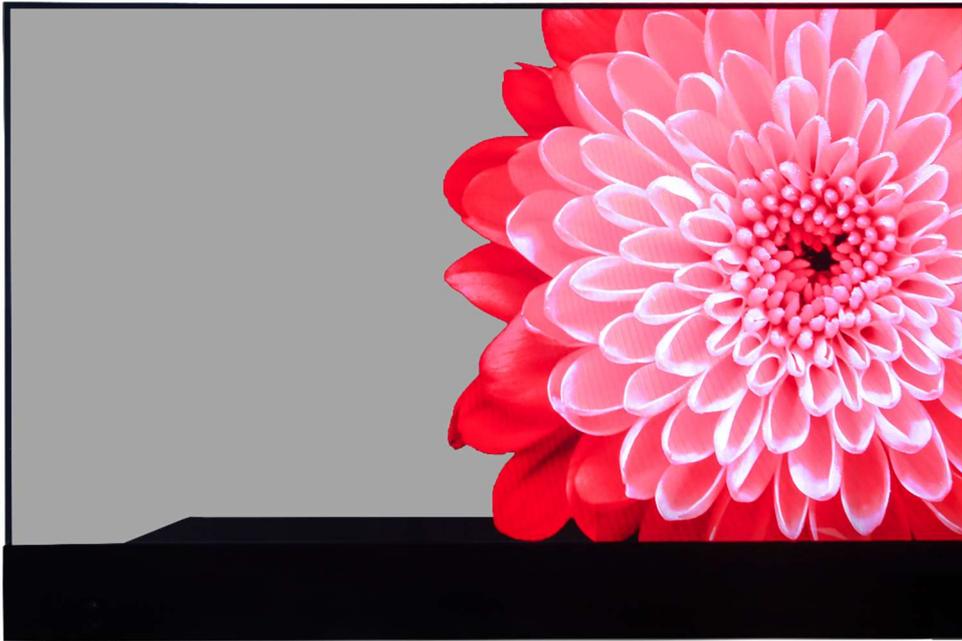




Transparent OLED display with LG 55EW5F-A

Manual Version 1.4



Date	Revision No.	Author	Checked	Approved	Description
02.01.2020	1.1	DRD	RBR	TSN	Layout change
16.03.2020	1.2	RBR	DRD	DRD	Update TK Mounting
11.02.2021	1.3	DRD	TSN	RBR	Update PCAP
05.03.2024	1.4	GJN	RBR	TNR	Update warranty conditions

Contact

Tel.: +49 2204 9485 30

E-Mail: info@exactsolutions.de

Web: www.exactsolutions.de

Table of content

1. Important information	3
1.1 Summary	3
1.2 Safety instructions	3
1.3 Precautions to the AC Adapter and Electrical Power	6
1.4 Precautions in moving the product	7
1.5 Precautions in using the product	7
1.6 Operating conditions	8
2. Overview GhosT-OLED Series	9
2.1 Introduction	9
2.2 GhosT-OLED Half Kit	9
2.3 GhosT-OLED Full Kit	10
2.4 GhosT-OLED Touch Kit	11
2.5 GhosT-OLED Full Kit PCAP	12
2.6 GhosT-OLED Half Kit PCAP	13
3. Scope of delivery	14
4. Installation instructions	14
4.1 Lifting GhosT-OLED Full Kit and Full Kit PCAP out of the case	15
4.2 Lifting GhosT-OLED Full Kit and Full Kit PCAP out of the wooden box	17
4.3 Changing the foot orientation of GhosT-OLED Full Kit and Full Kit PCAP	19
4.4 Set up GhosT-OLED Touch Kit	21
4.5 Connecting GhosT-OLED Half Kit and Half Kit PCAP panel unit with signage box	24
4.6 Mounting GhosT-OLED to walls or furniture	31
4.6.1 Screw hole pattern of all GhosT-OLED versions	31
4.6.2 Ventilation information	33
5. Connector panel and control possibilities	34
6. Specifications	36
7. Product Outlines	38
7.1 Drawing GhosT-OLED Half Kit	38
7.2 Drawing GhosT-OLED Full Kit	39
7.3 Drawing GhosT-OLED Touch Kit	40
7.3.1 Full Kit equipped with Touch Kit	41
7.4 Drawing GhosT-OLED Full Kit PCAP	42

7.5	Drawing GhosT-OLED Half Kit PCAP	43
8.	Declaration of Conformity	44
	Imprint	45

1. Important information

Note: These installation instructions must always be handed over to the installing person¹

Note: Read these instructions carefully before installing the system

Note: Read the LG 55EW5F-A Owner's Manual and User Guide in the first place

1.1 Summary

The GhosT-OLED series has been designed under the highest attention on safety. However, improper handling can cause a risk for safety and / or damage. Please read carefully the instructions provided in this manual in order to avoid damage and ensure personal safety. Respecting the instructions will also prevent burn-in effects and extend the product's lifetime. The GhosT-OLED products are intended to be installed only by fully qualified, trained and competent persons to provide safe and secure installations.

1.2 Safety instructions

WARNING

Note: Read the safety instructions written in the LG 55EW5F-A Owner's Manual and User Guide in the first place.

Note: If you ignore the safety instructions in the LG Manuals for LG 55EW5F-A or in this manual, humans may be seriously injured or there is a possibility of accident or death.

- This product can not be installed outdoors. Do not use the system in other operating conditions than described in chapter 1.6 *Operating conditions*.
- Keep away from heat sources like heaters. Electrical shock, fire, malfunction or deformation may occur.
- Keep the packing anti-moisture material or vinyl packing out of the reach of children. This material is harmful if swallowed. Vinyl packing can cause suffocation.

¹ Only a qualified person should install this product

Manual GhosT-OLED with LG 55EW5F-A

- Do not put heavy objects on the product or sit on it. The product may collapse and drop and people, especially small children, may be injured.
- Do not expose the screen to water, moisture or dust. Install it only in a neat and dry place. Dust and moisture can cause electrical shock, fire or product damage.
- If smoke can be smelled/detected or if you hear a strange sound or anything else that is uncommon, unplug the power cord and contact us. If usage is continued, electrical shock or fire can occur.
- If the screen or the housing breaks, be very careful as broken fragments may cause injuries. Do not touch broken glass with bare hands, use appropriate safety tools. Always unplug the power cord, do not keep using the product. If you continue to use without proper measures, electrical shock or fire can occur.
- In case of injury, for example caused due to contact with broken glass, please seek medical help immediately.
- Do not drop an object or apply impact to the product. It can cause injury to humans and damage the product.
- Do not let the product fall or drop when connecting it with an external device. This may cause injury and/or damage to the product.
- Do not mount the GhosT-OLED displays onto unstable, non flat, structures, the entire system might fall down or tilt over. Make sure that the construction to which a display is mounted can support the given total weight (for weight details please refer to chapter 6 *Specifications*). If the product is dropped, humans may be injured or the product may be broken.
- Make sure you use correct installation equipment (screws, washer etc.) to secure a safe installation.
- If during the set up of GhosT-OLED Half Kit the signage box is open, make sure the power cable is not connected, otherwise electric shocks may occur.
- If during the set up of GhosT-OLED Half Kit the signage box is open, make sure not to touch any other component of the signage box except the ports for the flexible flat cables, otherwise electric shocks may occur.
- If during the set up of GhosT-OLED Half Kit the signage box is opened, be aware of sharp edges of the metal housing. If necessary wear protective gloves.
- Do not open the housing of the GhosT-OLED Full Kit otherwise electric shocks may occur. There is no need for users to open the housing of the Full Kit. Please contact us for any service works.

Manual GhosT-OLED with LG 55EW5F-A

- Only qualified personnel is allowed to unpack the product, otherwise injury to humans or damage to the product can occur, refer to chapter *4.1 Lifting GhosT-OLED Full Kit and Full Kit PCAP* out of the case.
- Do not unpack the product in haste, to prevent injuries or damages.
- When changing the orientation of the foot of the GhosT-OLED Full Kit there is a risk to clamp a finger or something else. Wear appropriate safety clothes and be careful.
- When mounting this partly transparent product make sure people do not overlook the product. Humans may get injured or the product may be broken.

CAUTION

- Set up the screen in a well ventilated place and make sure ventilation holes are not blocked. If ventilation is not working correctly fire can break out due to internal heat.
- Do not install the product in an area with poor ventilation and avoid placing it on cushions or carpets. If ventilation is not working correctly fire can break out due to internal heat.
- Do not install the product where there are heating objects such as lighting equipment. Electrical shock, fire, malfunction or deformation may occur.
- Install the product where no EMI occurs.
- Keep the product away from sunlight and do not expose it to any other UV light sources. Otherwise the product can be damaged.
- Do not expose the screen to water or moisture to prevent any damage.
- Avoid any force or impacts on the screen.
- If the screen is broken, always unplug all power supplies and other cables from the display to prevent damage to electronic parts.
- The recommended operating time is less than 18 hours a day.
- Static images on the display can cause image retention (burn in effects). To prevent such damage, it is recommended to show dynamic content periodically.
- Always operate the system under the specified operating conditions described in chapter *1.6 Operating conditions*.
- If you install the product in a place that does not meet the recommended conditions, this may cause injuries to humans and cause serious damage to the product's picture

quality, life cycle, and appearance. This caution applies to places where there is an abundance of fine dust or oil mist, chemical substances are used, the temperature is very high or low, the humidity is very high, or the product is likely to remain turned on for a long period of time. Failure to do so will invalidate the warranty.

1.3 Precautions to the AC Adapter and Electrical Power

WARNING

- If water or any foreign substance goes inside the product (display, signage box, power cord, AC adapter etc.), disconnect the power cord immediately and contact us. Otherwise, this may cause a fire or electric shock due to damage to the product.
- Do not touch the power plug or AC adapter with wet hands. If the pins of the plug are wet or dusty, wipe and dry them before use. Otherwise, this may cause a fire or electric shock.
- Make sure to completely insert the power cord into the AC adapter. If loosely connected, the poor connection may cause a fire or electric shock
- Be sure to use power cords and AC adapters provided. The use of non-approved products may cause a fire or electric shock.
- When unplugging the power cord, always pull it by the plug. Do not bend the power cord with excessive force. The power line can be damaged, which may cause electric shock or fire.
- Be careful not to step or place heavy objects (electronic appliances, clothing, etc.) on the power cord or AC adapter. Be careful not to damage the power cord or AC adapter with sharp objects. Damaged power cords may cause a fire or electric shock.
- Never disassemble, repair or modify the power cord or AC adapter. This may cause a fire or electric shock.
- Make sure to connect the power cable to the grounded current. You may be electrocuted or injured.
- Use the rated voltage only. The product can be damaged, or you may be electrocuted.
- In the presence of thunder and lightning, never touch the power cord and signal cable because it can be very dangerous. It can cause electric shock.
- Do not connect several extension cords, electrical appliances, or electrical heaters to a single outlet. Use a power strip with a grounding terminal designed for exclusive use with the computer. A fire can break out due to overheating.
- Do not touch the power plug with wet hands. Additionally, if the cord pin is wet or covered with dust, dry the power plug completely or wipe dust off. You may be electrocuted due to excess moisture.
- If you don't intend to use the product for a long time, unplug the power cable from the product. Covering dust can cause a fire, or insulation deterioration can cause electric leakage, electric shock or fire.

- Fix the power cable completely. If the power cable is not fixed completely, a fire can break out.
- Do not insert a conductor (e.g. a small metal rod or screw driver) into one end of the power cable while the other end is connected to the input terminal on the wall. Additionally, do not touch the power cable right after plugging it into the wall input terminal. You may be electrocuted.
- The appliance coupler is used as the disconnect device.
- Please make sure the device is installed near the wall outlet to which it is connected and that the outlet is easily accessible.
- As long as this unit is connected to the AC wall outlet, it is not disconnected from the AC power source even if the unit is turned off
- Be sure to keep the outlet, AC adapter, and pins of the power plug clean from dust and etc. This may cause a fire.
- Do not unplug the power cord while the product is in use. Electrical shock can damage the product.
- Use only the power cord supplied with the unit. If you use another power cord, make sure that it is certified by the applicable national standards when not provided by the supplier. If the power cable is faulty in any way, please contact the manufacturer or the nearest authorized repair service provider for a replacement.

1.4 Precautions in moving the product

WARNING

- Make sure to turn off the product before moving it. You may be electrocuted or the product can be damaged.
- Make sure to remove all cables before moving the product. You may be electrocuted or the product can be damaged.
- Make sure the panel faces forward and hold the product with at least two persons, each with both hands to move. If you drop the product, the damaged product can cause electric shock or fire. Contact an authorized service center for repair.
- Do not shock the product when moving it. You may be electrocuted or the product can be damaged.

1.5 Precautions in using the product

WARNING

- Do not disassemble, repair or modify the product on your own. Fire or electric shock can occur. Contact us for check, calibration or repair.
- Prior to every installation, check all mounting threads as well as the rotating mechanism for any kind of defect and correct function. If a damage or defective function is detected do not keep using the product and contact us for service.

- When the display is to be left unattended for an extended period of time, unplug it from the wall outlet.
- Keep the product away from water. Fire or electric shock can occur.
- Do not shock or scratch the front and sides of the screen with metallic objects. Otherwise, it may cause damage to the screen.
- Do not put or store inflammable substances near the product. There is a danger of explosion or fire due to careless handling of the inflammable substances.
- When cleaning the product, unplug the power cord and scrub gently with a soft cloth to prevent scratching. Do not clean with a wet cloth or spray water or other liquids directly onto the product. An electric shock may occur. (Do not use chemicals such as benzene, paint thinners, or alcohol.) Keep the product clean at all times.

- Use authorized detergent only when cleaning the product. (Do not use benzene, thinner or alcohol.) Product can be deformed.
- Do not press strongly upon the panel with a hand or sharp object such as nail, pencil, or pen, or make a scratch on it.
- Do not expose to dripping or splashing and do not place objects filled with liquids, such as vases, cups, etc. on or over the device (e.g. on shelves above the unit).
- Batteries should not be exposed to excessive heat. For example, keep away from direct sunlight, open fireplace, and electric heaters.
- Do not place non-rechargeable batteries in charging device.

1.6 Operating conditions

- Temperature: 5°C to 35°C
- Humidity: 10% to 80%
- Operating time: 18 Hrs / 7 days (moving video only)
- Display pattern should be changing continuously to avoid any kind of image retention (burn in effects)
- No sunlight or any other warm light sources directed onto the screen
- Only indoor operation
- Display must be protected from UV light
- Usage only in well ventilated environments

2. Overview GhosT-OLED Series

2.1 Introduction

Displays from GhosT-OLED series are transparent OLED (T-OLED) screens with Full-HD resolution. The transmittance of the screen is approx. 38%. Thanks to OLED (Organic Light Emitting Diode) technology, the display shows excellent images even at high viewing angles and has low power consumption. The transparency is achieved by adding a fifth segment into the sub pixel structure which consists of four sub pixel emitting red, green, blue and white light. This fifth segment is transparent. As OLED is a self-emitting technology, there is, unlike to LCDs, no need for backlight. Displaying black content on a transparent OLED display will make this content appear transparent.

Optionally, the GhosT-OLED Full Kit or Half Kit, can be equipped with the GhosT-OLED Touch Kit. The Touch Kit technology is based on IR diodes.

Furthermore the GhosT-OLED PCAP version completes the series and provides an accurate and bezel-less touch functionality. It is available as Full Kit or Half Kit version.

GhosT-OLED series can be delivered with white or black housing.

The GhosT-OLED series is based on a customisable design concept. Trained personnel can change the orientation of the foot from table mode to straight mode.

2.2 GhosT-OLED Half Kit

The GhosT-OLED Half Kit is the ideal product for fix installations. It makes installations of the raw LG T-OLED Panel a lot easier and safer. This is achieved by adding additional parts to the panel. The LG Signage Box needs to be connected via four flexible flat cables to the panel.

For further information how to connect please refer to chapter 4.5 *Connecting GhosT-OLED Half Kit and Half Kit PCAP panel unit with signage box* as well as to the “LG 55EW5F-A Quick set-up guide” and the “Installation Manual GhosT HK” which is enclosed to the GhosT-OLED Half Kit packing.

Model Number: GHOST55-HK

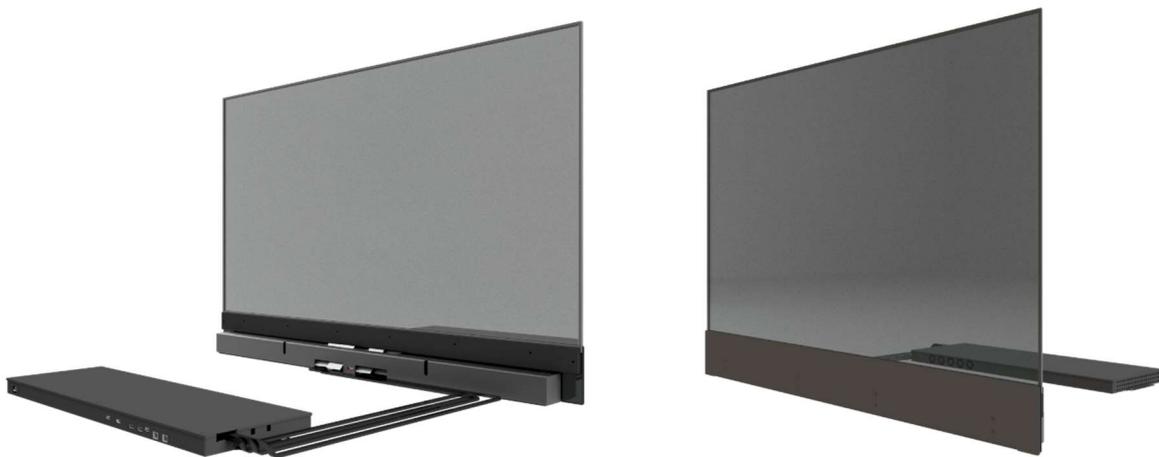


Figure 1. GhosT-OLED Half Kit – backside (left) front view (right)

2.3 GhosT-OLED Full Kit

GhosT-OLED Full Kit combines all electronics and the T-OLED panel to one display. It is ideal for rental applications but also for many fix installations. The orientation of the foot can be changed by qualified personnel from table mode to straight mode and back. Please refer to chapter 4.3 *Changing the foot orientation of GhosT-OLED Full Kit* and to the “Installation Manual GhosT FK” which is enclosed to the GhosT-OLED Full Kit packing.

Model Number: GHOST55-FK

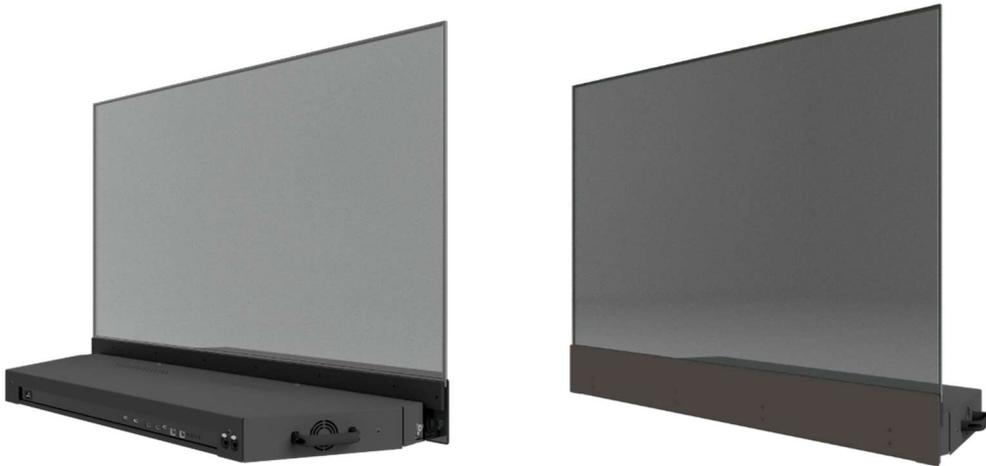


Figure 2: GhosT-OLED Full Kit in table mode – backside (left) front view (right)



Figure 3: GhosT-OLED Full Kit in straight mode – backside (left) and front view (right)

2.4 GhosT-OLED Touch Kit

This version combines the advantages of the T-OLED technology with the multi touch capable primeTOUCH technology. Despite the touch capability it still provides a narrow and stable frame. The GhosT-OLED Touch Kit can be mounted in front of the Full Kit or Half Kit version. Please refer to chapter 4.4 *Set up GhosT-OLED Touch Kit* and to the “Installation Manual GhosT TK” which is enclosed to the GhosT-OLED Touch Kit packing.

Model Number: GHOST55-TK



Figure 4: GhosT-OLED Touch Kit – backside (left) and front view (right)



Figure 5: GhosT-OLED Touch Kit in front of Full Kit (table mode) – backside (left) and front view (right)

2.5 GhosT-OLED Full Kit PCAP

This version combines the advantages of the T-OLED technology with the multi touch capable projected capacitive touch technology. Despite the touch capability it still provides a clean and neat look with a flat surface and without an uprising bezel. Please refer to chapter *4.3 Changing the foot orientation of GhosT-OLED Full Kit* and to the “Installation Manual GhosT FK” which is enclosed to the GhosT-OLED Full Kit packing.

Model Number: GHOST55-FK-TC



Figure 6: GhosT-OLED Full Kit PCAP in table mode – backside (left) and front view (right)



Figure 7: GhosT-OLED Full Kit PCAP in straight mode – backside (left) and front view (right)

2.6 GhosT-OLED Half Kit PCAP

This version combines the advantages of the T-OLED technology with the multi touch capable projected capacitive touch technology. Despite the touch capability it still provides a clean and neat look with a flat surface and without an uprising bezel. For further information how to connect please refer to chapter 4.5 *Connecting GhosT-OLED Half Kit and Half Kit PCAP panel* unit with signage box as well as to the “LG 55EW5F-A Quick set-up guide” and the “Installation Manual GhosT HK-TC” which is enclosed to the GhosT-OLED Half Kit packing.

Model Number: GHOST55-HK-TC



Figure 8: GhosT-OLED Half Kit PCAP – backside (left) and front view (right)

3. Scope of delivery

Note: Please check the delivery for completeness and damage immediately after you receive the shipment. Please contact your supplier in case of missing or damaged parts.

Accessory scope of delivery for each GhosT-OLED model					
Item	Full Kit GHOST55- FK	Half Kit GHOST55- HK	Touch Kit GHOST55- TK	Full Kit PCAP GHOST55- FK-TC	Half Kit PCAP GHOST55- HK-TC
Power cable (IEC C14)	1	1	0	1	1
External IR receiver (3.5mm jack)	1	1	0	1	1
Remote control	1	1	0	1	1
Display Port cable	1	1	0	1	1
LAN cable CAT 5	1	1	0	1	1
D-Sub 9 pol. to 3,5mm jack cable (4 pol.)	1	1	0	1	1
3,5mm jack cable (4 pol.)	1	1	0	1	1
LC cable	0	1	0	0	1
Flexible flat cables	0	4	0	0	4
Sticker set to fix flexible flat cables	0	1	0	0	1
Touch Kit support brackets incl. screws	0	0	2 (left & right)	0	0
USB extender (A type)	0	0	1	1	1
USB male/mal (A type) cable	0	0	0	1	0
Mini USB to USB (A type) cable	0	0	0	0	1
USB Stick (instructions, manuals, demo content)	1	1	1	1	1
Printed quick start manual	1	1	1	1	1

4. Installation instructions

WARNING: Read the following instructions carefully to prevent injuries to humans or damages to the system.

Prior to every installation check all mounting threads as well as the rotating mechanism for any kind of defect and correct function. If a damage or defective function is detected do not keep using the product and contact us for service.

A corresponding Installation manual is enclosed to any GhosT-OLED delivery.

Go to <https://exactsolutions.de/de/produkte/ghost-oled/> to “Videos” to watch the video “How to handle GhosT-OLED series”

Manual GhosT-OLED with LG 55EW5F-A

Note: Minimum two Persons are required to unpack and set up the GhosT-OLED products

Note: For mounting the GhosT-OLED at least three persons are required

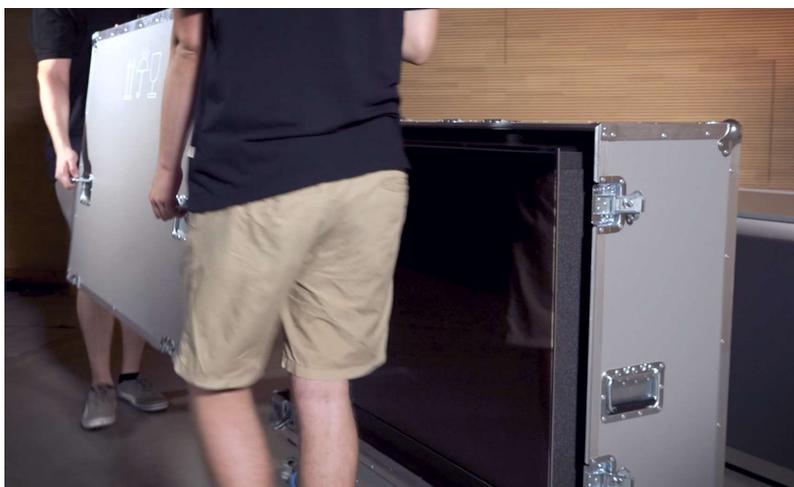
Note: As T-OLED technology is susceptible to burn in effects only show moving content

Note: Use only the appropriate tools and mounting materials

4.1 Lifting GhosT-OLED Full Kit and Full Kit PCAP out of the case

No tools required

- Carefully remove small front cover first, then remove the larger back cover:



Manual GhosT-OLED with LG 55EW5F-A

- Grab with one hand under the panel unit, and with the other hand grab the handle:



- Place the GhosT OLED on a flat and clean surface. **If necessary, take further precautions for a secure stand of the display:**



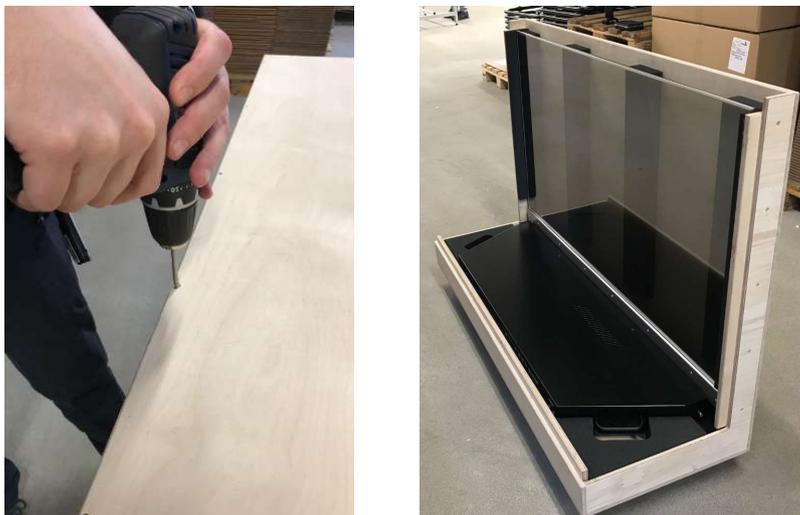
- Plug in power supply and remote-control cable with external IR sensor to turn it on

Manual GhosT-OLED with LG 55EW5F-A

4.2 Lifting GhosT-OLED Full Kit and Full Kit PCAP out of the wooden box

Required Tools: (Cordless) screw driver

- Unscrew the back cover and carefully take it away:



- Grab with one hand under the panel unit directly behind the glass, and with the other hand grab the handle. Then carefully lift the GhosT-OLED a bit until you can change the position of the hand on the panel unit:



Note: Make sure that the GhosT-OLED cannot tilt during changing the grab of the hand on the panel unit

Manual GhosT-OLED with LG 55EW5F-A

- Carefully lift the GhosT-OLED out of the wooden box:



- Place the GhosT-OLED on a flat and clean surface. **If necessary, take further precautions for a secure stand of the display**

4.3 Changing the foot orientation of GhosT-OLED Full Kit and Full Kit PCAP

Required Tools: 6mm Allen Key

- Use a soft and clean underlay with a thickness of about 3-5mm. **Make sure the glass rests safely and that there is no force applied to the glass:**



- Loosen the two screws at the left and right side with a 6mm Allen Key. It will take only a few rotations (2-3) until the mechanism is unlocked. **Always secure the panel during your work:**

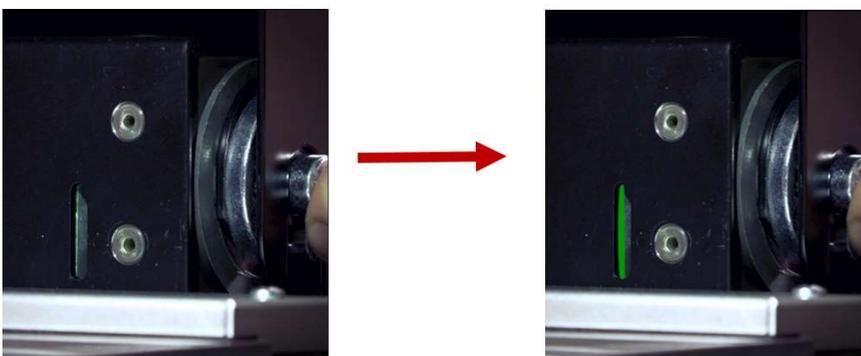
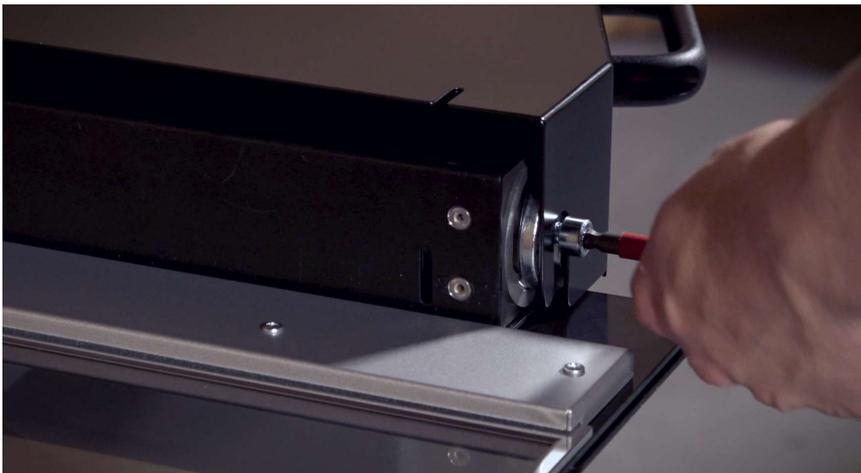


Manual GhosT-OLED with LG 55EW5F-A

- Carefully rotate the panel by 90° to the front. **Secure the glass. No force should ever be applied:**



- Tighten the screws until the green mark fills exactly half of the slot:



- Depending on your installation make sure you mechanically secure the display safely, use all recommended M6 mounting threats at the backside/bottom of the foot and the panel unit. Refer to chapter 4.6 *Mounting GhosT-OLED to walls or furniture*.

Note: Always secure foot and panel.

4.4 Set up GhosT-OLED Touch Kit

Tools required: 4mm Allen Key (Additional tools might be required to mount the Touch Kit to a surface, see chapter 4.6 *Mounting GhosT-OLED to walls or furniture* for more information)

Note: To use the GhosT-OLED Touch Kit an external PC is necessary (USB A connection).

Note: GHOST55-TK-V1 has to be calibrated with the PC before it can be used. It's necessary to run a calibration process every time you connect the GHOST55-TK-V1 with a new PC.

GhosT-OLED Touch Kits are equipped with primeTOUCH technology. As HID (human interface device) the primeTOUCH is a plug and play capable system. For advanced features like calibrating the touch coordinates to the image or running a diagnose of the system you need to install a special software. It is called "Multi Touch Platform" and it is provided on an USB stick that comes with every GhosT-OLED unit. Besides that, the USB stick contains additional documentation. The software can also be downloaded from the EXACT solutions homepage / GhosT-OLED / Touch Kit / Downloads

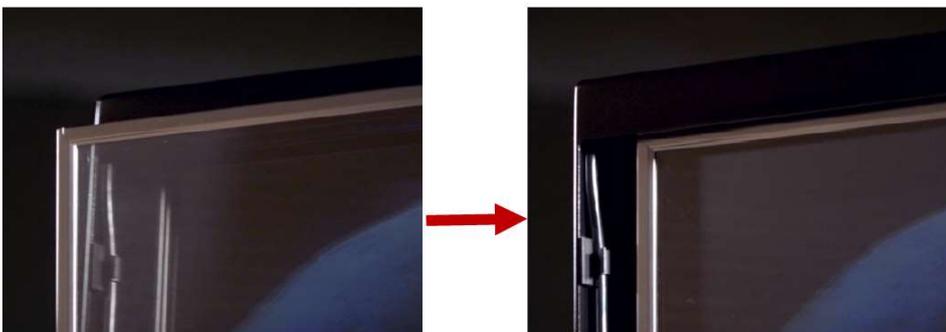
<https://www.exactsolutions.de/en/produkte/ghost-oled-en/>

- Place ready the two support brackets (left and right) for GhosT-OLED Touch Kit, you will need them to attach the Touch Kit to the Full Kit:



Manual GhosT-OLED with LG 55EW5F-A

- Carefully place the Touch Kit over the panel, make sure that the panel is safely covered and **do not hit the panel with the overlay**. If necessary, take further precautions for a secure stand of the overlay by using the corresponding mounting holes:



- It's recommended to mount the Touch Kit to the surface it stands on, refer to chapter *4.6 Mounting GhosT-OLED to walls or furniture* to see the fixing points

Manual GhosT-OLED with LG 55EW5F-A

- Use the support brackets to connect the Touch Kit to the GhosT-Oled Full Kit. First the M4 lens head screws must be removed. Then you can insert the brackets and mount them with the removed M4 x 16 lens head screws as well as with the four M3x12 countersunk head screws which are delivered with the brackets:



- Connect the USB cable to an USB A port at the PC



- After installing the driver and calibrating, the GhosT OLED can be used as a touch screen. To download the driver go to the EXACT solutions homepage / GhosT-OLED /Touch Kit / Downloads:

<https://www.exactsolutions.de/en/produkte/ghost-oled-en/>

Note: Make sure users do not scratch the front of the GhosT-OLED screen while using it as a touch interface. Avoid users wearing jewellery such as rings, watches etc. Only touch with the finger.

Manual GhosT-OLED with LG 55EW5F-A

4.5 Connecting GhosT-OLED Half Kit and Half Kit PCAP panel unit with signage box

WARNING: Make sure the power cable is not connected, otherwise electric shocks may occur and can harm humans and/or damage the device

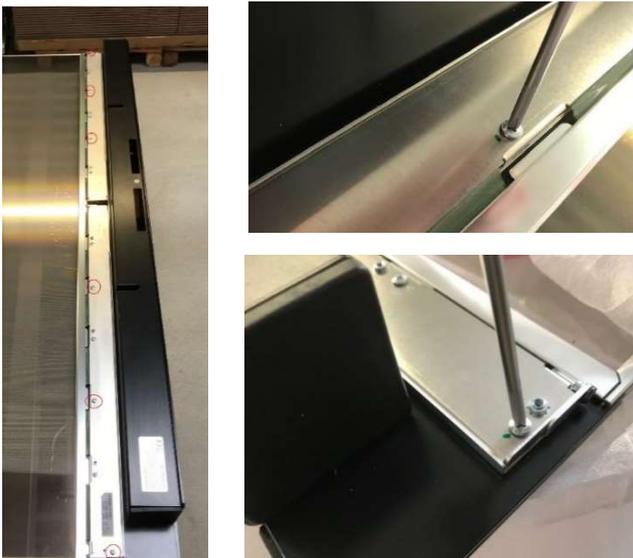
Required Tools: Screw driver PH1 / isopropanol and clean soft cloth

Note: The flexible flat cables and especially the sockets are very sensitive. If a socket breaks this results in a total loss

- Gently place the GhosT-OLED panel unit on a padded clean surface
- Remove the silver outside cover:



- Remove the screws with the green mark to rise the inside PCB covers:



Manual GhosT-OLED with LG 55EW5F-A

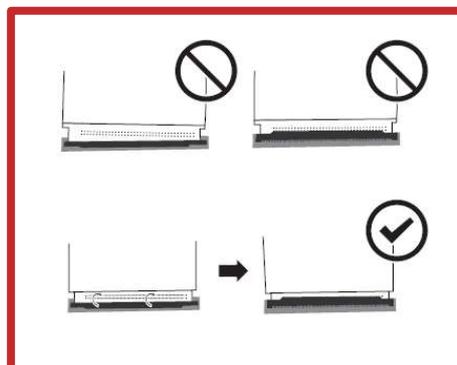
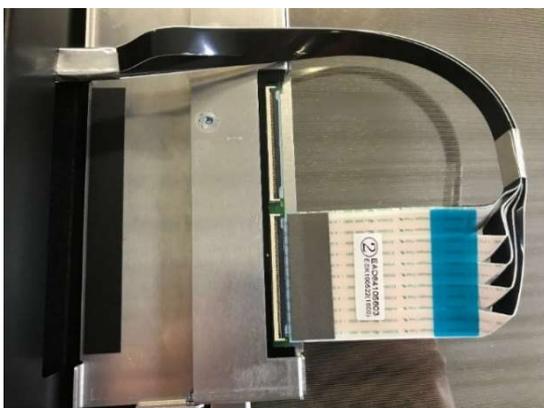
- Connect the flexible flat cables:

Note: Follow the generally admitted ESD instructions to prevent electrical damage

- Carefully guide the flexible flat cables through the holes in the metal rod:



- Clean the contacts of the flexible flat cables with isopropanol and insert them into the sockets **with caution**. **Make sure the connectors are inserted correctly:**



Manual GhosT-OLED with LG 55EW5F-A

- There are numbers printed on the flexible flat cables and the number 1 is engraved at the socket no. 1, **don't switch the numbers:**



- Use the provided grey sticker to fix and shield the cable to the socket:

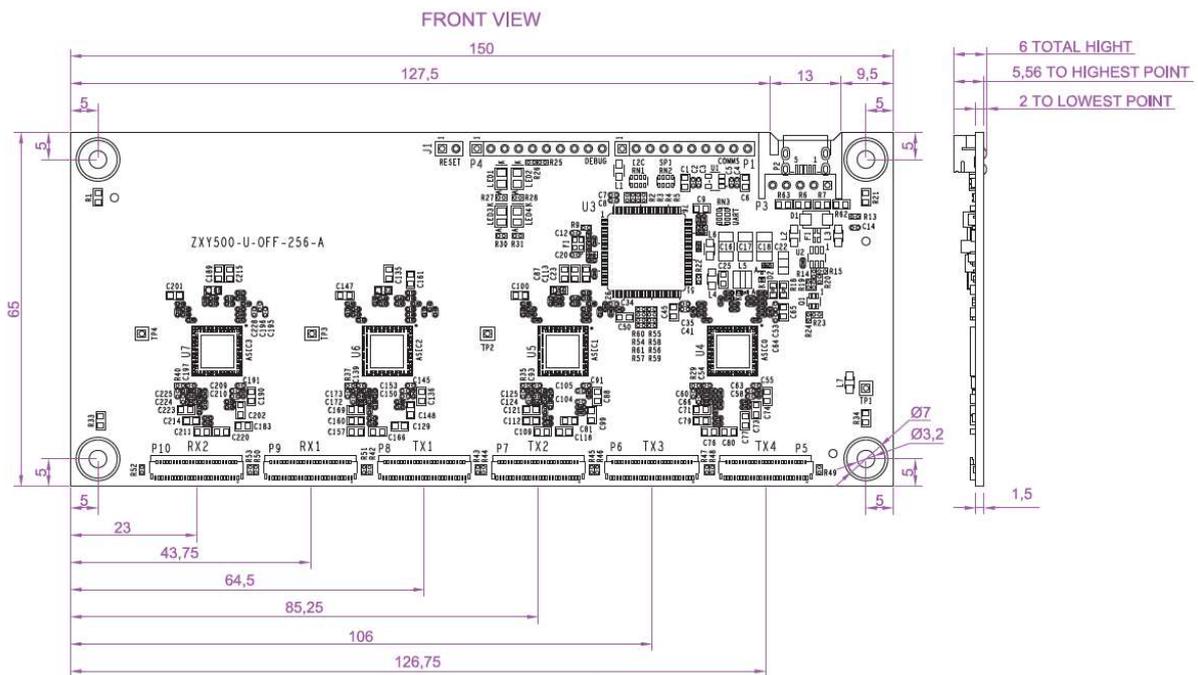


Manual GhosT-OLED with LG 55EW5F-A

- Put the PCB covers back while guiding the flexible flat cables back through the holes **with caution**:



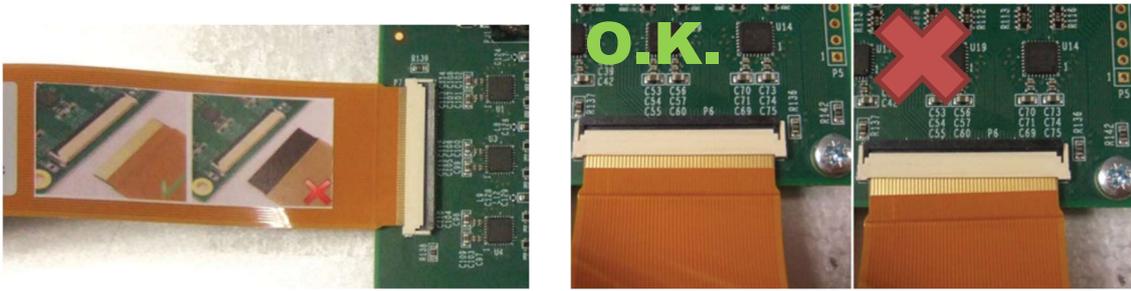
- Connect the PCAP Controller (If using PCAP Version):



Note: Follow the generally admitted ESD instructions to prevent electrical damage

Manual GhosT-OLED with LG 55EW5F-A

- Carefully connect the 6 flexible flat cables with each socket of the controller:



- Connect the USB mini connector to the USB port at the controller:



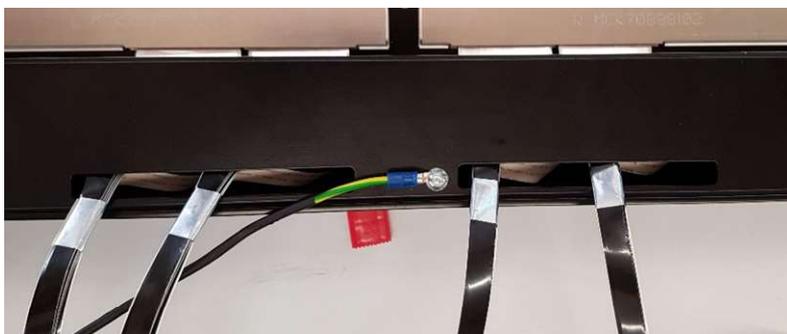
Note: Avoid breaking the sockets by wrong handling

- Connect the other end of the USB cable to your PC

WARNING: The flexible flat cables and especially the sockets are very sensitive. If a socket breaks this results in a total loss of the controller.

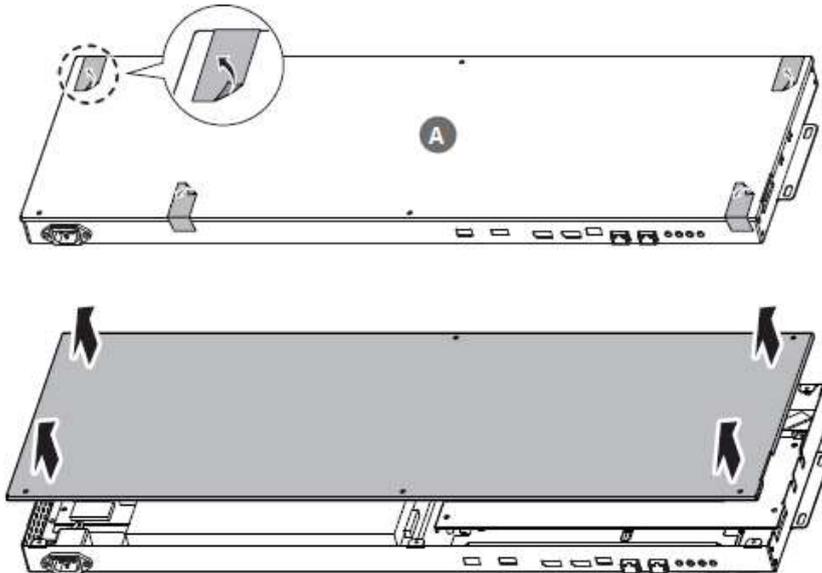
Note: Take care of an appropriate grounding of the controller

- Reinsert the screws with the green mark and the outside cover.
- Connect the ground cable to the M4 thread in the middle of the metal rod.
- Connect the other end of the ground cable to a sufficient ground connection at the installation place.

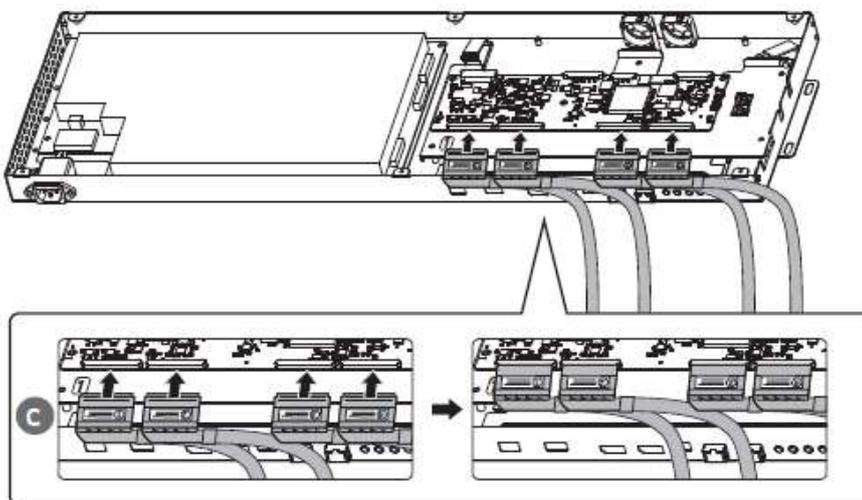


Manual GhosT-OLED with LG 55EW5F-A

- Connecting the flexible flat cables with the signage box
 - Remove the cover:

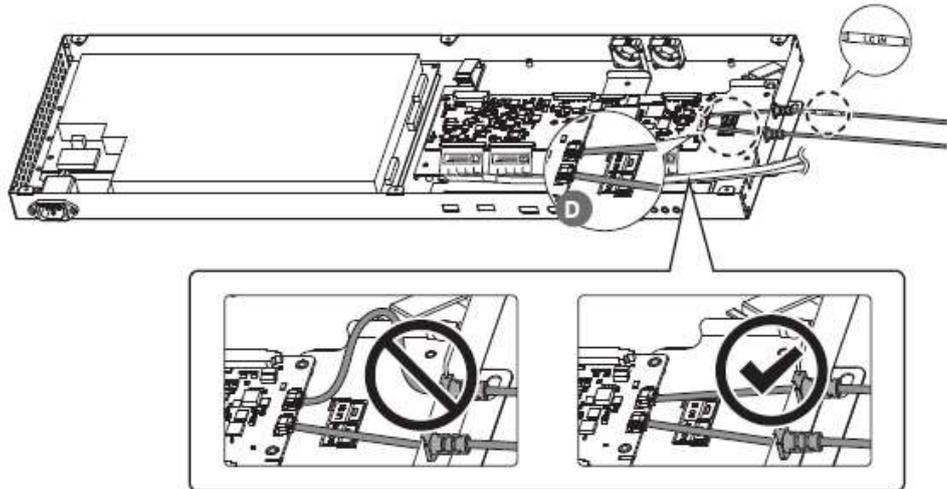


- Connect the flexible flat cables with the sockets inside the signage box. There are numbers printed on the flexible flat cables and the number 1 is engraved at the socket no. 1, **don't switch the numbers**:

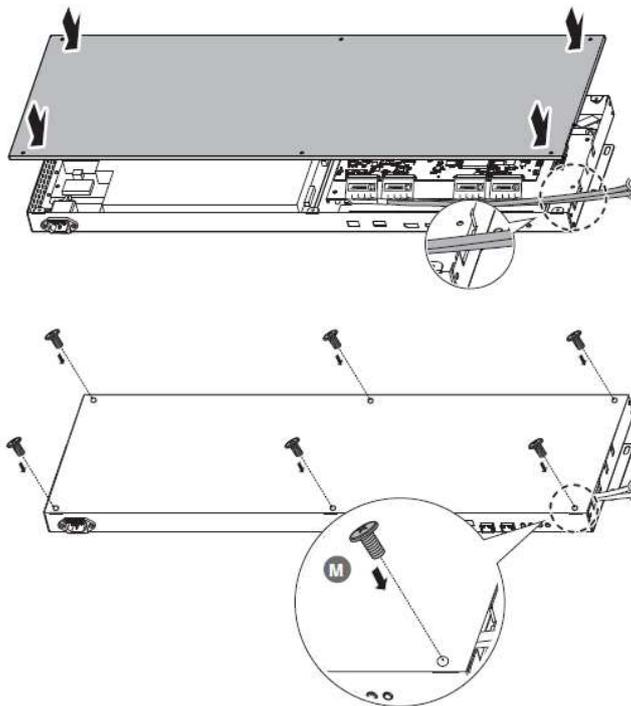


Manual GhosT-OLED with LG 55EW5F-A

- If necessary, also connect the LC cables (when using more than one display together)
- Make sure to guide the connected cables correctly through the appropriate cut outs:



- Fix the cover to the signage box:



WARNING: Do not touch anything inside the signage box except the sockets for the flexible flat cables. Please also refer to the warnings in chapter 1.2 *Safety instructions*. Unplug power cord otherwise electric shock may occur

Note: Also follow the instructions in the “LG 55EW5F-A Quick set-up guide” regarding connecting the flexible flat cables and the LC cables to the signage box, (refer to chapter 5 *Connector panel and control possibilities*)

4.6 Mounting GhosT-OLED to walls or furniture

GhosT-OLED Full Kit and Half Kit are designed to make installations easier and faster. Before you start installing the screen, make sure you follow the instructions provided in this manual.

Note: Different mounting points must be used depending if the Full Kit is used in table mode or in straight mode

Note: GHOST55-TK-V1 can be mounted to the surface it stands on. Alternatively it can be mounted directly to the GhosT-OLED Full Kit (not Half Kit)

Note: If GhosT-OLED products are mounted inside housings it's important ensure a proper ventilation. Refer to chapter 1.6 *Operating conditions* and to chapter 4.6.2 *Ventilation information*

4.6.1 Screw hole pattern of all GhosT-OLED versions

Note: The thread depth in GhosT-OLED housing is 16 mm

Note: All screw holes that are displayed in the following patterns need to be used. They are marked in green and they differ depending on the product. If you have any question, please contact us

Overview Screw hole pattern	
Product	Drawing – all dimensions are denoted in mm
Full Kit V2 and PCAP in table mode *1	

*1 The showed screw hole pattern for GhosT-OLED Full Kit only applies to GHOST55-FK-V2 and GHOST55-FK-TC, if you need Information regarding GHOST55-FK-V1 please contact us for the appropriate drawing

Manual GhosT-OLED with LG 55EW5F-A

<p>Full Kit V2 and PCAP in straight mode</p>	
<p>Half Kit panel unit</p>	
<p>Signage box</p>	
<p>Touch Kit V1</p>	

4.6.2 Ventilation information

It's important to ensure a proper ventilation, particularly if a Ghost-OLED is integrated into furniture. Otherwise, the display will shut down or can even be damaged. The Full Kit has two integrated fans additionally to the fans of the LG signage box (see Figure 9).

At the Full Kit there are three areas where ventilation slots are positioned, please see Figure 10 below.

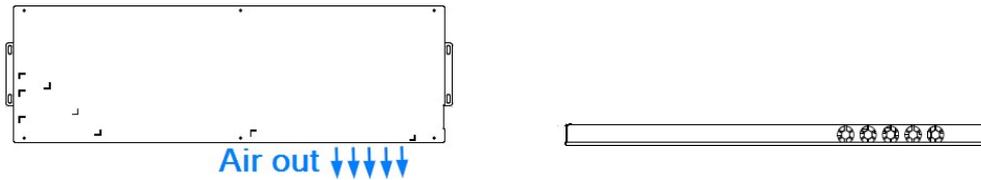


Figure 9: Air flow signage box - top view (left) and side view (right)

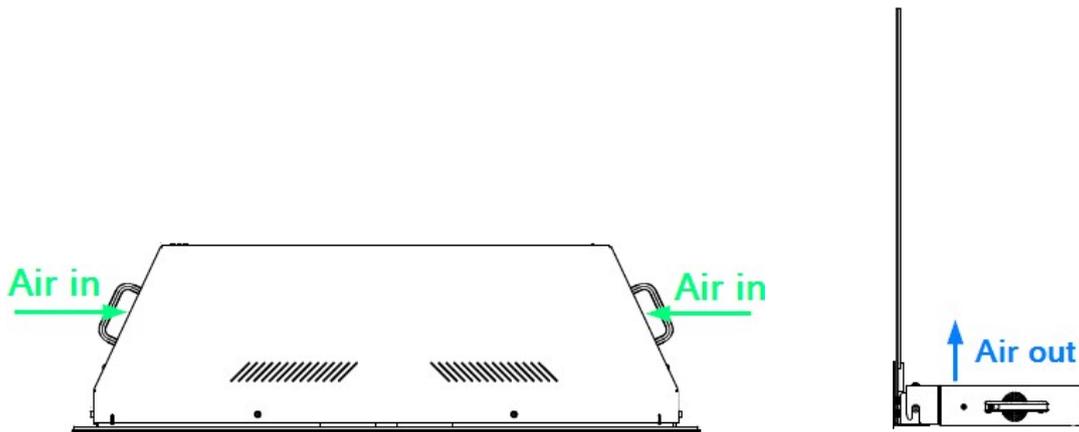


Figure 10: Air flow of GhosT-OLED Full Kit – top view (left) and side view (right)

Note: Do not cover any ventilation slot as this can cause overheating. Electrical shock, fire, malfunction or deformation may occur.

5. Connector panel and control possibilities

GhosT-OLED Full Kit, Half Kit and PCAP can be controlled via LAN or RS 232. As both versions share the same LG Signage Box the information provided by the original “LG 55EW5F-A Owner’s Manual”, and “LG 55EWF-A User Guide” as well as the original LG LAN control manual can be applied to all GhosT-OLED products. The manuals are stored on the USB stick that is included in every delivery.

Subsequently, the most important information are provided:

GhosT-OLED interfaces		
Qty	Interface	usage
2	USB IN	Playing content via USB stick (maybe no Touch* ¹)
1	TOUCH USB (only at PCAP version)	PCAP Touch sensor connection
1	HDMI IN	Video Input
1	DP IN	Video Input
1	DP out	Daisy chaining DP signal
1	LAN IN	Controlling / monitoring
1	LAN out	Daisy chaining LAN signal
1	IR IN	External IR receiver
1	RS232C IN (3,5mm Jack)	Controlling / monitoring
1	RS232C out (3,5mm Jack)	Daisy Chaining RS232 signal
1	AUDIO out	Connecting to external speaker
1	LC out	Daisy chaining LC signal * ²
1	LC IN	Daisy chaining LC signal * ²

*¹ for using GhosT-OLED Touch Kit a PC is necessary (USB A connector) refer to chapter 4.4 Set up GhosT-OLED Touch Kit. For GhosT-OLED PCAP a PC is recommended but controlling the OSD is possible by connecting the TOUCH USB port with USB IN port.

*² In video wall installations it’s necessary to connect the units with the LC cables (Luminance Compensation). Refer to original LG 55EW5F-A Owner’s Manual, the User Guide and the Quick set-up guide for detailed information regarding these connections.

Note: The Full Kit version offers a modified LC connection via RJ45 CAT Cables, see Figure 11 (the function of this interface is not affected by the modification).

Manual GhosT-OLED with LG 55EW5F-A

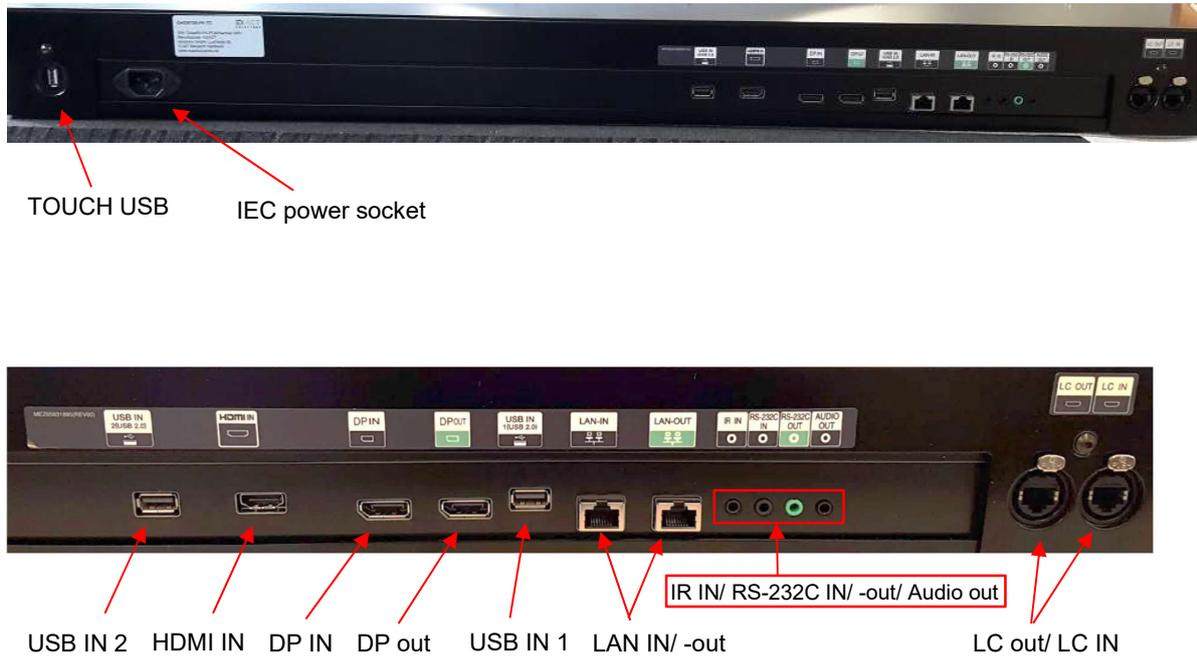


Figure 11: GhosT-OLED Full Kit connection terminal

6. Specifications

Item	Specification	Unit	Note
Panel			
Resolution	1920 x 1080	Pixel	
Aspect Ratio	16/9		
Display Area	1209.7 x 680.5 [Diagonal: 55"]	mm [inch]	For all versions
Brightness	APL 25%: 400 APL 100%: 150	cd/m ²	Typical
Transmittance	38	%	Typical
Orientation	Landscape/Portrait		
Connectivity and Control			
Input	1 x HDMI 1 x DP 2 x USB		Not for Touch
Output	1 x DP 1 x Audio		
External Control	RJ 45 LAN (in / out) RS-232C (in / out) IR (in)		
Remote Control	IR Remote		External IR receiver
Physical Specification			
Dimensions Product outlines		mm	See chapter 7 <i>Product Outlines</i>

Manual GhosT-OLED with LG 55EW5F-A

Item	Specification	Unit	Note
Weight			
GhosT-OLED Full Kit	38	Kg	
GhosT-OLED Full Kit PCAP	46	Kg	
GhosT-OLED Half Kit	21	Kg	without Signage Box
GhosT-OLED Half Kit PCAP	33,5	Kg	without Signage Box
Signage Box	3,4	Kg	
GhosT-OLED Touch Kit	7	Kg	
Electrical			
Power Consumption	100 - 240 V~ 50 / 60 Hz 309W Typ. 318W Max.		(8 colour bar) (8 colour bar)
Environmental Conditions			
Operating Temp.	5 - 35	°C	
Operating Humidity	10 – 80	%	
Lifetime			
Lifetime	30.000	Hour	Typical
Operating hours	18 / 7	Hour/day	Moving video only
primeTOUCH Option			
Touch Points	6 / 12 / 32 / 50	Simultaneous touch points	
Connection	USB A		
PCAP Specs			
Touch Points	Up to 100	Simultaneous touch points	
Connection	USB A (HID plug&play)		
Accuracy	<1mm of touched position		
Warranty			
Warranty	2	years	

7. Product Outlines

Note: All dimensions are denoted in mm

7.1 Drawing GhosT-OLED Half Kit

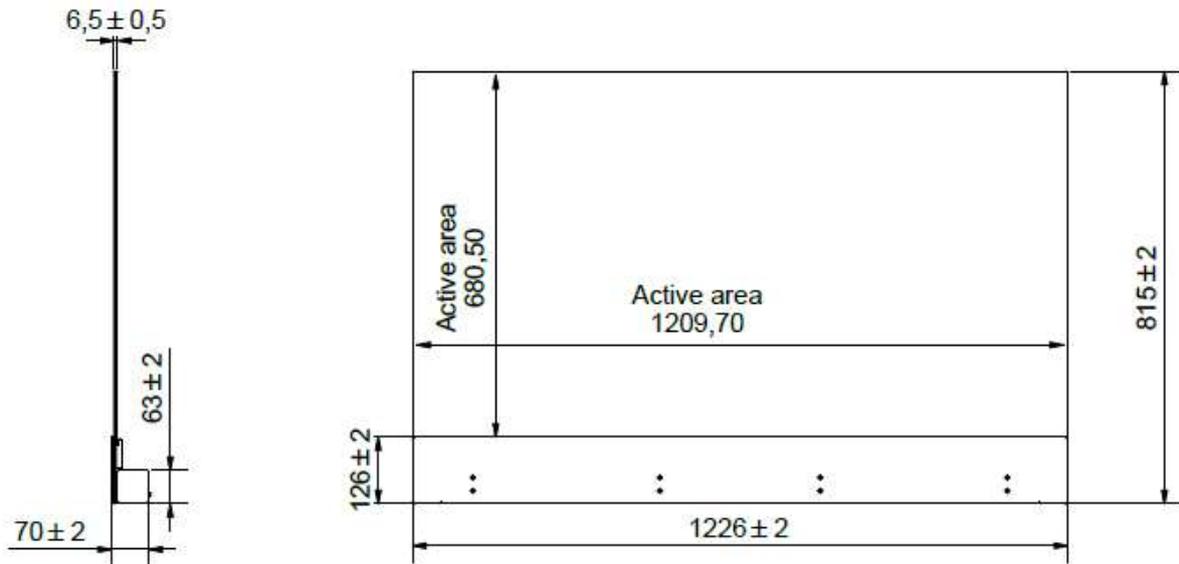


Figure 12: GhosT-OLED Half Kit Panel Unit

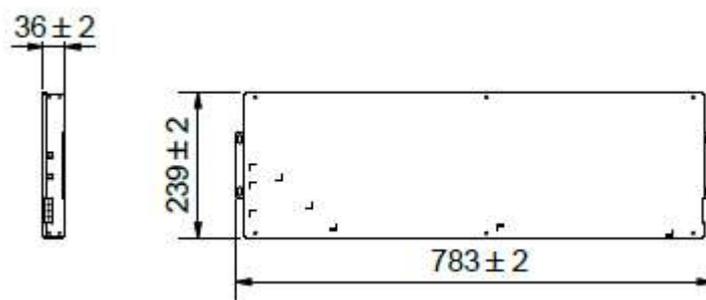


Figure 13: Signage box

7.2 Drawing GhosT-OLED Full Kit

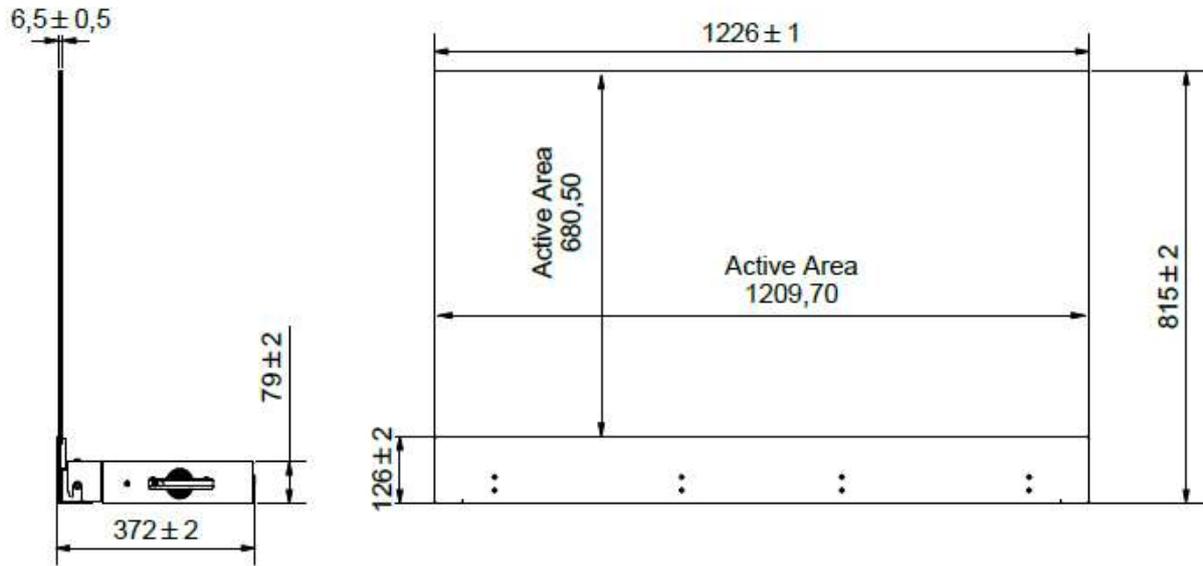


Figure 14: GhosT-OLED Full Kit in table mode

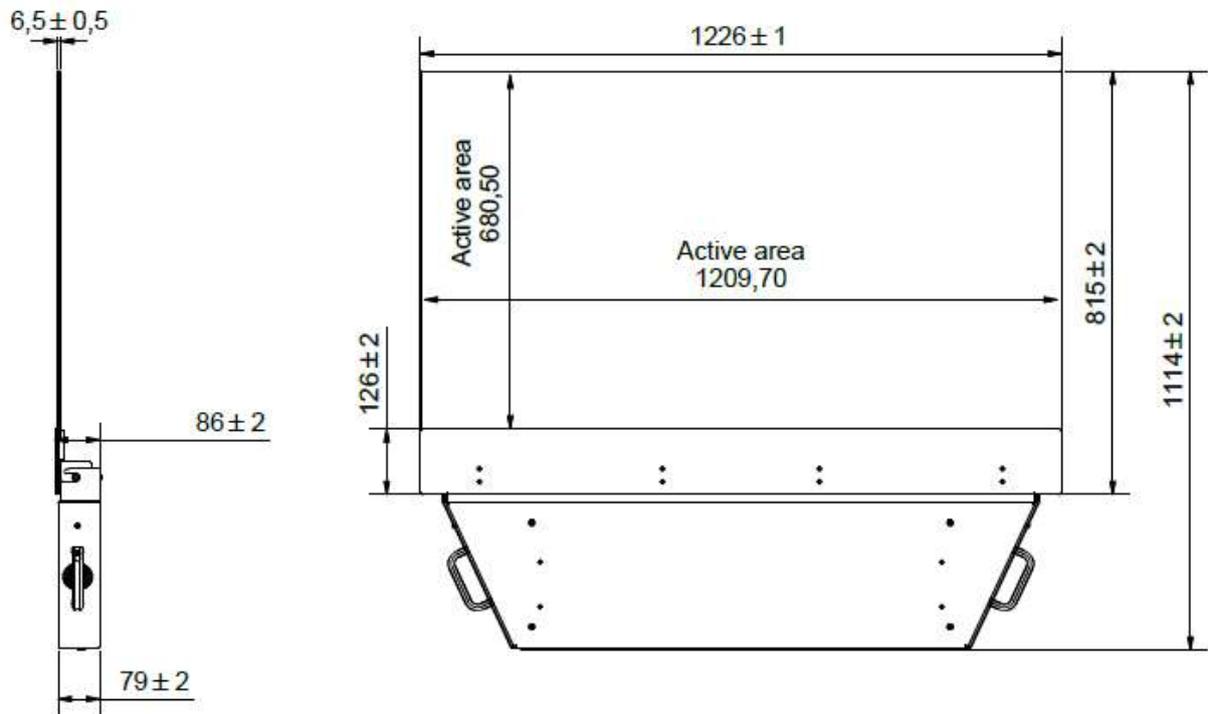


Figure 15: GhosT-OLED Full Kit in straight mode

7.3 Drawing GhosT-OLED Touch Kit

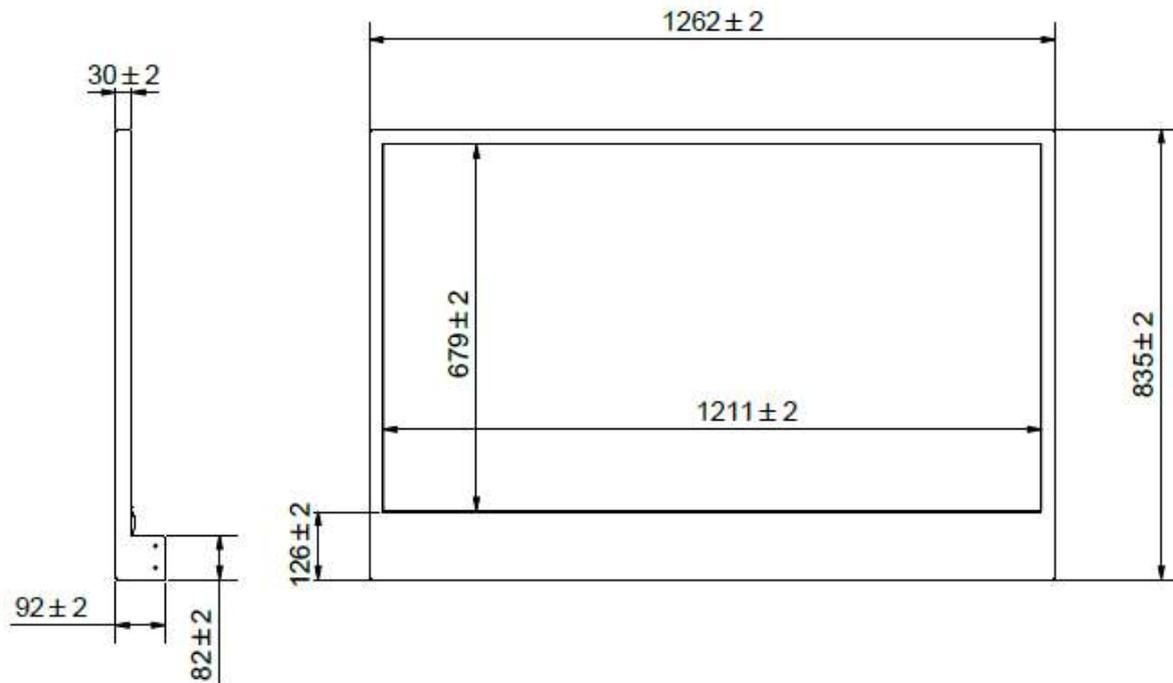


Figure 16: GhosT-OLED Full Touch Kit

7.3.1 Full Kit equipped with Touch Kit

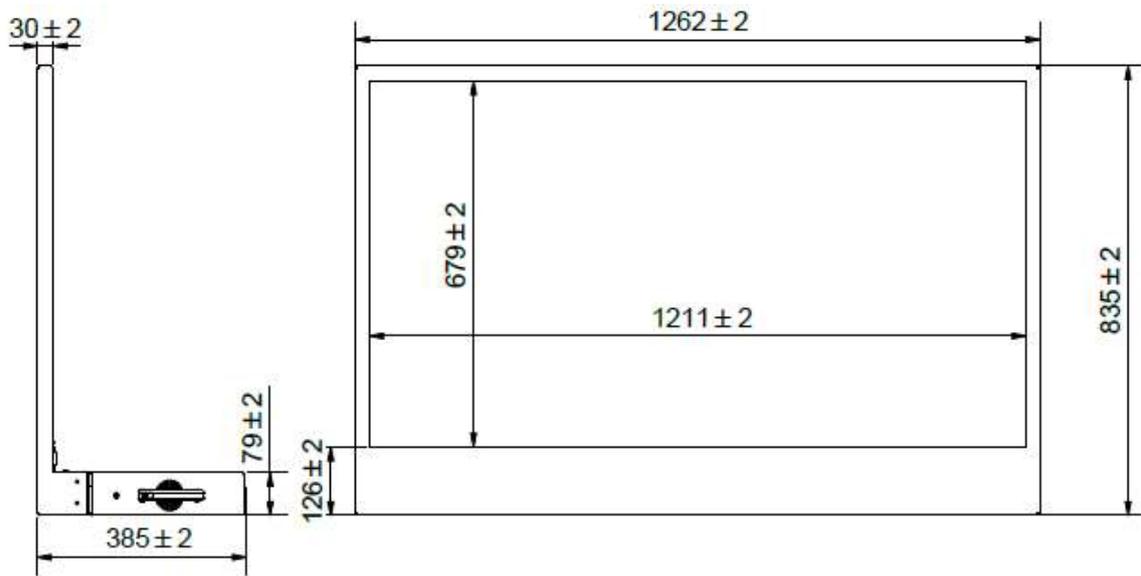


Figure 17: GhosT-OLED Full Kit equipped with Touch Kit in table mode

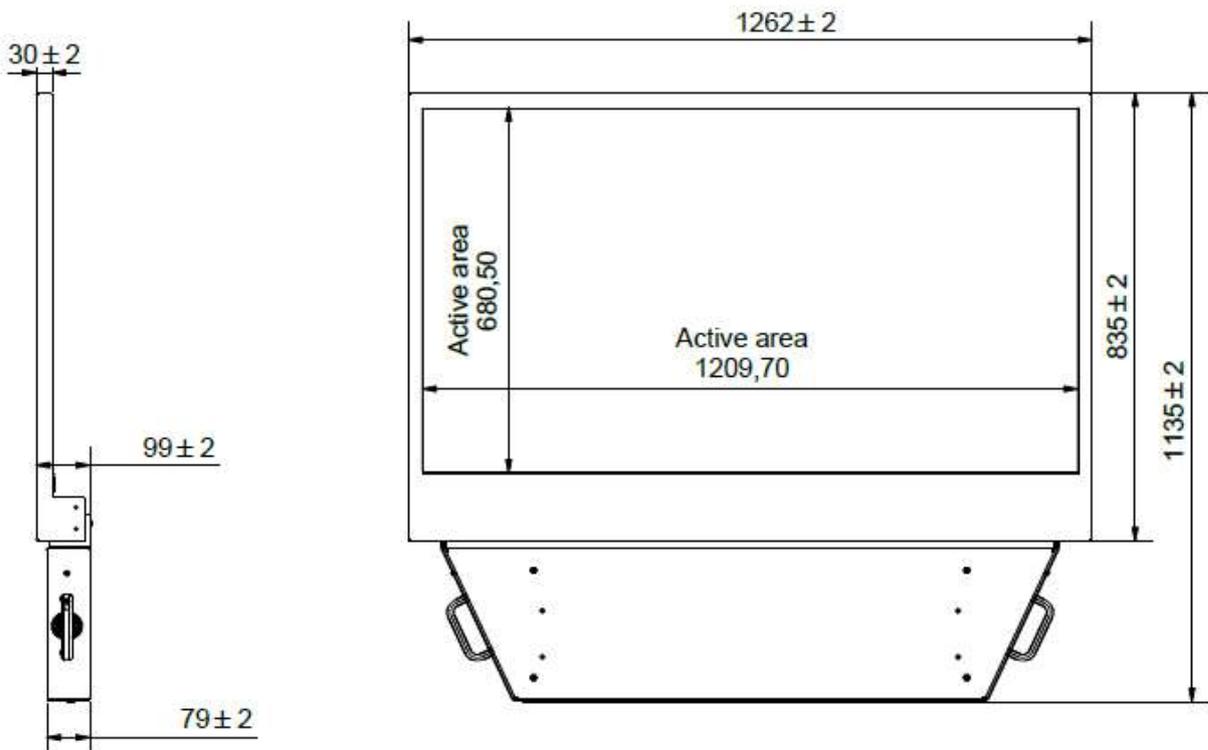


Figure 18: GhosT-OLED Full Kit equipped with Touch Kit in straight mode

7.4 Drawing GhosT-OLED Full Kit PCAP

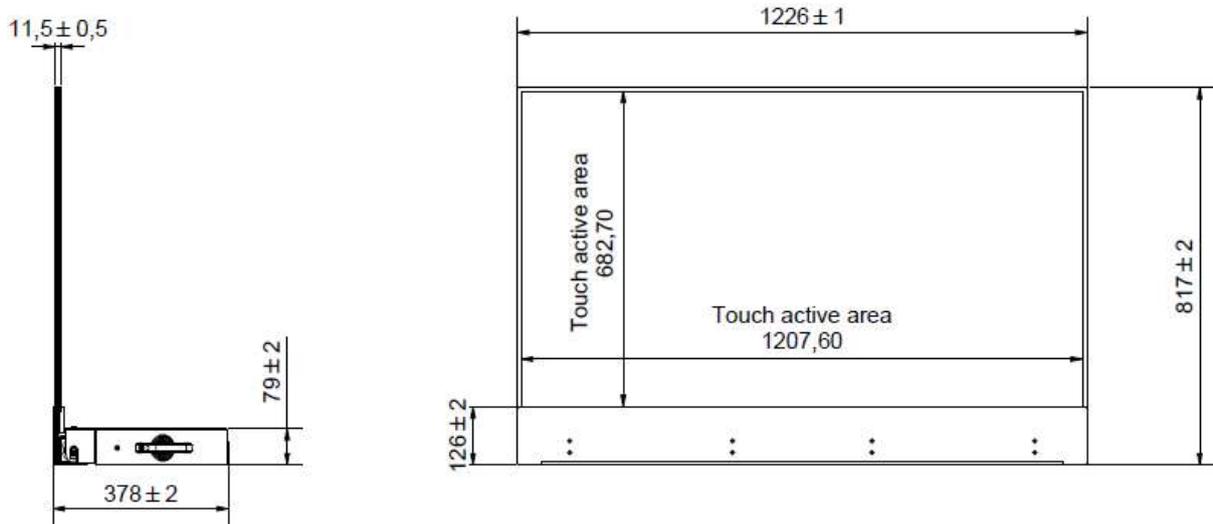


Figure 19: GhosT-OLED Full Kit PCAP in table mode

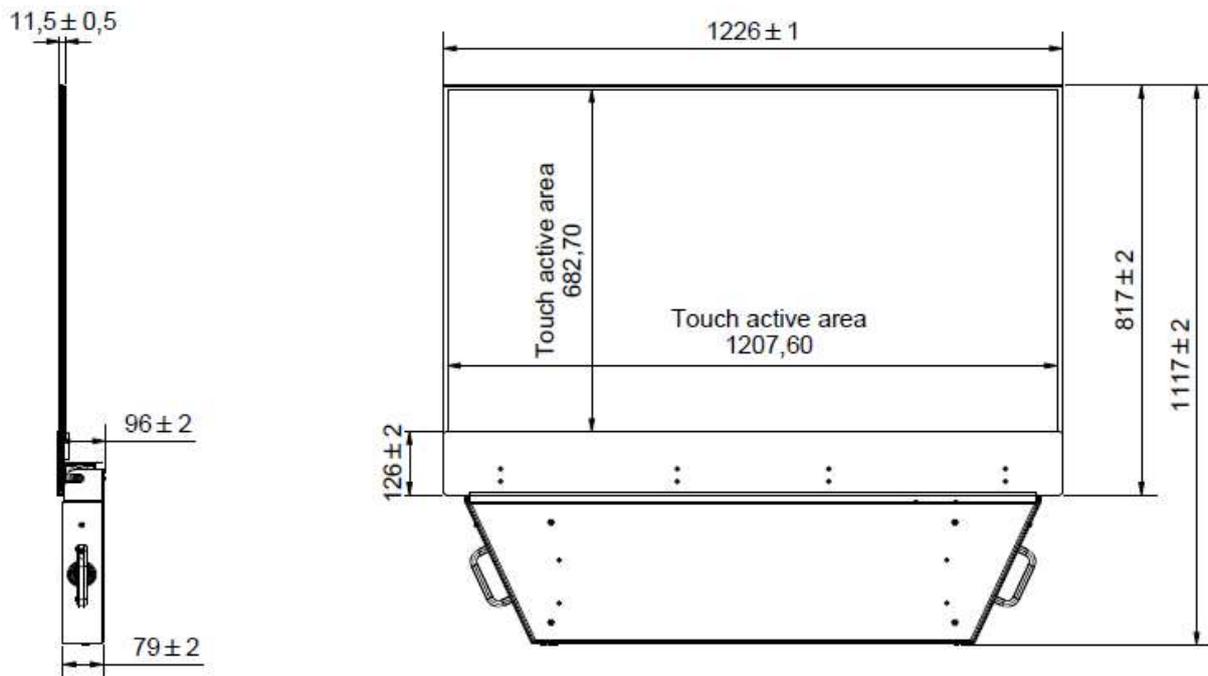


Figure 20: GhosT-OLED Full Kit CPAP in straight mode

7.5 Drawing GhosT-OLED Half Kit PCAP

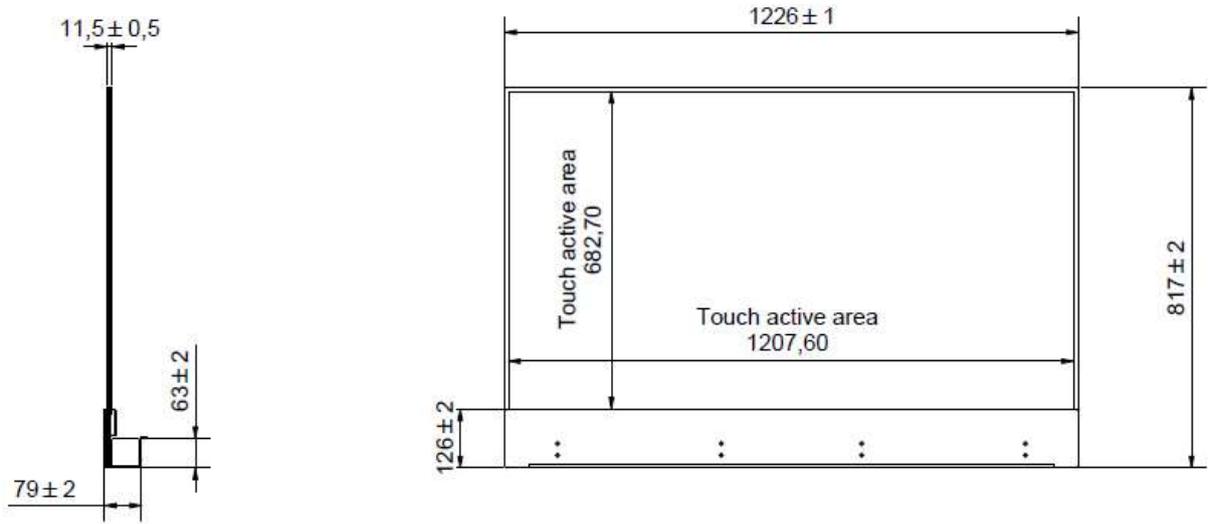


Figure 21: GhosT-OLED Half Kit PCAP Panel Unit

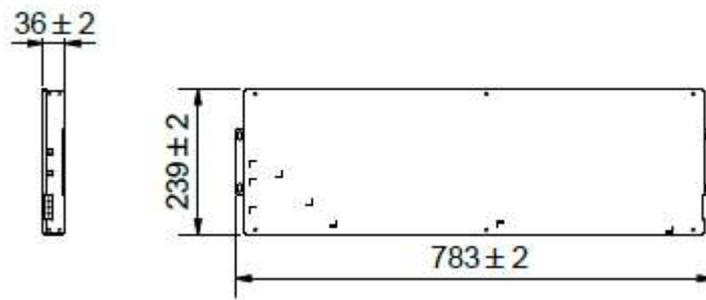


Figure 22: Signage box

8. Declaration of Conformity



Declaration of Conformity

We hereby confirm that the following described machine in it's conception, construction and form put by us into circulation is in full accordance with all relevant CE Standards:

EMC Directive:
2014/30/EU

Emission:
EN 55032:2015 Mains Conducted + Radiated Emission 150 kHz - 6 GHz
EN 61000-3-2:2014 Harmonics & Flicker
EN 61000-3-3:2013 Harmonics & Flicker

Immunity: EN 55024:2010 + A1:2015 including
EN 61000-4-2:2009 ESD (air + contact)
EN 61000-4-3:2006+A1:2008+A2:2010 HF-EMF
EN 61000-4-4:2012 Burst
EN 61000-4-5:2015 Surge (mains)
EN 61000-4-6:2014 Conducted RF (mains + signal)
EN 61000-4-8:2010 Magnetic Field
EN 61000-4-11:2004 Interrupts & Dips

RoHS Directive:
2011/65/EU

This declaration is no longer valid, if the machine is modified without our consent.

Manufacturer's name:

EXACT solutions GmbH
Lustheide 85
D - 51427 Bergisch Gladbach
Tel.: +49 2204 9485 30

Description of the machine:

- Function: Transparent OLED Display with Touch Kit Overlay
- Type/model: GhosT-OLED 55" Full Kit V2 and GhosT-OLED Touch Kit
- Year of construction: 2019

Bergisch Gladbach, 2nd of January 2020

Signature:

(Tobias Schwirten, Managing Director, EXACT solutions GmbH)

Imprint

EXACT solutions GmbH

Lustheide 85

51427 Bergisch Gladbach

GERMANY

Tel.: +49 2204 9485 30

E-Mail: info@exactsolutions.de

Web: www.exactsolutions.de
