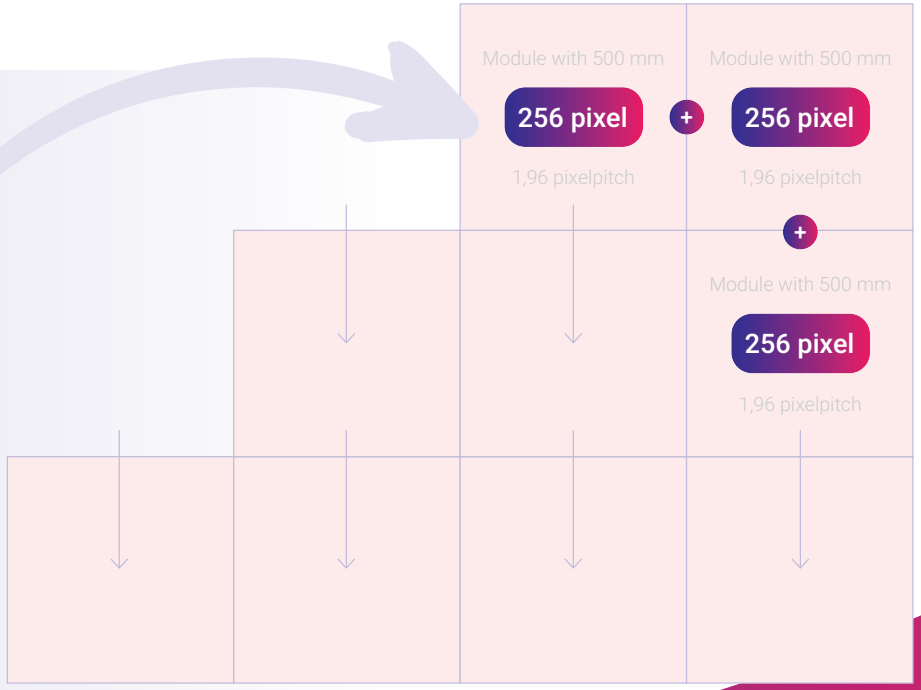
Selection factors for the right choice

Content – Production and delivery in final overall format

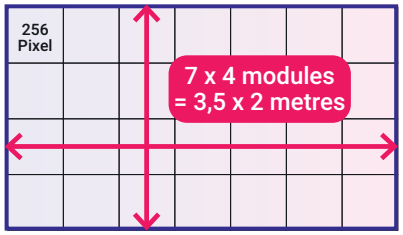
The content (multimedia content that is displayed on digital end devices such as LED walls) must be ensured to match the desired pixelpitch or be created accordingly. The higher resolution (= smaller pixelpitch), the higher the number of graphic pixels for the content.

Example calculations for resolutions with a module with of 500 mm:

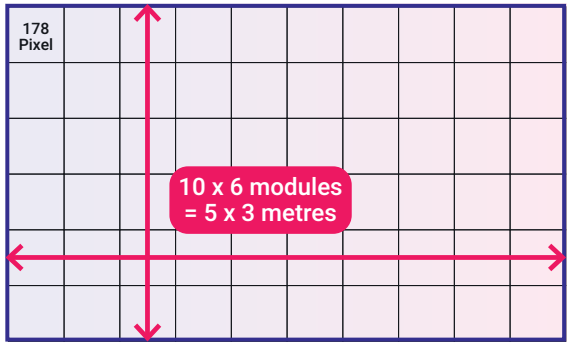
- Example 1
  500 mm ÷ 1,95 pixelpitch **= 256 pixel**
- Example 2
  500 mm ÷ 2,8 pixelpitch **= 178 pixel**
- Example 3
  500 mm ÷ 3,9 pixelpitch **= 128 pixel**



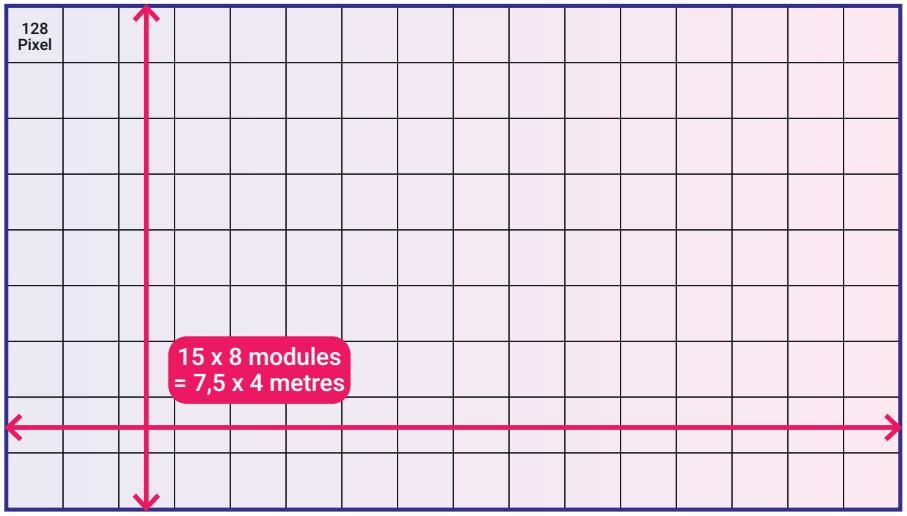
Proportion examples approximated to the 16:9 ratio (1920 x 1080)



Pixelpitch 1,95
per module 256 pixels
Total format =
1792 x 1024 pixels



Pixelpitch 2,8 per module 178 pixels
Total format = 1780 x 1068 pixels

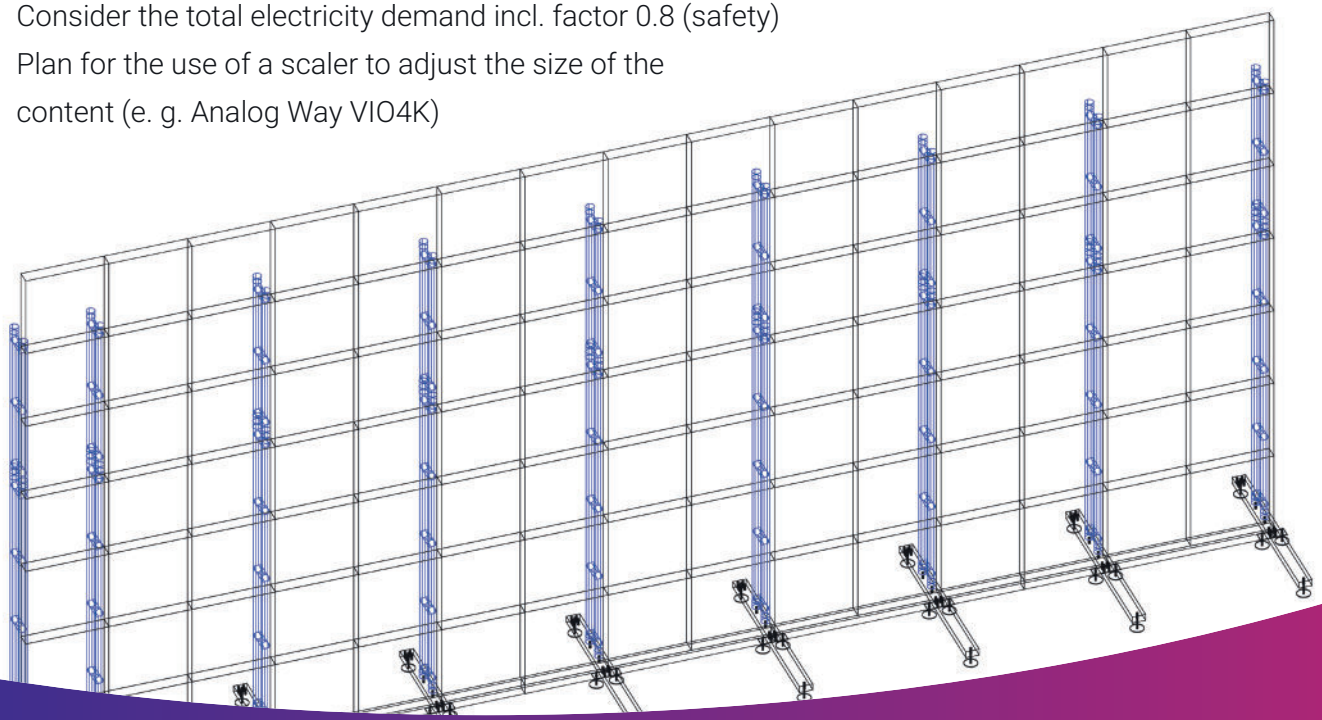


Pixelpitch 3,9 per module 128 pixels
Total format = 1920 x 1024 pixels

Technical information

Depending on size, type of mounting and area of application, please note:

- For flown LED walls, plan the appropriate suspension fixtures
- In the case of studded LED walls, ballast must be taken into account in accordance with the statics and dead weight and, if necessary, planned into the statics
- Consider wind load and wind zone statically – outdoors as well as in large exhibition halls (!)
- Consider the total electricity demand incl. factor 0.8 (safety)
- Plan for the use of a scaler to adjust the size of the content (e. g. Analog Way VIO4K)



360-degree scan of a trade fair stand

Capture trade fair stand digitally

With 360-degree scanning, we make it possible to capture trade fair stands in three dimensions. Wether as a reference for you and your customers, so that other visitors can take part in the fair trade online, employees can be reached all over the world or the stand is to be preserved for follow-up work.

Here is an impressive **example of the UVEX stand** at the A+A fair trade in Düsseldorf:

btl

Live. Digital. On-site.

Are you planning to use LED walls?

Simply get in touch, our experts will be happy to advise you:

Head office Düsseldorf
Bochumer Str. 89
D-40472 Düsseldorf

T: +49 (0)211 / 904490
E: duesseldorf@btl-x.de

München branch
Dieselstraße 22
D-85748 Garching (bei München)

T: +49 (0)89 / 3547600
E: muenchen@btl-x.de

Frankfurt branch
Schumannstr. 27
D-60325 Frankfurt

T: +49 (0)69 / 247503300
E: frankfurt@btl-x.de

Berlin branch
Neuenburger Str. 13
D-10969 Berlin

T: +49 (0)30 / 5301880
E: berlin@btl-x.de

Hannover branch
Brüsseler Str. 10
D-30539 Hannover

T: +49 (0)511 / 866 996-0
E: hannover@btl-x.de

Poznań / PL branch
Ul. Graniczna 41
PL-62-002 Złotniki k/Poznania

T: +48 (0)61 / 84 20-954
E: biuro@btl-group.pl