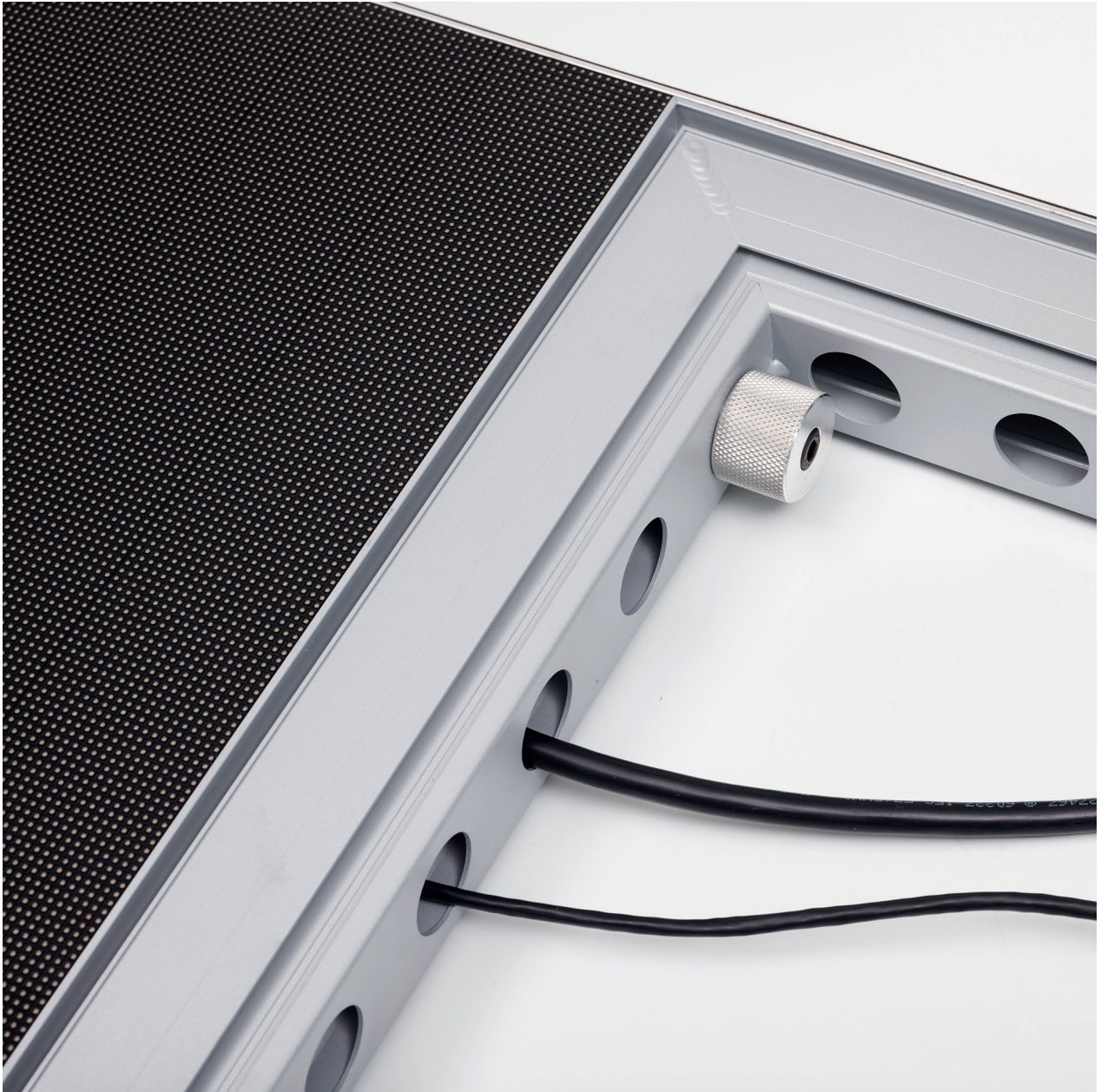


LEDskin®

USER MANUAL



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# 1. Preface

## 1.1 Copyright and registered trademarks

### Copyright

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All rights reserved. No part of this publication may be duplicated, transferred, copied or stored in an automated data file or translated in any language or computer language in any shape or form, be it electronically, mechanically, optically, chemically, by hand or in any other way, without prior written consent from beMatrix®.

### Registered trademarks

- beMatrix®
- LEDskin®
- b62®

## 1.2 How to use this manual

Before using and during the use of the product, you are obliged to read this user manual, gain in-sight knowledge of this information provided and explicitly follow these instructions as described.

This user manual is an integral part of the product delivery process and is to be kept at hand for consultation purposes until the disposal of the product.

The user manual has to at any time remain at the disposal of everyone who might use it. Keep this manual safe, dry and away from sunlight. The manual is to be kept from delivery onwards in the central compartment of the flight case.

In case the manual is damaged or lost, the user is required to request beMatrix® for a new copy.

## 1.3 Target audience

This user manual aims to provide all users of the product of all relevant information that contributes to guaranteeing a safe way of working and to maintain the product's condition.

This user manual applies in all circumstances where any kind of handling of or with the product is involved, including: transport, assembly, installation, storing, using the product, maintenance, disassembly, decommissioning and disposal of the product.



The target audience can be described as follows:

- ▶ Transporters
- ▶ Installers, assemblers
- ▶ Operators
- ▶ Maintenance technicians
- ▶ People charged with the final decommissioning and disposal of the product

The abovementioned persons with their specific tasks have to have sufficiently demonstrable knowledge and/or experience. The product can only be used by or under supervision of an authorised person. The operator has to be minimum 18 years of age.

## 1.4 Used symbols

In this manual, you will come across these symbols:

- ▶ **TIP:**  
Provides the users with suggestions and advice to execute a procedure easier or in a more convenient way.
- ▶ **N.B.:**  
A general remark that might result in improvement of financial benefits.
- ▶ **ENVIRONMENT:**  
Guidelines that have to be respected when using hazardous goods and recycling products and materials.
- ▶ **TAKE CARE!:**  
Indicates a dangerous situation which might lead to, when the safety regulations are not adhered to, light to medium bodily harm and/or damage to the product or the environment.
- ▶ **ATTENTION:**  
Indicates a dangerous situation which might lead to, when the safety regulations are not adhered to, significant or deadly bodily harm and/or serious damage to the product or the environment.
- ▶ **DANGER!:**  
Indicates a dangerous situation which will lead to significant or deadly bodily harm when the safety regulations are not adhered to.

Related information: 1.5 List of abbreviations

## 1.5 List of abbreviations

▶ **ATEX**

Atmosphères Explosibles : Explosion risk in areas with an explosive atmosphere

▶ **LED**

Light-emitting diode

Related information: 1.4 Used symbols

# 2. Introduction

## 2.1 Intended use

The LEDskin® tile is a LED display that can be integrated in your beMatrix® construction.

The LEDskin® tile can only be used:

- ▶ in an interior environment, for example in an exposition space or a building.
- ▶ in a dry space, away from direct sunlight, dust and moisture.

The construction in which the LEDskin® tiles will be incorporated:

- ▶ is a temporary construction.
- ▶ is NOT a weight-bearing construction.
- ▶ can only be set up on a horizontal, smooth and hard surface.
- ▶ has to be stable and free of any vibration.
- ▶ We recommend you use a beMatrix® construction to integrate the LEDskin® tiles in.

Related information: 2.2 Prohibited use

## 2.2 Prohibited use

- The product can NOT be assembled and used outside.
- Standing on the product is prohibited.
- It is also prohibited to use the LEDskin® tile handle for purposes other than to carry the tile by hand, except for parts approved by beMatrix®, such as the cover clip.



- It is prohibited to connect the LEDskin® tile to devices different from the beMatrix® or Novastar range.
- It is prohibited to connect the LEDskin® tile via cables other than cables provided by beMatrix®.
- It is prohibited to use LEDskin® for purposes other than mentioned in this manual.
- Any adjustment to the product can impact safety and the guarantee policy!
- The product can never be used in an ATEX environment.
- It is prohibited to install parts on the product that have not been approved by beMatrix®, as these can:
  - ▶ impair the way the product works
  - ▶ endanger the safety of the user or of other people,
  - ▶ decrease the life span of the product
  - ▶ annul the compliance with the CE requirements.

Related information: 2.1 Intended use

## 2.3 Life span

The LEDskin® tile has an estimated life span of 100,000 burning hours.

## 2.4 Type designation

The flight case has a label at the right side. This label indicates the article number (1) and the serial number (2) of the flight case.



The second and third digit of the article number indicate the pitch of the tiles.  
 For example: article number 231 00 08 is a flight case with LEDskin® tiles with a pixel pitch of 3.1mm.

The flight case can contain one of the following types of LEDskin® tiles:

- ▶ LEDskin® tile pitch 1.9 mm
- ▶ LEDskin® tile pitch 2.5 mm
- ▶ LEDskin® tile pitch 3.1 mm

You can find the type (3) and batch number (4) of the LEDskin® tile at the back of the controller. The last digits of the type indicate the tile's pitch. For instance, 2.5 indicates a LEDskin® tile with a 2.5 mm pitch.



## 2.5 Technical specifications

### LEDskin® tile

Specification	Explanation
LEDskin® tile Pixel pitch / resolution / pixel density	1.9 mm / 256 x 256 pixels / 266,389 pixels/m <sup>2</sup> 2.5 mm / 192 x 192 pixels / 149,844 pixels/m <sup>2</sup> 3.1 mm / 160 x 160 pixels / 104,058 pixels/m <sup>2</sup>
LEDskin® tile dimensions	Width: 496 mm (19.53 inch) Height: 496 mm (19.53 inch) Depth: 62 mm (2.44 inch)
LED module	1.9 mm / 128 x 128 pixels / 266,389 pixels/m <sup>2</sup> 2.5 mm / 96 x 96 pixels / 149,844 pixels/m <sup>2</sup> 3.1 mm / 80 x 80 pixels / 104,058 pixels/m <sup>2</sup>

Specification	Explanation
LED module dimensions	248 mm x 248 mm x 12 mm
Surface flatness	< 0.5 mm
Brightness	1.9 mm / 800 nits 2.5 mm / 1,200 nits 3.1 mm / 1,200 nits
View angle	110 / 110°
Power source	100 - 240 V AC / 50- 60 Hz
Max. power consumption per tile	1.9 mm / 150 W 2.5 mm / 125 W 3.1 mm / 150 W
Average power consumption per tile	1.9 mm / 50 W 2.5 mm / 45 W 3.1 mm / 50 W
Platform	Novastar
Weight	7.3 kg or 30 kg / m <sup>2</sup>
Assembly	Compatible with b62® frames
Ambient temperature	Between -10 °C and + 45 °C
Maximum humidity	10 to 90% relative humidity

### LEDskin® flight case

Specification	Explanation
Weight	115 kg
Dimensions	Width: 953 mm Height: 618 mm Depth: 574 mm



## 3. Description

### 3.1 Which items will be delivered?

The LEDskin® tiles (2) come with matching power and video cables (1), all in a sturdy flight case (4). The flight case has four wheels, of which two (3) have a break.



- 1 Storage unit for power and video cables
- 2 LEDskin® tile
- 3 Wheel with break
- 4 Flight case
- 5 Keyhole

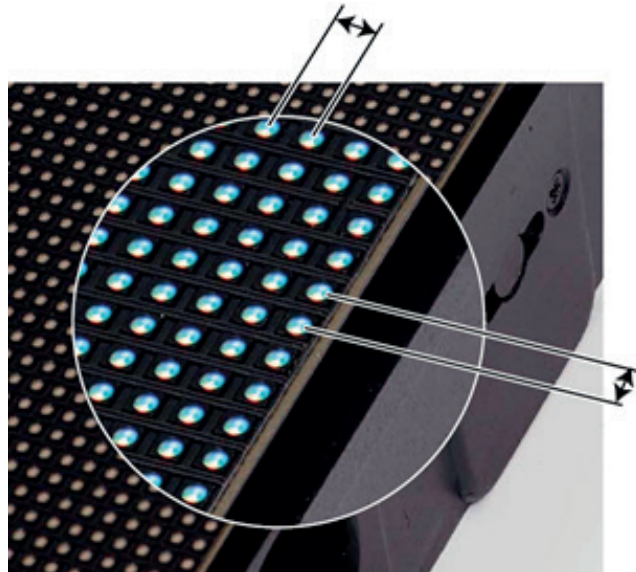
When delivered, the flight case contains:

Part	Qty.	Article number	Image	Function
LEDskin® tile	8	<ul style="list-style-type: none"> <li>• 219 00 00 (1.9)</li> <li>• 225 00 00 (2.5)</li> <li>• 231 00 00 (3.1)</li> </ul>		LED display
Interlink power cable POWERCON (0.28 m)	8	200 10 00		To connect two tiles that are mounted next to each other.
Interlink power cable POWERCON (0.8 m) white/white	1	200 10 01		To connect two LEDskin® tiles that are mounted above each other.
Interlink power cable POWERCON (10 m)	1	200 10 02		To plug in the first LEDskin® tile.
Interlink power cable POWERCON (0.8 m) blue/blue	1	200 10 06		To connect two LEDskin® tiles that are mounted above each other.
Interlink signal cable (0.28 m) UTP - ethercon Neutrik	8	200 11 00		To connect two LEDskin® tiles that are mounted next to each other.
Interlink signal cable (0.8 m) UTP - ethercon Neutrik	2	200 11 01		To connect two LEDskin® tiles that are mounted next to each other.
Interlink signal cable (10 m) UTP - ethercon Neutrik	1	200 11 02		To connect the first LEDskin® tile with the controller.
LED module	1	<ul style="list-style-type: none"> <li>• 219 22 00 (pitch 1,9)</li> <li>• 225 22 00 (pitch 2,5)</li> <li>• 231 22 00 (pitch 3,1)</li> </ul>		Spare LED module, to replace a defect LED module.
LEDskin® module mask	8	<ul style="list-style-type: none"> <li>• 219 22 04 (pitch 1,9)</li> <li>• 225 22 04 (pitch 2,5)</li> <li>• 231 22 04 (pitch 3,1)</li> </ul>		To improve image quality.
User manual	1			To use the LEDskin® tiles in a safe way.

### 3.2 What is the pitch of a tile?

The pitch of a tile is the horizontal or vertical distance between two adjacent LEDs on a tile.

Related information:  
3.3 the LEDskin® tile



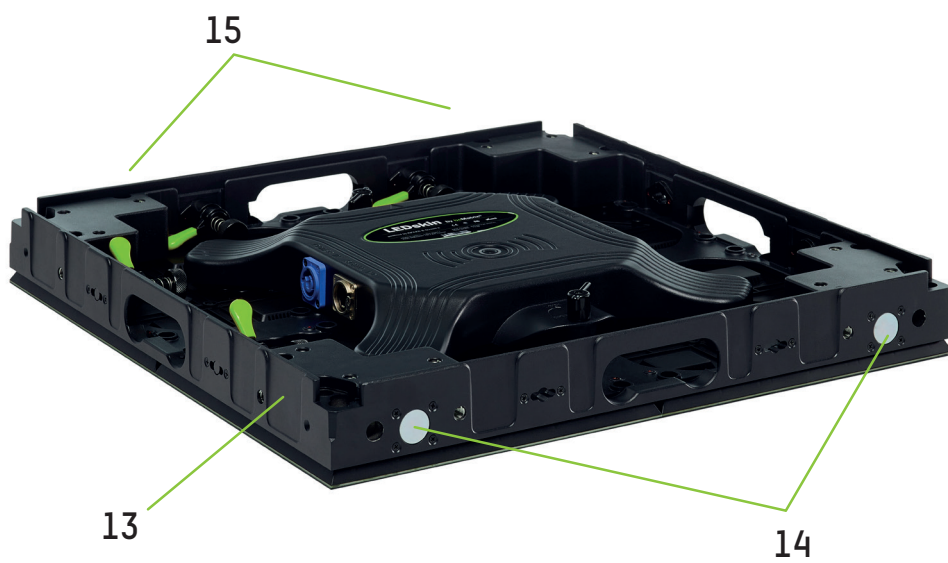
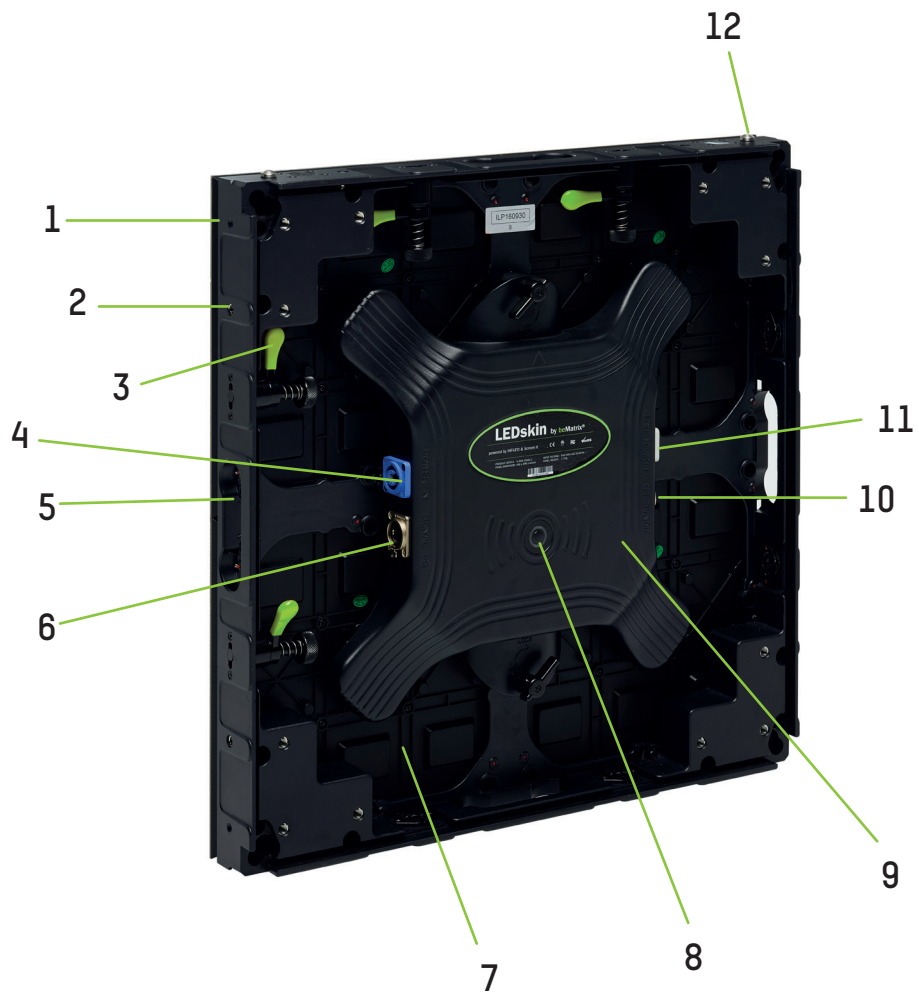
### 3.3 The LEDskin® tile

The LEDskin® tile has been equipped to temporarily stand upright or to be suspended. The LEDskin® tile consists of:

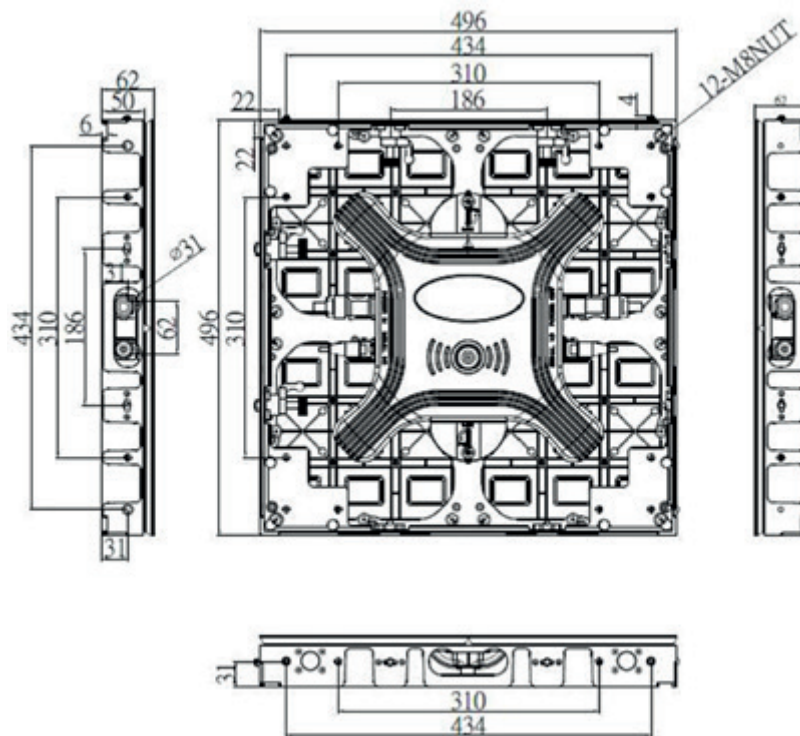
- ▶ a frame in a magnesium alloy
- ▶ a separate driver box that distributes the power as well as the data
- ▶ removable LED modules

No	Part
1	Positioning pen opening
2	Opening to secure with M8 connector
3	Lock
4	Electricity In
5	Handle
6	Signal In / Out
7	LED module

8	Test button
9	Driver box
10	Signal In / Out
11	Electricity Out
12	Positioning pen
13	Frame
14	Magnets (South)
15	Magnets (North)





### 3.4 LEDskin® tile dimensions



### 3.5 Accessoires and options

The LEDskin® tile has the option to be finished at the back with textile or with a panel. Textile can be secured using a silicone or PVC string. Modules can be secured with Velcro tape.

The following accessories and options are not part of the standard package:

Accessory / option	Article nr.	Image	Function
Suspension bracket	200 20 21 (0496 mm)		Bracket for suspension of LEDskin tiles.
Suspension bracket	200 20 22 (0992 mm)		Bracket for suspension of LEDskin tiles.

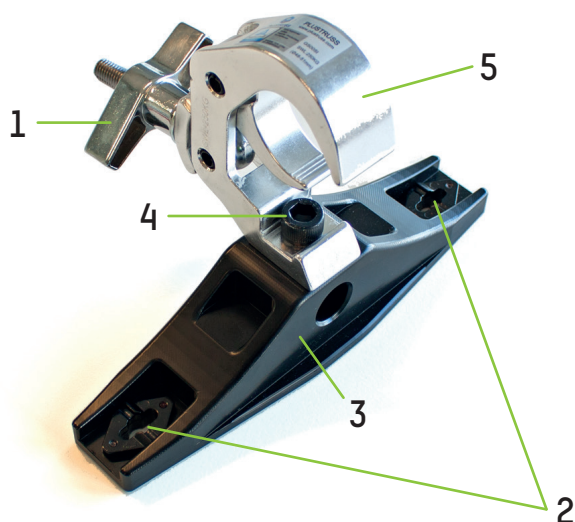


Hanging beam	200 20 20		To suspend LEDskin® tiles
LEDskin® Novastar controller MCTRL660 PRO : 200 21 04	200 21 04		To control LEDskin® tiles
LEDskin® Novastar controller VX600	200 21 15		To control LEDskin® tiles
Gekko	200 20 02		To replace a LED module of a LEDskin® tile via the front side

Related information: 3.6 the LEDskin® hanging beam

### 3.6 The LEDskin® hanging beam

The LEDskin® hanging beam is used to suspend a LEDskin® tile to a truss system.



No	Part
1	Adjusting screw
2	Latch opening
3	Base
4	Allan screw
5	Clamp

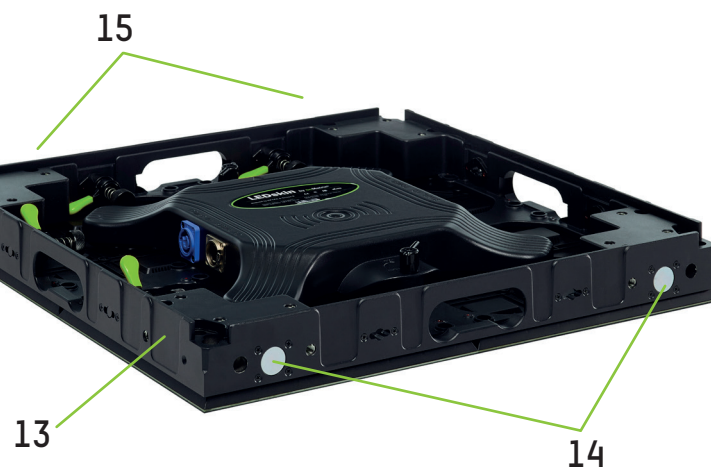
The hanging beam consists of a clamp (5) that clamps around a truss or other element of the structure. Using the adjusting screw (1), the clamp is tightened. The clamp is then attached to the base (3) with an Allan screw (4). The base has two latch openings (2) via which the LEDskin® tile is secured, using the lock pins.

# 4. Safety

## 4.1 Safety requirements

The LEDskin® tile design is in accordance with the norms as laid out in the declaration of conformity. Additional measures have been added to make the LEDskin® tile safe to use:

- ▶ hand grips (5)
- ▶ magnets (14) and (15)



### Hand grips

The LEDskin® tile hand grip makes it easy for you to take the tile out of the flight case and to place it back in the flight case. When assembling or disassembling the LEDskin® tile the hand grips also ensure you can work safely: when you use the hand grips, there is no need to touch the fragile LED modules.

### Magnets

The magnets ensure an easier way to assemble in case a hanging construction is used. When hanging a LEDskin® tile underneath another LEDskin® tile, the magnets help to position the tile. Also, you will need less force to lift the tile. The magnets have been designed in such a way that they can hold one tile hanging off another one.

**ATTENTION:** Please be advised to support the LEDskin® tile at all times until secured to the LEDskin® tile above. There is a possibility the magnets, after some time, lose their power!

## 4.2 Specific safety requirements

**ATTENTION:** The LEDskin® tile cannot be exposed to humidity, abrasives, oils, dust and corrosives.

**ATTENTION:** The LEDskin® tile cannot be used in environments with contaminated air, for example: a smoke machine produces contaminated air using oil. This will result in a thin oil deposit on the LEDskin® tile, which will impair its performance.

**ATTENTION:** The LEDskin® tile cannot be exposed to extreme local heat or cold, with temperatures exceeding the temperature specifications. The ambient temperature has to stay between -10 °C and + 45 °C.

**ATTENTION:** The LEDskin® tiles cannot be exposed locally to heat caused by lasers, ultrasonic vibrations, impaired ventilation because of dust, impaired heat radiation because of dust, ... or caused by any other situation.

**ATTENTION:** The LEDskin® tiles cannot be exposed to an environment in which condensation can occur or accumulate on the tile or on a component of the tile.

**ATTENTION:** The LEDskin® tile hand grip is only to be used to pick up and carry one single tile. The hand grip cannot be used to climb the LEDskin® construction, to suspend objects, ... apart from the parts approved by beMatrix®, such as the cover clip.

**ATTENTION:** Nothing can be hung on the LEDskin® tile cables.

**ATTENTION:** Defect LEDskin® tiles or cables cannot be used and have to be removed from the construction immediately. The LEDskin® tile or cable has to be replaced or repaired.

**ATTENTION:** It is advised to complete full assembly and disassembly of the LEDskin® tiles manually. Tools can only be used when approved by beMatrix®. For example: using the beMatrix® Gekko to replace a LED module.

**ATTENTION:** Only beMatrix® cables especially designed for LEDskin® are to be used for the electrical and data connections of the LEDskin® tile.

**ATTENTION:** The LEDskin® tile can only be used in proximity to devices with EMC conformity, or devices with conformity to a similar requirement.

**ATTENTION:** The LEDskin® tiles can only be transported in the dedicated beMatrix® flight case or using beMatrix® packaging material.



**ATTENTION:** The LEDskin® tiles can only be connected to beMatrix® or Novastar devices.

**ATTENTION:** The LEDskin® tiles can only be suspended to the beMatrix® hanging beam.

**ATTENTION:** The external structure to which the LEDskin® tiles are suspended, has to be assembled correctly and sufficiently solid to support the entire construction. Calculations should integrate a safety margin.

**ATTENTION:** A hanging LEDskin® construction can have a height of maximum 17 tiles.

### 4.3 Personal Protective Equipment

Wearing safety shoes when assembling or disassembling LEDskin® tiles is mandatory. In case of specific risk of falling during assembly or disassembly of LEDskin® tiles, the person in this particular situation has to wear personal fall prevention equipment. Always follow the latest local safety regulations! Always check with the personal responsible for personal protection!

### 4.4 Emergencies

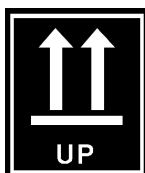
In case of emergency, turn off the mains as quickly as possible.

### 4.5 Dangerous goods

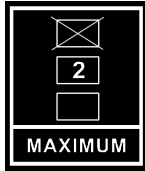
The product does not contain dangerous goods.

### 4.6 Pictograms

You will find these pictograms on the flight case:



The arrows indicate the top of the flight case.  
The case should always be kept this side up.



A maximum of one flight case can be put on top of another one.  
Never stack 3 flight cases on top of each other.



Handle with care. The flight case contains fragile material.



Keep the flight case dry; the flight case isn't rain proof!

## 5. Transport and storage

### 5.1 Storing the device

The LEDskin® tiles and their corresponding power and video cables have to be stored in the beMatrix® flight case at all times.

The flight case has to be stored upright at all times, with a stacking capacity of maximum 2 flight cases. Please take care since the flight case contains fragile material. This flight case might be reinforced, still this doesn't guarantee the material is protected against heavy impact. The flight case also isn't rain proof.

Store the flight case in an area that is:

- ▶ dry
- ▶ not affected by the weather (i.e. frost proof)
- ▶ dust free

Related information 4.2 Specific safety requirements

### 5.2 Moving a video wall

**ATTENTION:** Never move a fully assembled video wall.



To move a video wall, first disassemble the video wall and store everything correctly in the flight case. The flight case is equipped with wheels and handles, so is easily moveable. Move the flight case to the new location and install the video wall.



## 6 Assembly and installation

### 6.1 Assembly and installation

Prior to assembly of the video wall, first check whether all requirements are met:

- ▶ 6.2
- ▶ 6.3
- ▶ 6.4

After checking the requirements, you can map the plan for the video wall. See 6.5

## 6.2 Mechanical requirements to install a video wall

- ▶ Calculate the total weight of the entire video wall. Make sure the floor or truss installation can easily take 5 times the total weight of the video wall. A LEDskin® tile weighs 7.3 kg or 30 kg/ m<sup>2</sup>.
- ▶ The surface on which the LEDskin® video wall will be mounted has to be fully flat or made flat. Never install a LEDskin® video wall on a slanted surface!
- ▶ Depending on the height of the video wall and its position in the b62® construction, you will have to provide extra weight or ballast. Contact beMatrix® for more information.
- ▶ When hanging the video wall, do not exceed the maximum vertical capacity of 10 LEDskin® tiles.

Related information

- 6.5 Planning a video wall
- 6.3 Electrical requirements to install LEDskin® tiles
- 6.4 Data requirements to install LEDskin® tiles

## 6.3 Electrical requirements to install LEDskin® tiles

- ▶ A single LEDskin® tile requires a 200 - 240 V AC, 50-60 Hz connection. As a rule of thumb: no more than 24 LEDskin® tiles (for 2.5 pitch) / 20 LEDskin® tiles (for 3.1 pitch) / 15 LEDskin® tiles (for 3.8 pitch) can be connected to one standard 220-230V / 16 A circuit. Each circuit has to be fitted with a 16 A / 250 V AC fuse or a 15 A / 250 V AC fuse in the USA or Canada. The maximum power consumption of one LEDskin® tile equals 125 W (for 2.5 pitch) / 150 W (for 3.1 pitch) / 180 W (for 3.8 pitch).
- ▶ Use a surge protector in conformity with EN61643-11 or UL 1449 standards to protect the LEDskin® tiles from lightning strike, electro engines of other users connected to the net, ... When a power box is used for the electrical connection, there is no need for additional safety measures, since the power box has a built-in surge protector. When connecting to the electricity via a distribution box of a third party, check whether a surge protector is present.
- ▶ It is advised to use the TNS net (individual zero conductor and earthing lead) in order to avoid large earth current loops in the zero conductor. The entire electrical installation has to be secured and executed in accordance with the current local requirements for electrical installations. In Germany, the VDE 0100 has to be abided by, in America this goes for the ANSI/NFPA 70.

- ▶ The electrical installation HAS TO BE earthed.
- ▶ When the electrical connection of the individual tiles is not accessible, a switch has to be provided for the electricity input to the tiles. This switch has to be close to the LEDskin® tiles and easily accessible.

Related information

- 6.2 Mechanical requirements to install a video wall
- 6.4 Data requirements to install LEDskin® tiles
- 6.5 Planning a video wall

## 6.4 Data requirements to install a LEDskin® tiles

As a rule of thumb, a maximum of 15 LEDskin® tiles (for 2.5 pitch) / 20 LEDskin® tiles (for 3.1 pitch) / 32 LEDskin® tiles (for 3.8 pitch) can be connected per single Novastar MCTRL600 PRO controller data output. The Novastar MCTRL600 PRO controller has 6 data outputs in total.

Each data output of the Novastar MCTRL600 PRO controller can manage 575,000 pixels. A LED tile contains 25,600 pixels (160 x 160), hence a maximum of 22 LEDskin® tiles per data output can be controlled.

Related information

- 6.2 Mechanical requirements to install a video wall
- 6.3 Electrical requirements to install LEDskin® tiles
- 6.5 Planning a video wall



## 6.5 Planning a video wall

We recommend a good plan prior to building a video wall.

**TIP:** Use the NovaLCT-MARS or the SmartLCT software to design the layout of the video wall and the tile position.

These are the most important components of a video wall:

- ▶ b62® structural elements
- ▶ LEDskin® tiles with matching cables
- ▶ Novastar controller

Related information

- 6.2 Mechanical requirements to install a video wall
- 6.3 Electrical requirements to install LEDskin® tiles
- 6.4 Data requirements to install LEDskin® tiles

## 6.6 Taking a LEDskin® tile out of the flight case

Each LEDskin® tile is packed in a foam cover.

1. Take the LEDskin® tile by the handle on the open side of the tile.
2. Carefully pull the LEDskin® tile together with the foam cover vertically from its compartment to avoid damaging the LED module and/or the LEDs.



3. Hold the LEDskin® tile with the LED side away from you.
4. Remove the foam cover from the LEDskin® tile.

#### Related information

- 6.7 Placing a LEDskin® tile in the flight case
- 6.8 Building a standing video wall
- 6.9 Building a hanging video wall

## 6.7 Placing a LEDskin® tile in the flight case

Never leave a tile lying around. Immediately after use, pack the tile in the foam cover and store it in the flight case.

1. Take the LEDskin® tile by the handle at the open side of the tile and hold the tile with the LED side away from you.
2. Carefully pack the LEDskin® tile in the foam cover.
3. Lower the LEDskin® tile, together with the foam cover, vertically into the compartment to avoid damage to the LED module and/or the LEDs.



Related information: 6.6 Taking a LEDskin® tile out of the flight case

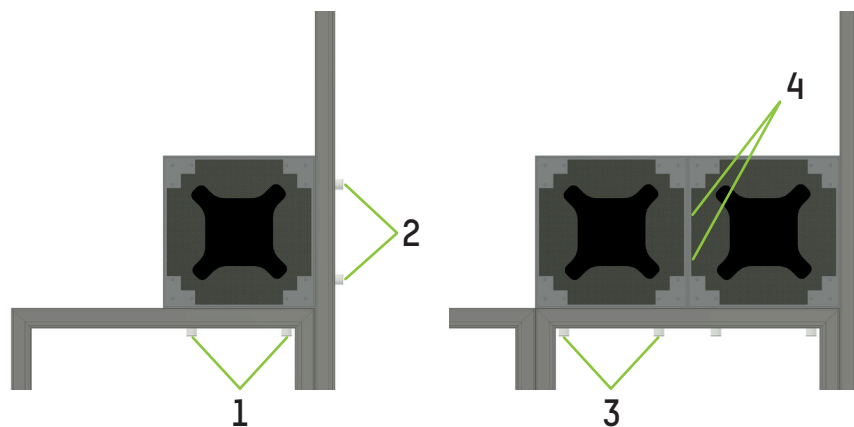
## 6.8 Building a standing video wall

**TIP:** First draw up a plan! See 6.5

With a standing video wall, the base row of LEDskin® tiles is the most important. This lowest row takes the full weight of the screen. The alignment of all LEDskin® tiles depends on the alignment of the bottom row. A flat surface and a level structure are essential to a good start. beMatrix® advises to assemble the video wall using an adjustable bearing structure built with beMatrix® b62® frames, to ensure perfect alignment of the bottom row.

1. Make sure the b62® frames, which will act as the base for the video wall, are perfectly aligned.
2. Remove a LEDskin® tile from the flight case.
3. Make sure all safety pins have been unlocked.
4. With the LEDskin® tile, go to the rear of the location of the video wall.
5. Place the LEDskin® tile in the furthest right position onto the bearing structure.

Building a standing video wall is always done from the rear of the construction, with the LEDskin® tiles always being installed from right to left.



6. Attach the LEDskin® tile to the vertical profile with at least one manual M8 connector (2).
7. Attach the LEDskin® tile to the horizontal profile with at least one manual M8 connector (1).
8. Repeat step 2 to 4.
9. Install the next tile

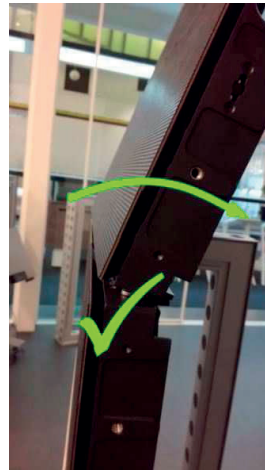


10. Interlock the LEDskin® tiles using the locking pins (4).
11. Attach the LEDskin® tile to the horizontal profile with at least one manual M8 connector (3).
12. Repeat step 2 to 4.
13. Attach the left side of the last LEDskin® tile of the row to the vertical profile with at least one manual M8 connector.
14. Place the next LEDskin® tile on top of the first LEDskin® tile.

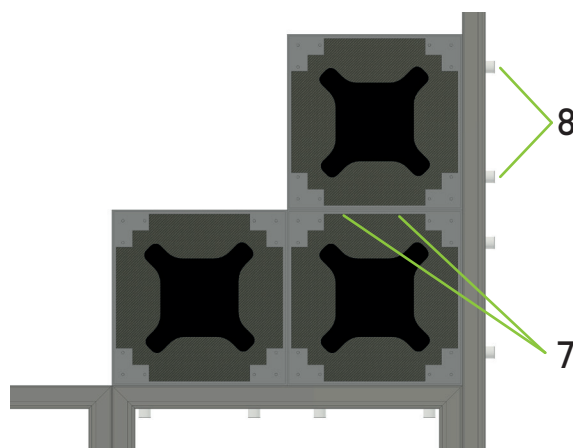
**ATTENTION:**

Always place the LEDskin® tile from the rear and push the LEDskin® tile forward very carefully!

Never swivel the LED side of the LEDskin® tile onto the LED side of another LEDskin® tile!



15. Interlock the LEDskin® tiles using the locking pins (7).
16. Attach the LEDskin® tile to the vertical profile with at least one manual M8 connector (8).



Related information

- 6.6 Taking a LEDskin® tile out of the flight case
- 6.9 Building a hanging video wall
- 6.13 Disassembling a video wall



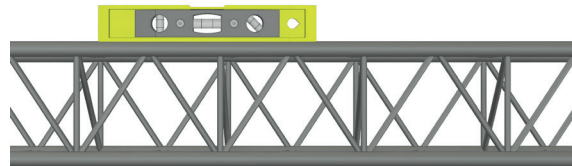
## 6.9 Building a hanging video wall

**TIP:** First draw up a plan! See 6.5.

With a hanging video wall, the top row of LEDskin® tiles is the most important, since this row carries the full weight of the screen. The alignment of the LEDskin® tiles also depends on the alignment of the top row. A level structure to hang the LEDskin® tiles from is also essential. beMatrix® advises to build the video wall using an adjustable bearing structure, to ensure perfect alignment of the top row of LEDskin® tiles.

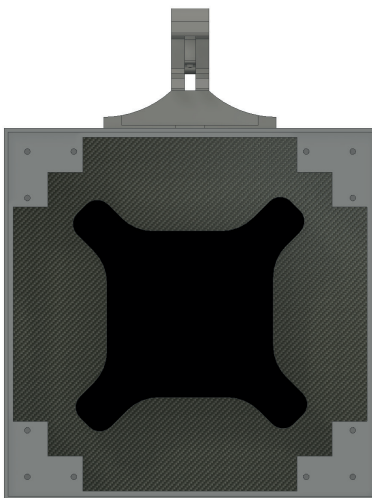
**ATTENTION:** Never hang more than 10 LEDskin® tiles underneath each other!

1. Check whether the truss or hanging structure is level. Adjust if needed.
2. Take a LEDskin® tile out of the flight case.
3. Ensure all locking pins are unlocked.
4. Attach the LEDskin® tile to the LEDskin® hanging beam using the locking pins.
5. Take the LEDskin® tile and the LEDskin® hanging beam to the rear of the location of the video wall.
6. Lift the LEDskin® tile to the truss. Position the tile and lock the clamp (1) to the truss.

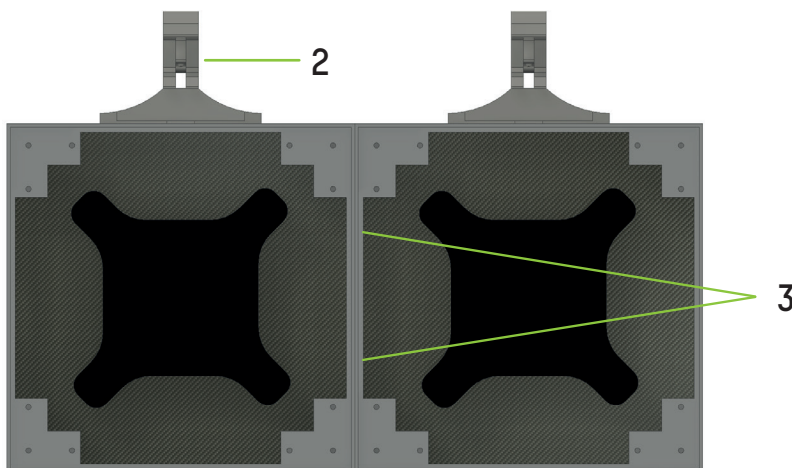


**ATTENTION:** Always build from right to left, seen from the rear of the LEDskin® tile.

7. Repeat step 2 to 5.



8. Lift the LEDskin® tile to the truss. Position the tile and lock the clamp (2) to the truss.
9. Interlock the LEDskin® tiles using the locking pins (3).



10. Install the following LEDskin® tiles in the same way, until the top row of LEDskin® tiles has been hung.
11. Repeat step 2 to 5.
12. Place the LEDskin® tile underneath the first LEDskin® tile; the magnets will keep the LEDskin® tile in its place.

**ATTENTION:** Always install the LEDskin® tiles from the back and carefully push the LEDskin® tile forward. Never swivel the LED side of the LEDskin® tile onto the LED side of another LEDskin® tile!

13. Interlock the LEDskin® tiles using the locking pins (4).



14. Repeat step 2 to 5 and continue with the next LEDskin® tiles of this row. These LEDskin® tiles have to be locked with the LEDskin® tile above as well as with the LEDskin® tile below.
15. Continue to work this way until the complete video wall has been hung.

**N.B.:** It is recommended to position the truss beforehand in its correct height. Should the truss still have to be lifted or lowered, do so fully horizontal. Lifting or lowering the video wall in an uneven way can damage the LEDskin® tiles.

Related information

- 6.8 Building a standing video wall
- 6.6 Taking a LEDskin® tile out of the flight case
- 6.13 Disassembling a video wall
- 3.6 The LEDskin® hanging beam

## 6.10 Connecting the data

Connecting the power and data cables can be done simultaneously to or after the installation of the video wall, depending on the accessibility of the video wall.

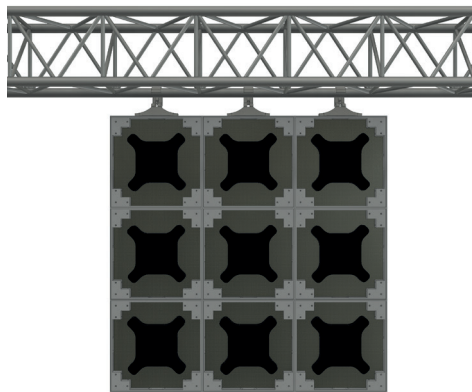
**TAKE CARE!:** Only connect the mains cable to the mains supply once all other connections have been completed and the set-up has been checked.

1. Connect the main 10 m data cable (1) to the LEDskin® tile in the nearest corner of the video wall. Firmly press the connector into the opening, until you hear it locking in.
2. Connect the LEDskin® tiles in the same row with the short 0.28 m data cables (2). Firmly press the connector (4) into the opening, until you hear it locking in.



4

3. Connect the last LEDskin® tile of a row with the LEDskin® tile of the next row using a 0.8 m (3) data cable. Firmly press the connector into the opening, until you hear it locking in. The data cables have to be connected in a closed loop.



Related information

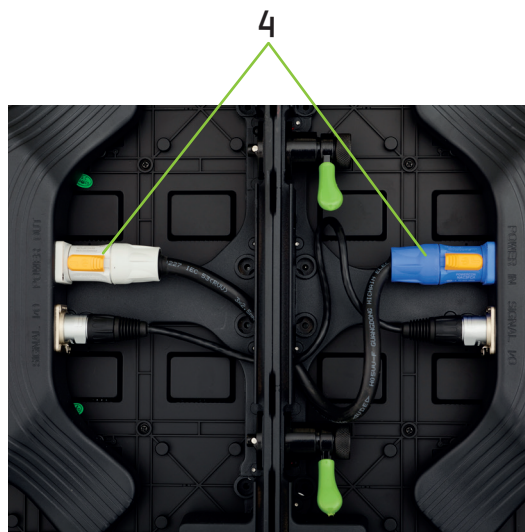
- 6.11 Connecting to the electricity
- 6.12 Operating the LEDskin® Novastar controller

## 6.11 Connecting to the electricity

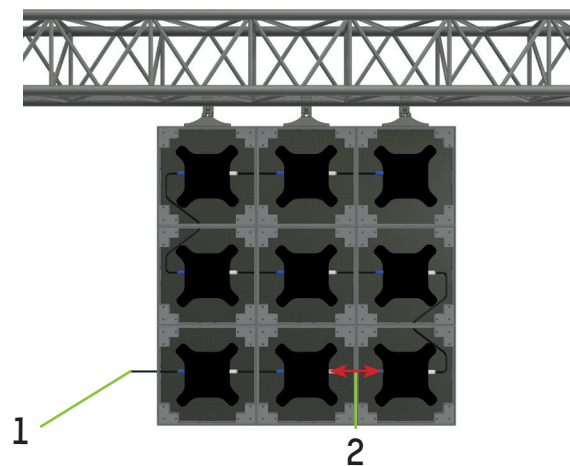
Connecting the power and data cables can be done simultaneously to or after the installation of the video wall, depending on the accessibility of the video wall.

**TAKE CARE!:** Only connect the mains cable to the mains supply once all other connections have been completed and the set-up has been checked.

1. Connect the main 10 m power cable (1) to the LEDskin® tile in the nearest corner of the video wall. Firmly press the connector into the opening, until you hear it locking in.
2. Connect the LEDskin® tiles in the same row with the short 0.28 m power cables (2). Firmly press the connector (4) into the opening, until you hear it locking in.



3. Connect the last LEDskin® tile of a row with the LEDskin® tile of the next row using a 0.8 m (3) power cable. Firmly press the connector into the opening, until you hear it locking in.
4. Check whether all connections are correct.
5. Connect the mains cable to the electricity supply.



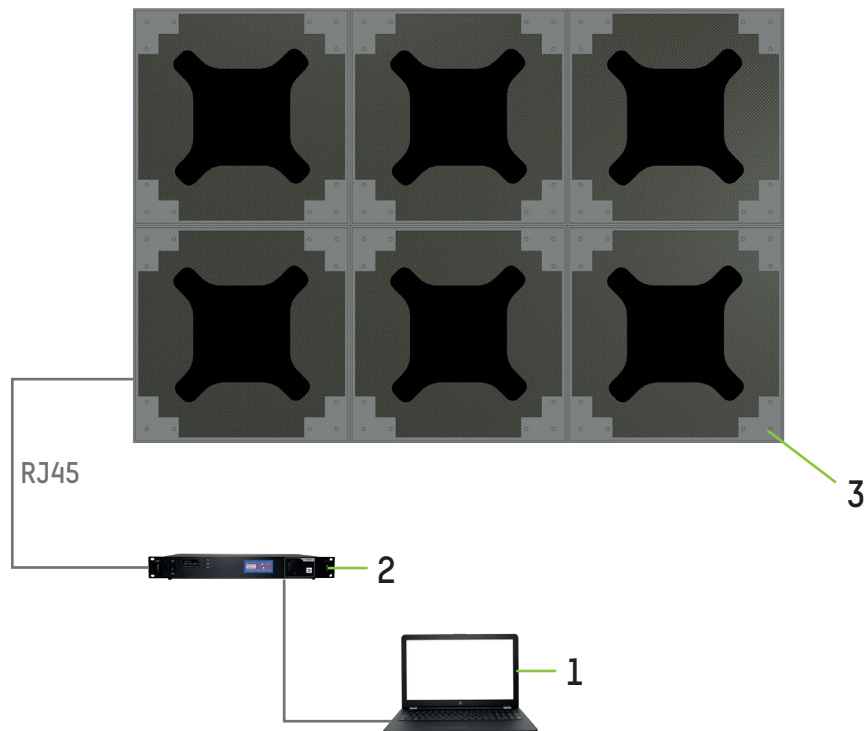
**ATTENTION:** In case the mains cable is too short, you can use a supply cable between the mains cable and the socket. Only use a 3 x 2.5 mm<sup>2</sup> supply cable.

Related information

6.10 Connecting the data

6.12 Operating the LEDskin® Novastar controller

## 6.12 Connecting the LEDskin® Novastar controller



1. Connect the main data cable, coming from the video wall (3) to the LEDskin® Novastar controller (2).
2. Connect the device (1) that will transmit the video signal to the LEDskin® Novastar controller using a video signal cable.

**N.B.:** For more configuration information, please refer to the LEDskin® Novastar controller manual.

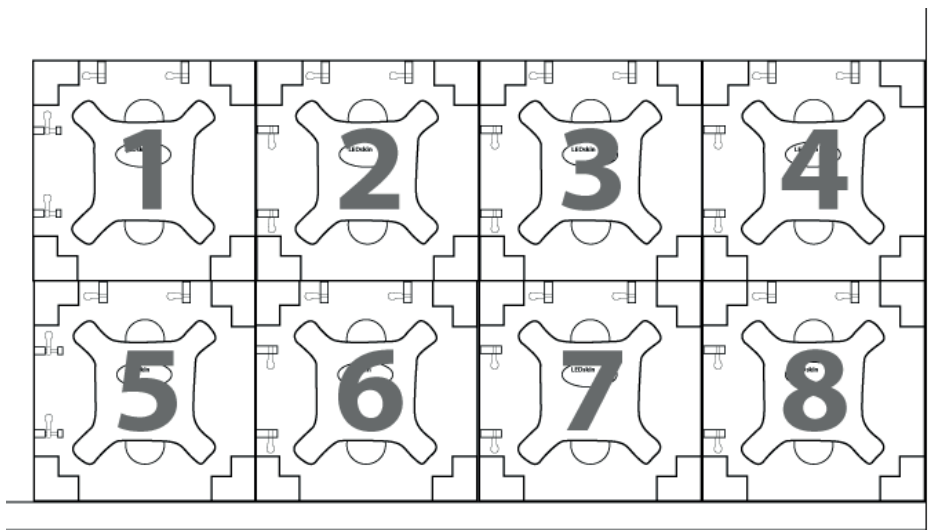
### Related information

- 6.10 Connection data
- 6.12 Connecting to the mains

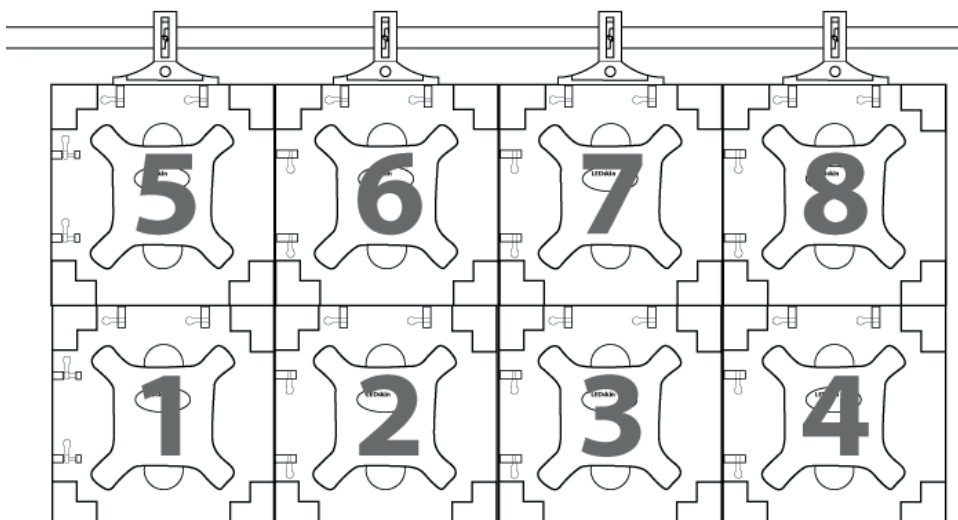
## 6.13 Disassembling a video wall

1. Turn off the mains.
2. Detach the data connection from the LEDskin® Novastar controller.
3. Detach all supply and signal cables.
4. Always disassemble LEDskin® tiles from the back and from left to right (seen from the rear).

► Video wall type: standing



► Video wall type: hanging

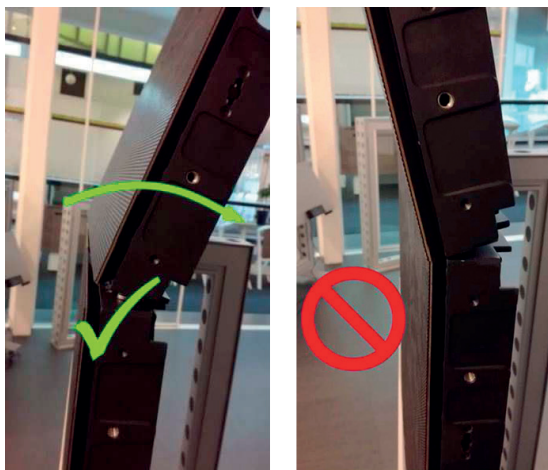




**ATTENTION:**

Always tilt the LEDskin® tile backwards when disassembling!

Never swivel the LED side of the LEDskin® tile onto the LED side of another LEDskin® tile!



## 7. Starting up and operating procedures

Please refer to the LEDskin® Novastar controller manual.

## 8. Maintenance

### 8.1 Preventive maintenance

#### 8.1.1. Maintenance plan

Action	Frequency	Who?	Go to
Testing the LEDskin® tile	Before and after each use	The user	8.1.2.2
Cleaning the LEDskin® tile	Before and after each use	The user	8.1.2.1
Inspecting the LEDskin® tile	Annually	The user	8.1.2.3

## 8.1.2. Maintenance instructions

### 8.1.2.1. Cleaning a LEDskin® tile

**ATTENTION:** For cleaning, do not use any abrasives, caustics or products containing solvents, since all of these might cause damage to the surface.

**ATTENTION:** Do not use a vacuum cleaner or compressed air!

1. Select one of the following actions:
  - ▶ Use anti-static screen wipes
  - ▶ Use a soft, lint-free cloth, slightly dampened in a solution of water and mild soap.
2. Carefully wipe the LED side of the tile, applying some pressure very gently.

### 8.1.2.2. Testing the LEDskin® tile

In the centre of the driver box, you will find a test button. This test button has 2 LED check lights:

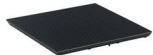
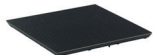
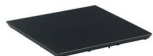

- ▶ **Signal check light:** will show fast flashing green light when data cable is connected and the LEDskin® tile is connected correctly.
  - ▶ **Power check light:** will remain red when the supply cable is connected and 5 V DC enters the driver box.
1. Connect the LEDskin® tile to the mains with a power cable. The bottom LED indicator will stay red as long as the control box receives electricity.
  2. Remove the data cable from the LEDskin® tile. The signal check light will no longer be lit.
  3. Press the test button. Test patterns will appear on the LEDskin® tile to check whether all LEDs are functioning.
  4. Repeat step 3 until all required test patterns have been completed.
  5. Reconnect the data cable. The test pattern will be stopped and the LEDskin® tile will again display the image that is sent via the data cable.

### 8.1.2.3. Inspecting the LEDskin® tile

1. Visually check the housing for any cracks.
2. Check the functioning of the locks.
3. Check the functioning of the magnets.
4. Visually check the LED modules for damage.
5. Test whether the LEDskin® tile functions. See 8.1.2.2.

## 8.2 Corrective maintenance

### 8.2.1. Spare parts

Spare part	Image	Article number
LED module (248x248mm) - pitch 1.9		219 22 00
LED module (248x248mm) - pitch 2.5		225 22 00
LED module (248x248mm) - pitch 3.1		231 22 00
Driver box		200 22 01

### 8.2.2. Replacing a LED module of a LEDskin® tile in an installed video wall

In order to avoid having to disassemble a complete construction to replace a defect LED module in a LEDskin® tile, you can easily replace the LED modules via the front.



1. Turn off the mains.
2. Turn off the data supply.
3. Horizontally place the Gekko in the centre of the front of the LED module. (1)
4. Carefully pull the defect LED module towards you. (2)
5. Place the LED module horizontally on a clean surface. (3)
6. Remove the Gekko from the defect LED module. Contact beMatrix® to repair or

replace the LED module.

7. Place a new LED module on the Gekko.

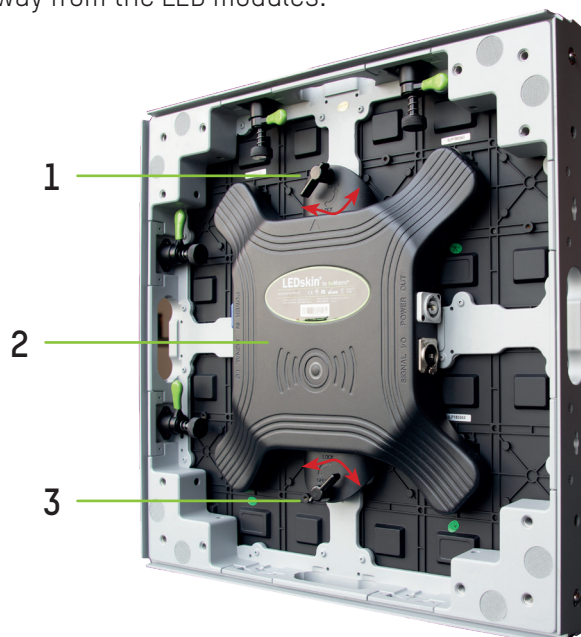
**N.B.:** The arrow on the LED module indicates the top of the LEDskin® tile.

8. Place the new LED module correctly on the LEDskin® tile. The arrow on the LED module indicates the top of the LEDskin® tile.
9. Test whether the LEDskin® tile functions correctly.

### 8.2.3. Replacing a LED module of a LEDskin® tile in an installed video wall

In order to avoid having to disassemble a complete construction to replace a defect driver box of a LEDskin® tile, you can easily replace the driver box via the rear.

1. Turn off the mains.
2. Turn off the data supply.
3. Remove the power and signal cables that are connected to the driver box.  
In case you replace the driver box of an individual LEDskin® tile that is not part of the installation, place the tile on its foam cover LED module side down.
4. Unlock the driver box (2) by turning locks (1) and (3).
5. Gently pull the driver box away from the LED modules.



6. Place a new driver box, with the label text up, towards the top of the LEDskin® tile.
7. Lock the driver box by turning locks (1) and (3).

## 8.3 Finding and repairing an error

Any incidents should be solved immediately. Defect devices or parts cannot remain part of the construction and have to be replaced immediately.

Should you have any questions or doubts, please contact beMatrix.

Error	Cause	Solution
The tile no longer responds.	<ul style="list-style-type: none"> <li>• Interrupted electricity supply.</li> <li>• Blown fuse.</li> <li>• Defect supply unit.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the mains and connections.</li> <li>• Remove the mains cable from the tile and contact beMatrix®.</li> <li>• Remove the mains cable from the tile and contact beMatrix®.</li> </ul>
One or more tiles does not display the video correctly or not at all	<ul style="list-style-type: none"> <li>• Faulty tile settings in the LEDskin® Novastar controller.</li> <li>• Faulty connection of the LEDskin® Novastar controller.</li> <li>• Defect tile.</li> <li>• Faulty connection of the LEDskin® Novastar controller.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the settings (display configuration, panel device, properties, ...)</li> <li>• Check the connections and cables. Repair or replace damaged cables.</li> <li>• Have the malfunctioning LEDskin® tile checked by a beMatrix® service engineer.</li> <li>• Replace by a functioning device.</li> </ul>
None of the tiles display the video correctly or not at all.	<ul style="list-style-type: none"> <li>• Incorrect video in or tile settings in the LEDskin® Novastar controller.</li> <li>• Unusual video signal or malfunctioning video source.</li> <li>• The driver box is defect.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the settings (PAL/SECAM/NTSC selection, overall panel intensity setting,...).</li> <li>• Check the video source.</li> <li>• Check the connections and cables. Repair or replace damaged cables.</li> <li>• Have the malfunctioning LEDskin® tile checked by a beMatrix® service engineer.</li> </ul>
The video display of the tile occasionally malfunctions.	<ul style="list-style-type: none"> <li>• The LEDskin® tile is too hot.</li> <li>• The driver box is defect.</li> </ul>	<ul style="list-style-type: none"> <li>• Check whether there is sufficient free airflow at the back of the tile. Clean the back of the tile.</li> <li>• Check whether the ambient temperature is between -10 °C and + 45 °C.</li> <li>• Contact beMatrix®.</li> <li>• Check the connections and cables. Correct the incorrect connections. Repair or replace any damaged cables.</li> </ul>

Error	Cause	Solution
One LED module malfunctions.	<ul style="list-style-type: none"> <li>The LED module has not been installed or connected correctly.</li> <li>The LED module doesn't work.</li> </ul>	<ul style="list-style-type: none"> <li>Check the installation and the connection of the LED module.</li> <li>Replace the LED module. See 8.2.2.</li> </ul>

## 9. Decommissioning and disposal

### 9.1 Decommissioning

Disassemble the LEDskin® tiles and store everything in the flight case.

Related information: 9.2 Disposal

### 9.2 Disposal

The flight case with its content has to be disposed at the end of its life cycle, in a sustainable manner. Please abide by the local legal requirements.

Related information: 9.1 Decommissioning

## 10. Appendices

Please refer to the separate EC Declaration of Conformity.



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