



C6 AMM

INSTRUCTIONS FOR USE | C6 MONITOR

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SECTION **1**

**Preliminary
Information**

1.1 General notes


- a) The information in this manual is subject to change and is in no way binding upon KEB Automation KG.
- b) KEB Automation KG is not responsible for technical errors or other omissions in the manual, and shall not accept any responsibility deriving from its use.

1.2 Trademarks

- All brands and product names mentioned in this manual are trademarks of their respective owners.


1.3 Instructions on disposal



- Il simbolo  sul prodotto o sulla confezione indica che il prodotto non deve essere considerato come un normale rifiuto domestico, ma deve essere portato nel punto di raccolta appropriato per il riciclaggio di apparecchiature elettriche ed elettroniche. Provvedendo a smaltire questo prodotto in modo appropriato, si contribuisce a evitare potenziali conseguenze negative per l'ambiente e la salute, che potrebbero derivare da uno smaltimento inadeguato del prodotto. Per informazioni più dettagliate sul riciclaggio di questo prodotto, contattare l'ufficio comunale, il servizio locale di smaltimento rifiuti o il fornitore da cui è stato acquistato il prodotto.


IT



- The symbol  on the product or in its packaging indicates that this product may not be treated as household waste. Instead it shall be handed over the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the supplier where you purchased the product.

EN




- Le symbole  sur le produit ou son emballage indique que ce produit ne peut être traité comme déchet ménager. Il doit être remis au point de collecte dédié à cet effet (collecte et recyclage du matériel électrique et électronique). En procédant à la mise à la casse réglementaire de l'appareil, nous préservons l'environnement et notre sécurité, s'assurant ainsi que les déchets seront traités dans des conditions appropriées. Pour obtenir plus de détails sur le recyclage de ce produit, veuillez prendre contact avec les services de votre commune ou le distributeur où vous avez effectué l'achat.

FR


DE



- Das Symbol  auf dem Produkt oder seiner Verpackung weist darauf hin, dass dieses Produkt nicht als normaler Haushaltsabfall zu behandeln ist, sondern an einem Sammelpunkt für das Recycling von elektrischen und elektronischen Geräten abgegeben werden muss. Durch ihren Beitrag zum korrekten Entsorgen dieses Produkts schützen Sie die Umwelt und die Gesundheit Ihrer Mitmenschen. Umwelt und Gesundheit werden durch falsches Entsorgen gefährdet. Weitere Informationen über das Recycling dieses Produkts erhalten Sie von Ihrem Rathaus, Ihrer Müllabfuhr oder den Distributoren, in dem Sie das Produkt gekauft haben.


ES



- El símbolo  en el producto o en su embalaje indica que este producto no se puede tratar como desperdicios normales del hogar. Este producto se debe entregar al punto de recolección de equipos eléctricos y electrónicos para reciclaje. Al asegurarse de que este producto se desecha correctamente, usted ayudará a evitar posibles consecuencias negativas para el ambiente y la salud pública, lo cual podría ocurrir si este producto no se manipula de forma adecuada. Para obtener información más detallada sobre el reciclaje de este producto, póngase en contacto con la adMinistración de su ciudad, con su servicio de desechos del hogar o con el surtidor donde comprò el producto.




PT



- símbolo  no produto ou na embalagem indica que este produto não pode ser tratado como lixo doméstico. Em vez disso, deve ser entregue ao centro de recolha selectiva para a reciclagem de equipamento eléctrico e electrónico. Ao garantir uma eliminação adequada deste produto, irá ajudar a evitar eventuais consequências negativas para o meio ambiente e para a saúde pública, que, de outra forma, poderiam ser provocadas por um tratamento incorrecto do produto. Para obter informações mais detalhadas sobre a reciclagem deste produto, contacte os serviços municipalizados locais, o centro de recolha selectiva da sua área de residência ou no distribuidor onde adquirir o produto.

1.4 Description of safety symbols

Table 1
Safety symbols

 Danger	This symbol indicates a danger to life or health of personnel.
 Warning	This symbol indicates a danger to the hardware and / or the environment.
 Note	This symbol indicates an additional information meant to provide a better understanding.

1.5 Qualified Personnel

- a) C6 AMM may be operated only by personnel qualified for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions.
- b) Qualified personnel are those who, based on their training and experience, are able to identify risks and avoid potential hazards when working with these systems.

1.6 Basic knowledge required

- a) To understand operating instructions a general knowledge of automation technology is needed.
- b) Knowledge of personal computers and the Microsoft o.s. is required to understand this user's guide.

1.7 Proper use of the product

- a) KEB products may only be used for the applications described in the catalogue and in the technical documentation.
- b) If products and components from other manufacturers are used, these must be approved by KEB.
- c) Proper transport, assembly, installation, storage, commissioning, operation and maintenance are required to ensure that the product operates safely.
- d) The indicated environmental conditions must be observed.
- e) The information in this user's manual must be observed.

1.8 Purpose of the user's guide

- a) This user's manual contains information based on the requirements defined by DIN EN 62079 for mechanical engineering documentation.
- b) These operating instructions are intended for:
 - 1. Users.
 - 2. Commissioning engineers.
 - 3. Maintenance personnel.
- c) Pay attention at the information in the chapter "Safety instructions".
- d) More information such as operating instructions, examples and reference information, are available in the online help of COMBIVIS studio HMI and COMBIVIS connect.

1.9 Scope of the operating instructions

- The operating instructions apply to the C6 AMM family. The devices are the following:

C6 AMM (DVI) resistive	15.6" W
	18.5" W
	21.5" W
C6 AMM (DVI) capacitive	15.6" W
	18.5" W
	21.5" W
	24.0" W
C6 AMM (RVL) resistive	15.6" W
	18.5" W
	21.5" W
C6 AMM (RVL) capacitive	15.6" W
	18.5" W
	21.5" W
	24.0" W

Table 2
C6 AMM family

1.10 The manual is a part of the system

- This user's guide belongs to C6 AMM and is also required for commissioning.
- Keep all supplied documentation for the entire service life of C6 AMM.

1.11 Figures

- This manual contains illustrations of the described devices.
- Some details of the illustrations may differ from the device provided.

1.12 Safety instructions

1.12.1 Installation according to the instructions

- Commissioning the C6 AMM device is prohibited until it has been absolutely ensured that the system in which the C6 AMM device is to be installed complies with all the applicable EU and international regulation.

1.12.2 Hazardous areas

- Do not use C6 AMM in hazardous areas.

1.12.3 Working on the control cabinet

- **Dangerous voltage**
Opening the cabinet may expose high voltage parts. Before opening the cabinet always disconnect the power.



1.13 Notes about usage

- C6 AMM is approved for indoor use only.
- C6 AMM may be damaged if operated outdoors.

1.14 Applicable standard

Please refer to section 5.1.2 for details about the relevant standards.

SECTION 2**General Description**

2.1 Product description

C6 AMM arm mounting monitors are made of a full cast Aluminium chassis, powder coated with anti-scratch treatment, combining robustness with ergonomics and aesthetics.

C6 AMM families are available with 15.6" and 21.5" in Wide 16:9 aspect ratio 16 million color TFT LED Backlight LCDs and Aluminium True Flat with 5 wires resistive touchscreen or Aluminium True Flat with glass projected capacitive Multi-touch-screen front panels.

C6 AMM (DVI) monitor family has VGA and DVI-D input 24 VDC with galvanic isolation power input and two external access USB 2.0 ports. C6 AMM (RVL) family feature a built-in up to 100 meters remotation for digital video and USB 2.0 signal, with a single cable.

2.2 Key features

- Industrial arm mounting fanless PC.
- Integrated configurable button area configurable with emergency button, switches, buttons and, lights.
- 5 wires resistive touchscreen C6 AMM resistive or Projective-Capacity Multitouch-screen C6 AMM capacitive.
- Operating temperature 0°C to +50°C.
- Easy installation and cabling.
- USB interfaces.

2.2.1 Isolated Power Supply

Isolated Power supply with galvanic isolation to prevent:

- Common mode noise at low/medium frequencies on the power supply line
- Ground loop noise
- Extra-voltage caused by lightning
- Power supply with grounded positive terminal (e.g. Japan)

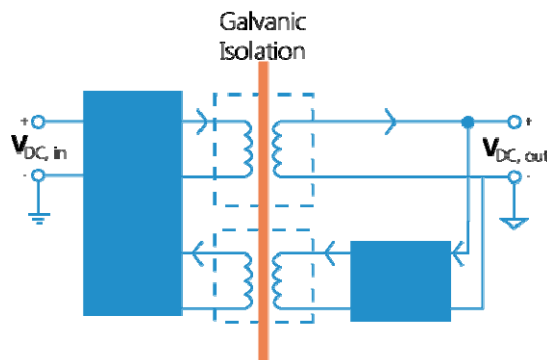


Figure 1
Isolated Power Supply

2.2.2 LCD LED backlight

LCD with LED backlight technology; the system is equipped only with the new generation LCD with LED technology.

2.3 Package

C6 AMM package consists of:







C6 AMM	
n.1 Power supply plug (pre-installed on the system)	
n.1 Power supply cover (DC systems only)	
n.1 Eyelet terminal (pre-installed on the system)	
n.1 Screwdriver	
n.4 Cups	

Table 3
Package

2.4 Front

The system is available with two different **frontal panels**:

- Aluminium with True Flat technology (resistive).
- Aluminium with True Flat technology and Multitouch (capacitive).

in the following sizes:

- 15.6" wide (16 : 9)



Figure 2
C6 AMM 15.6"

- 21.5" wide (16 : 9)



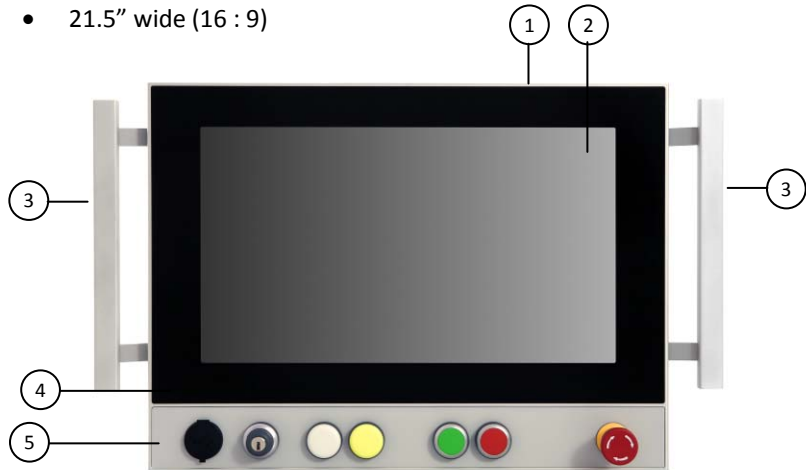
Figure 3
C6 AMM 21.5"

2.4.1 Resistive front panel

C6 AMM resistive (aluminium front panel with true flat technology) is available in the following sizes:

- 15.6" wide (16 : 9)
- 18.5" wide (16 : 9)
- 21.5" wide (16 : 9)

Figure 4
Resistive panel.
(in the figure is shown as an example a
15.0" display)



- ① Aluminium front panel with top polyester film
- ② Touchscreen display
- ③ Handles (optional)
- ④ Power on LED
- ⑤ Button area

- The front panel with true flat technology has no “step” between the front panel and the touchscreen, therefore it can be easily cleaned. The polyester top-film covers the resistive touchscreen up to the aluminium border.

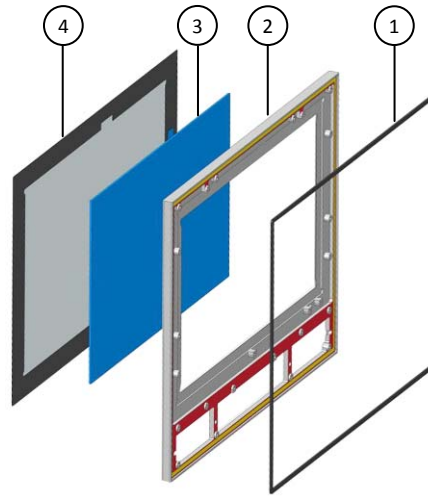
Figure 5
Resistive front panel “No Step” detail



Table 4
Resistive features

Features	
Seal type	EPDM
Front laminate	Polyester
Metal housing	EN AW-5754, H22 EN 485-1

Figure 6
Construction detail.



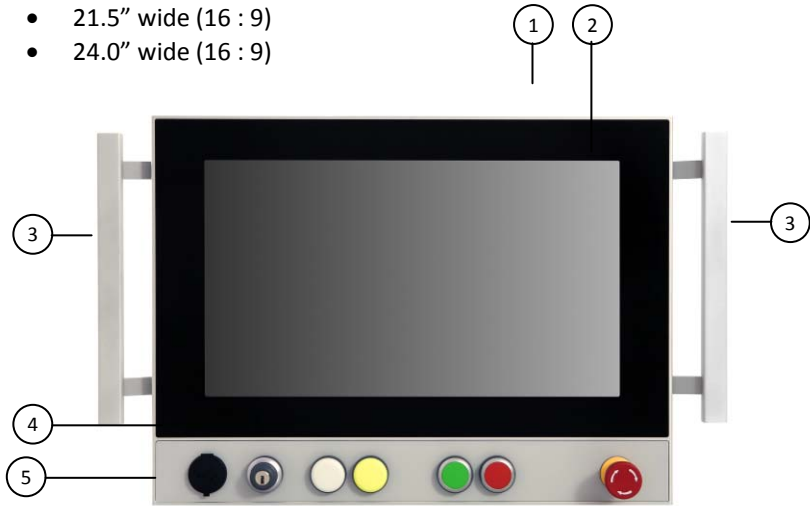
- ① Back seal
- ② Metal housing
- ③ Touchscreen
- ④ Front laminate

2.4.2 Capacitive front panel

C6 AMM capacitive (aluminum and glass front panel with true flat technology with multitouch touchscreen) is available in the following sizes:

- 15.6" wide (16 : 9)
- 18.5" wide (16 : 9)
- 21.5" wide (16 : 9)
- 24.0" wide (16 : 9)

Figure 7
Capacitive front panel.
(in the figure is shown as an example a 15.6" display)



- ① Aluminum and tempered glass TrueFlat
- ② Projective capacitive multitouch
- ③ Handles (optional)
- ④ Power on LED
- ⑤ Button area

The front panels with true flat technology contain a Projective capacitive multi-touch touchscreen that is handled by a USB controller within the system.

Figure 8
Capacitive front panel "No step" detail

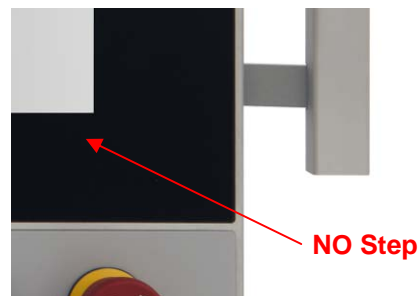
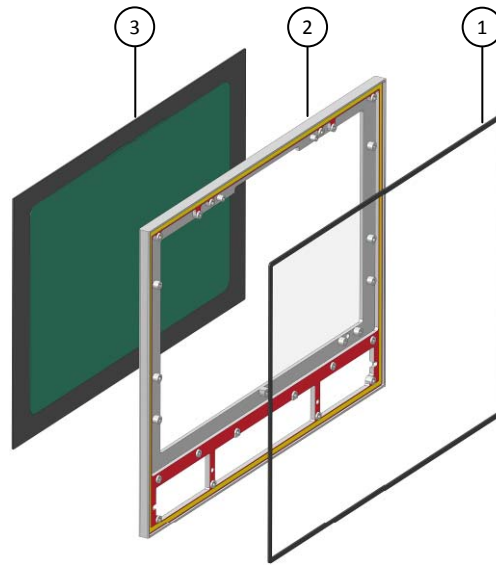


Table 5
Capacitive features

Features	
Seal type	EPDM
Front laminate	Glass
Metal housing	Aluminium alloy 5754

Figure 9
Construction detail.



- ① Back seal
- ② Metal housing
- ③ Touchscreen

2.4.3 Button area

The system is equipped with a fully customizable button area.

Figure 10
Button area detail.



The button area can also be ordered without buttons.

Figure 11
Button area detail.



For further information please contact the KEB support.

2.5 Rear

The back of the system contains dual USB 2.0 port protected by a screw cap and the connector area, protected by a removable cover.

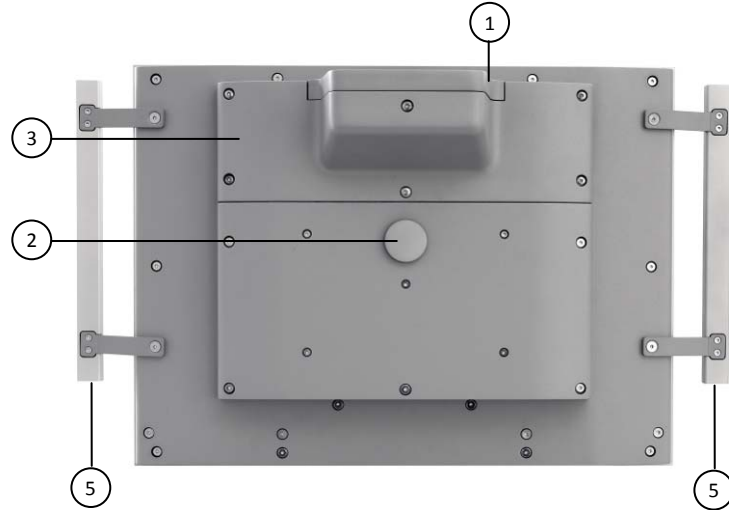


Figure 12
Detail back of the system



Figure 13
Detail arm attack

- ① Fixed rear panel
- ② Dual USB USB 2.0 port
- ③ Removable cover
- ④ Rittal CP40 attack
- ⑤ Handles (optional)

2.5.1 Top/Bottom arm mounting

C6 AMM has to be installed on a swing arm system using an integrated flange. Depending of the customer's order, the integrated flange can be ordered either on the top or on the bottom of the system (respectively for either top or bottom arm mounting).

Figure 14
Detail bottom arm mounting predisposition

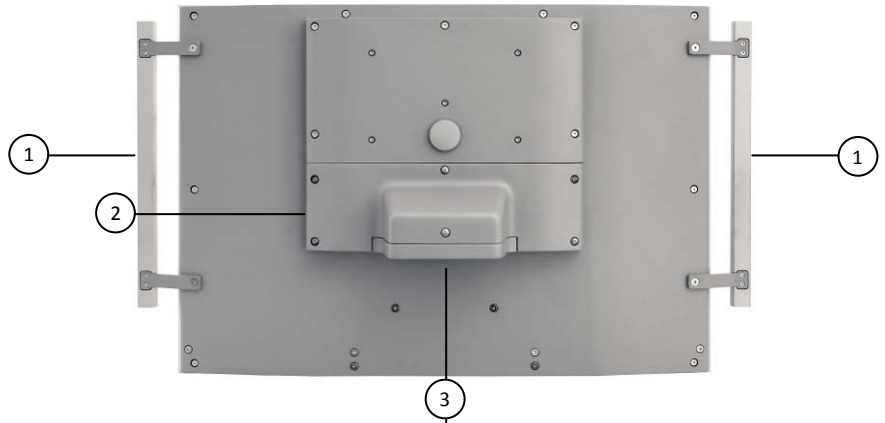


Figure 15
Detail top arm mounting predisposition



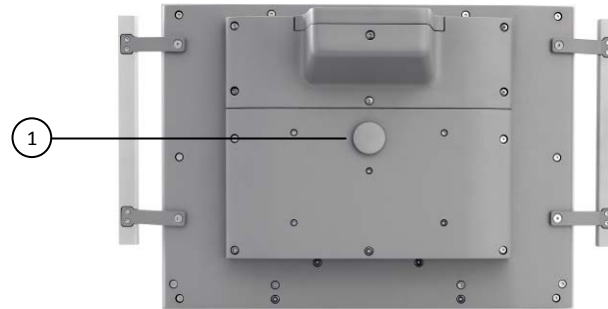
Depending of the customer's order the system can be with or without lateral handles (optional removable).

- ① Optional removable handles
- ② Removable connectors cover
- ③ Integrated flange on bottom

2.5.2 Rear USB 2.0

The USB 2.0 port on the rear panel is protected by a screw cup that guarantees protection when completely closed.

Figure 16
USB detail



① USB cover

2.5.2.1 Opening / closing the cover

- Unscrew the cover.



Figure 17
USB detail



Warning

The cover is attached to the system by means of a spring. Be careful not to tear the spring.

- Screw the cover.
- Verify that all edges of the cover perfectly adhere to the hole.

2.5.3 Connectors

To access the connectors it is necessary to remove the rear removable cover (refer to section **3.6.4 Accessing connector area**).

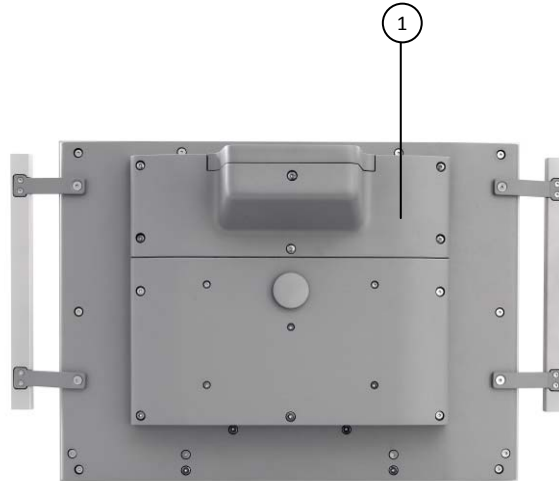


Figure 18
Detail rear removable cover

① Rear removable cover

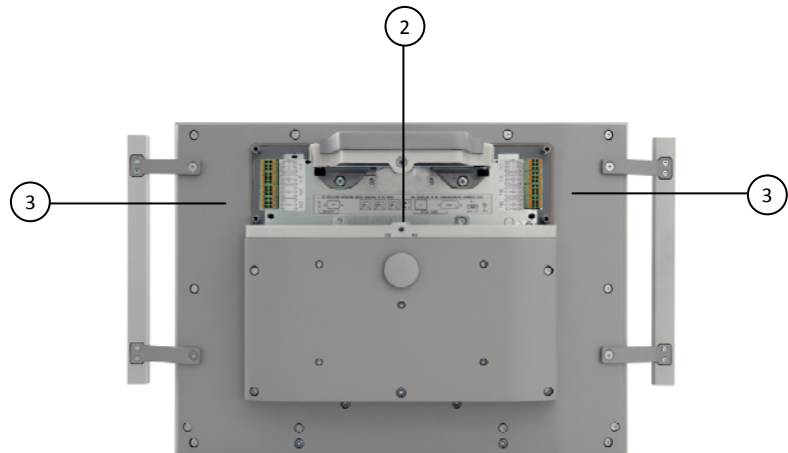


Figure 19
Detail connector area

② Connector area

③ Buttons cabling area

**Caution:**

In order to access to the rear panel connectors the system must be disconnected from the power supply and put on a flat plane to remove the rear panel.

2.6 Connector view

The connector area is composed by the following parts:

Figure 20
C6 AMM (DVI) Connectors

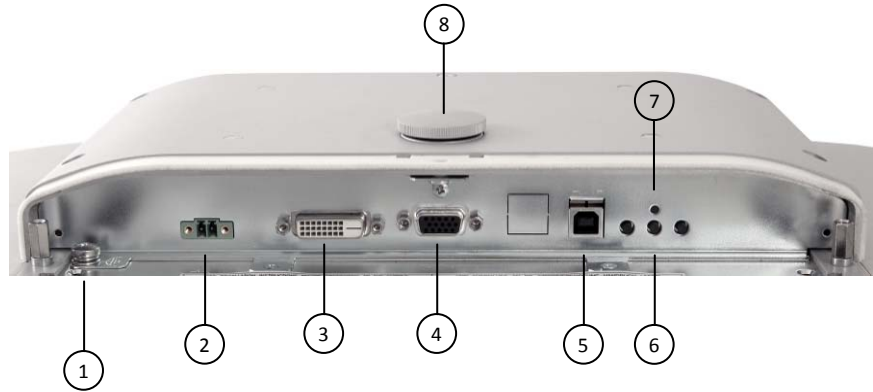


Figure 21
C6 AMM (RVL) Connectors

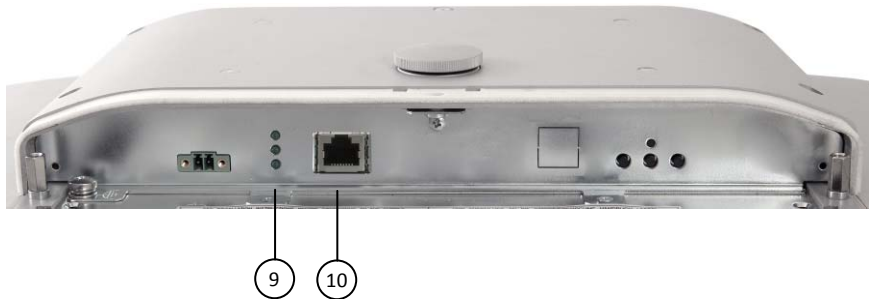


Figure 22
Connection terminals



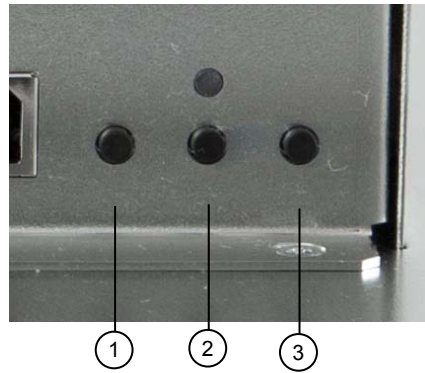
- ① Earth screw
- ② Power supply socket
- ③ DVI video input
- ④ VGA video input
- ⑤ USB HUB input (type B)
- ⑥ OSD buttons
- ⑦ Status LED
- ⑧ USB host
- ⑨ Link / Run / Power LED
- ⑩ Remote input
- ⑪ Connection terminals button area

2.6.1 OSD (On Screen Display)

Figure 23
C6 AMM OSD buttons



Figure 24
C6 AMM OSD buttons detail



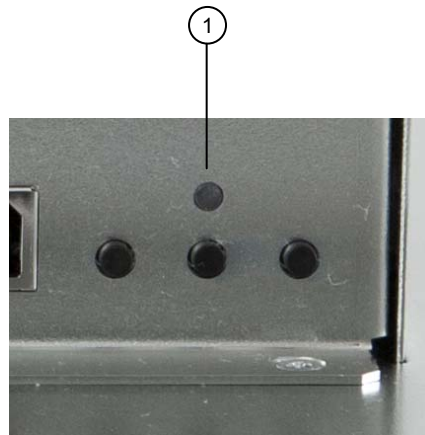
- ① + (←)
- ② - (→)
- ③ Menù / Select

2.6.2 Status LED

Figure 25
C6 AMM status LED



Figure 26
C6 AMM status LED detail



① Status LED

Status LED	
Green	Correct video signal input
Amber	Unsupported video input
Amber blinking	No video input

2.7 Button cabling area (optional)

Figure 27
Button cabling area detail



- ① Terminal for buttons cable connection

If the system is ordered without buttons, the terminals will not be present on the button cabling area.

Figure 28
Button cabling area detail



2.8 C6 AMM (RVL)

The industrial monitor family C6 AMM (RVL) provides the remotation of DVI-D and USB 2.0 signals that allows the connection to a IPC up to 100 meters away with Cat 5e SF/UTP cable.

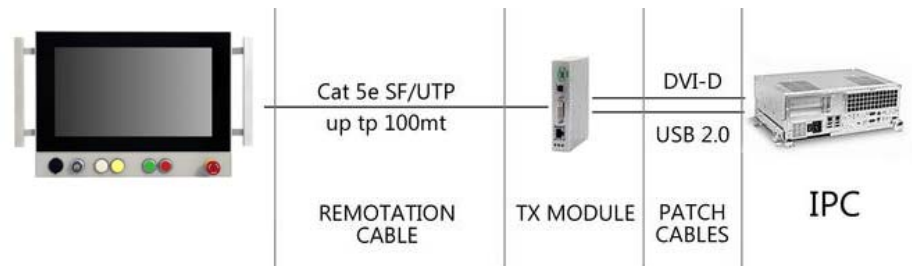
2.8.1 KEB Remotation System

The remotation system developed by KEB is based on the serialization of the DVI-D and USB 2.0 signals that are transmitted, in a differential and strong way, by an Ethernet Cat 5e SF/UTP cable.

The remotation kit is composed by a transmitting local module, 24V DC powered and placed near the PC, and a receiver section integrated into KEB monitor family.

This technology let you transmit high quality signals with Full HD resolution, up to 100 mt, using the auto-equalization to compensate typical effect in the remotation solutions like losses and delays.

Figure 29
KEB remotation system



2.8.2 Remotation area

Figure 30
Remotation area detail

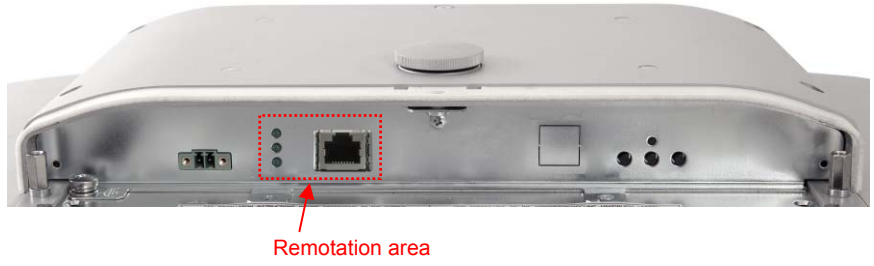
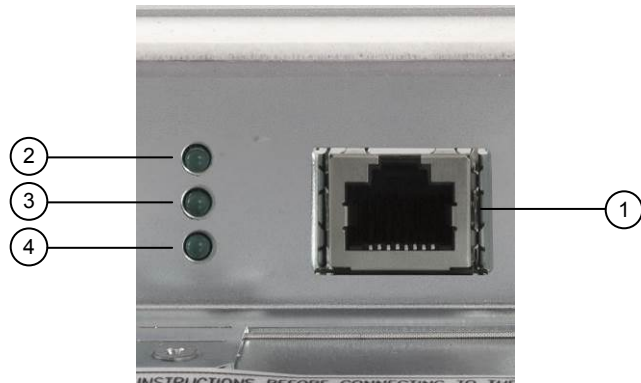


Figure 31
Remotation area detail

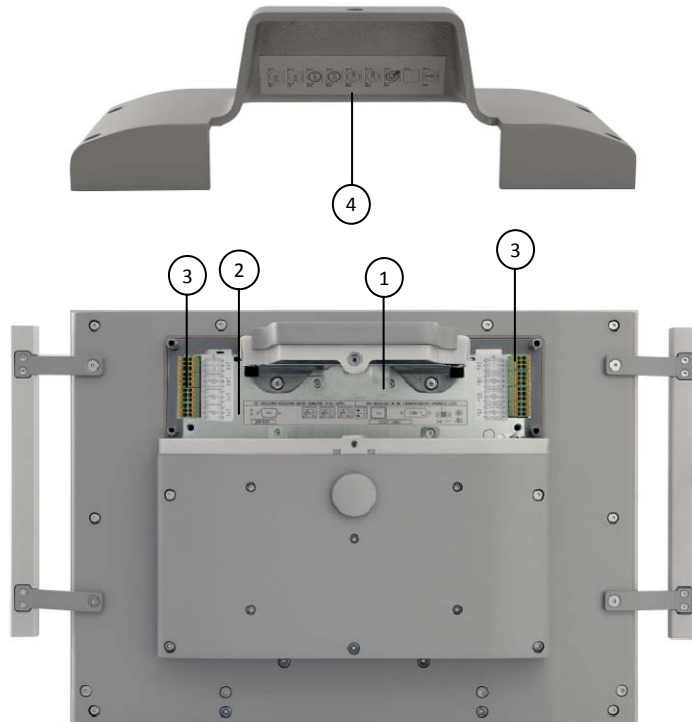


- ① Remote input
- ② Link LED
- ③ Run LED
- ④ Power LED

2.8.3 Label position

On the rear panel the following labels are present.

Figure 32
Labels position



- ① Marking label
- ② Connectors label
- ③ Terminal label
- ④ Rear cover internal label (only if button area contains buttons)

2.8.3.1 Marking label

Figure 33
C6 AMM marking label detail



- ① Model
- ② UL marking
- ③ CE marking
- ④ Electrical information
- ⑤ Serial number

2.8.3.2 Connectors label

Figure 34
C6 AMM connectors (RVL) label detail

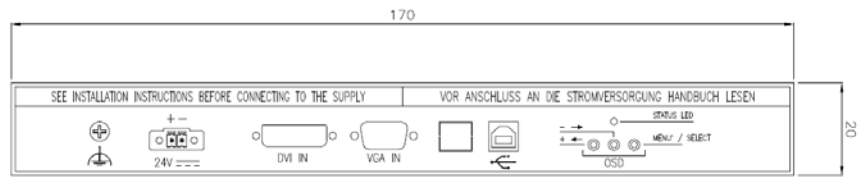
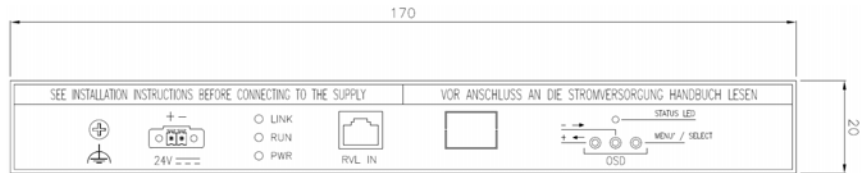
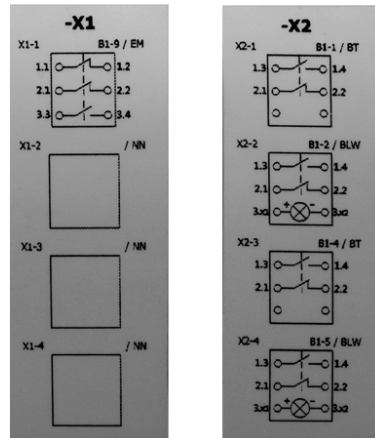


Figure 35
C6 AMM connectors label detail



2.8.3.3 Terminal label

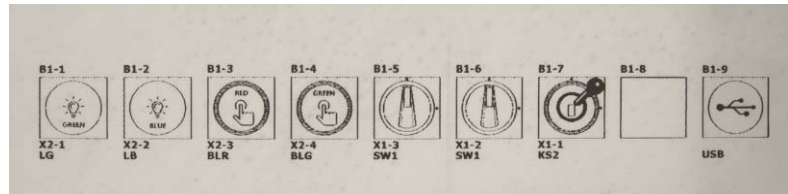
Figure 36
Terminal label



For further information please contact the KEB support.

2.8.3.4 Rear cover internal label

Figure 37
Rear cover internal label



2.9 Touchscreen

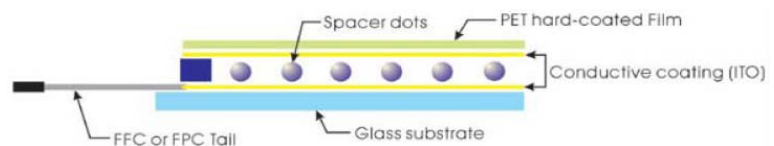
C6 AMM resistive and C6 AMM capacitive are provided with a 5-wire touchscreen with a controller integrated on the motherboard.

Touchscreen is available in different technologies

- **C6 AMM resistive** is available only with standard resistive touchscreen.
- **C6 AMM capacitive** is available only with projective capacitive multitouch-touchscreen.

2.9.1 Standard technology

Touch surface is made of PET hard coated Film (Hardness: 3H).



2.9.2 Multi Touch technology

Tempered glass and aluminium frame for the TrueFlat Multitouch (capacitive) front panel:

- Projected capacitive touchscreen (P-CAP).
- Up to 4 finger operation.
- Gestures support.



SECTION **3**
**Installation and
connection**

3.1 Preparation for installation

3.1.1 Select the mounting location

The mounting location should comply with the following characteristics:

- a) Avoid direct sunlight exposure.
- b) Make sure that C6 AMM is properly (ergonomically) accessible to the operator.
- c) Choose a suitable mounting height.

3.2 Checking the package contents

- Check the package content for visible signs of transport damage and for completeness.
- In the case of damaged parts, contact your KEB representative. Do not install parts that were damaged during the shipment.

3.3 Checking the operating conditions

- Read carefully the standards, approvals, EMC parameters and technical specifications for operation of the device. This information is available in the following sections:
 - Certificates and approvals (refer to **section 6.1.2 Certification and approvals**).
 - Electromagnetic compatibility (refer to **section 6.1.2 Certification and approvals**).
- Check the mechanical and climatic ambient conditions for operation of the device: Ambient conditions (refer to **section 6.1.4 Technical data**).
- Follow the instructions for local use of the device: Notes about usage.
- Adhere to the permissible rated voltage and the associated tolerance range.

3.4 Mounting position

C6 AMM device is suitable for arm installation.

3.4.1 Damage due to overheating

- All C6 AMM systems are designed for vertical mounting position.
- A inclined installation reduces the thermal convection by C6 AMM and the maximum permissible ambient temperature for operation. Please contact KEB for details. C6 AMM may otherwise be damaged and its certifications and warranty will be void.
- The ambient temperature must be between 0°C to +50°C measured 5 cm from all openings of the system where there is air entrance.
- Provide space around the system for air recirculation and heat exchange.
- Mounting angle:
 - The system is intended to be mounted vertically.
 - For inclinations of more than 10° and up to 20° is necessary to decrease the maximum operating temperature of 5°C.
 - For other installation modes contact KEB Automation KG.



Note:

For installation in control cabinets and, in particular, in closed containers, make sure the recommended ambient temperature is maintained.

*For further details please refer to **section 5.1 Technical specifications***

3.4.2 Degrees of protection

- Do not open for any reason the system.

3.5 Dimensions

This section shows the dimensions of the systems.

3.5.1 C6 AMM

Figure 38
C6 AMM dimensions

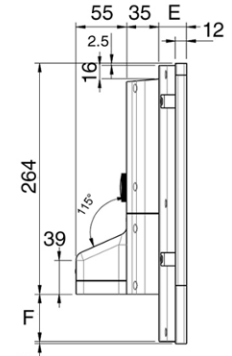
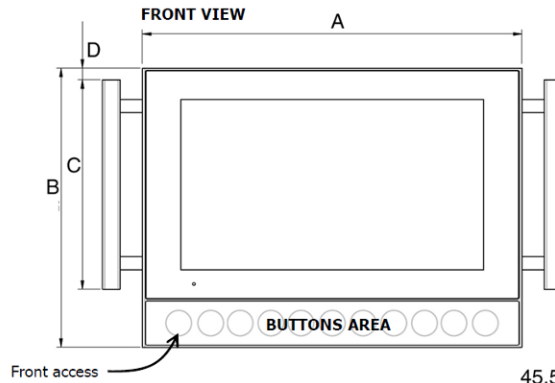
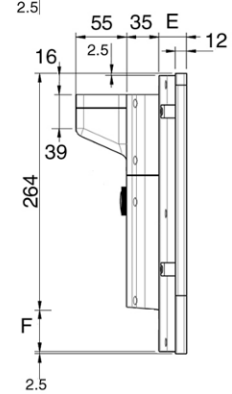
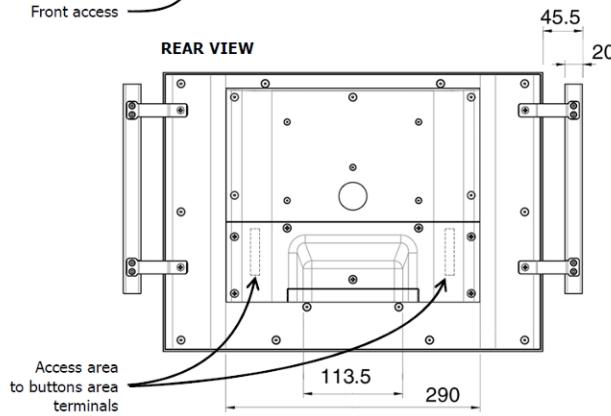


Figure 39
C6 AMM dimensions



LCD TFT	A	B	C	D	E	F	Peso
15.6"	433	320	240	13.5	30	54	8.0
18.5"	503	358	276	14.5	36	91.5	10.0
21.5"	582	403	314	18	40	134	12.0
24.0"	640	439	347	19.4	40	175	14.0

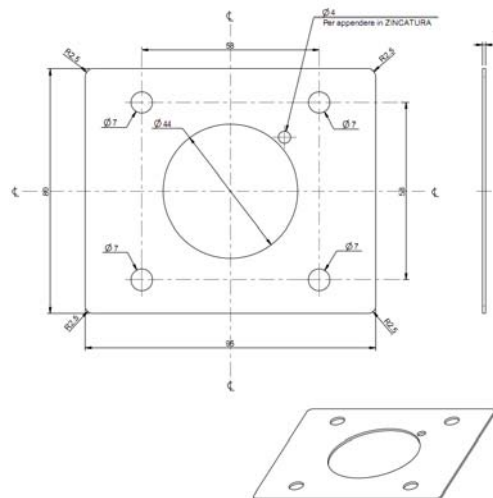
3.6 Mounting the device

The system can be installed with three different adapter flanges:

- RITTAL™ CP40
- Rolec Taraplus
- HASEKE ULT KUPPLUNG

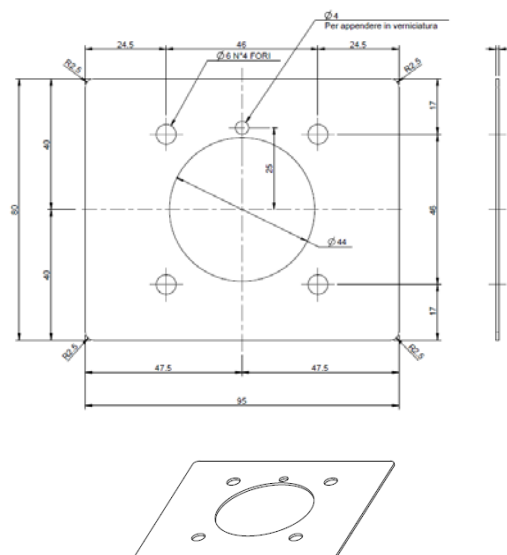
3.6.1 Rittal CP40 adapting flange dimensions (for angular attack)

Figure 40
Rittal CP40 adapting flange detail



3.6.2 Rolec adapting flange dimensions

Figure 41
Rolec adapting flange detail




3.6.4 Accessing connector area




Danger:
The operations described below must only be performed by qualified personnel.





Warning


Only  screws can be removed by the user.

All the  screws **HAVE NOT** to be removed for any reason.



Warning:
Tighten the fixing screws with **0.7 Nm** fixing torque.

Tool required	Action
	 Screw / unscrew n.6 fixing screws

- On the back of the system remove the 6 fixing screws  of the connector cover.

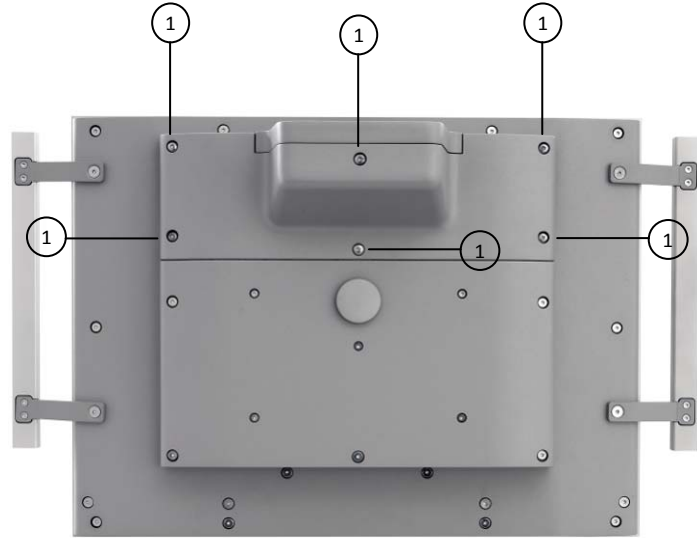


Figure 43
Accessing connector area



Note:
The connector area is protected with a special adhesive gasket. Be careful when removing the cover, not to damage the gasket.
For further information please refer to section **6.1.10 Adhesive gasket technical data**

① Screws to be removed

- Remove the cover.



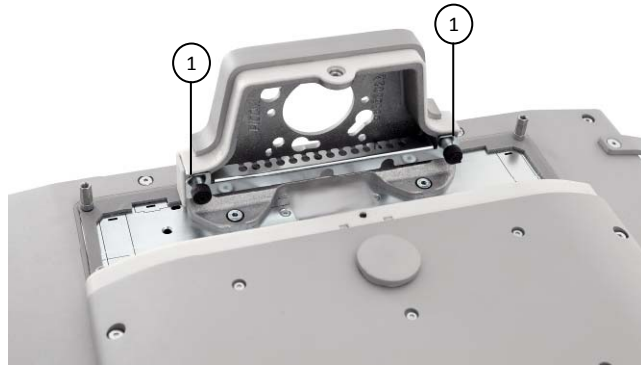
Figure 44
Accessing connector area

Figure 45
Cover detail



- Now you have free access to the connectors area.
- Remove the cable retainer bracket.

Figure 46
Cable retainer bracket detail



- ① Screws to be loosed

3.6.5 Rittal CP40 support: installation example

- Slide the cables inside the arm (in the example below ground cable and, power supply cable).



Figure 47
Installation example

- Carefully position the arm to the bracket and hang it with the 4 screws.



Figure 48
Installation example

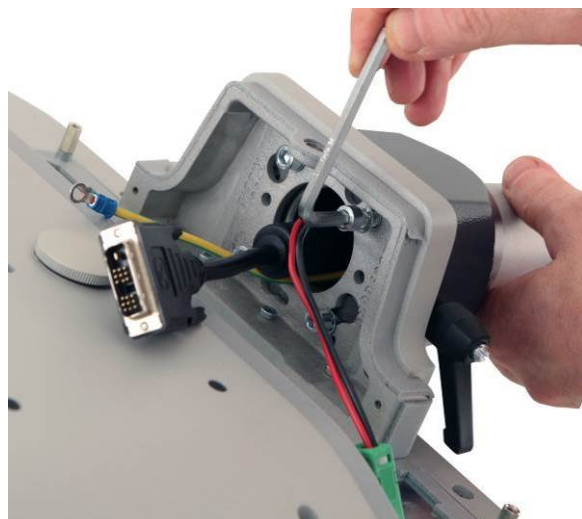


Figure 49
Installation example

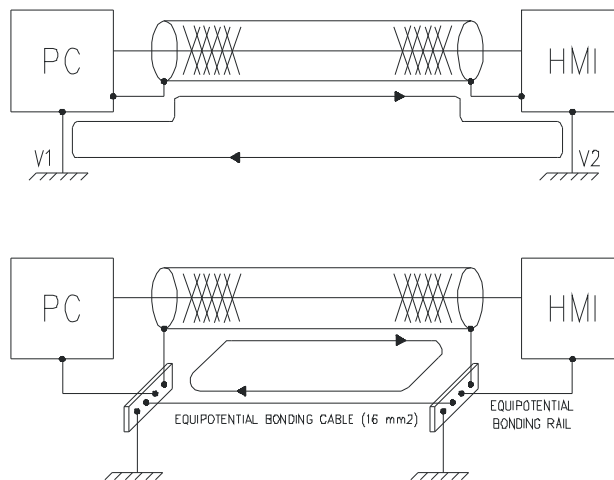
**Note:**

It is suggested to connect the system to the ground wire by means of suitable wiring (AWG14 or greater cross sections are suggested).

3.6.6 Grounding and bonding

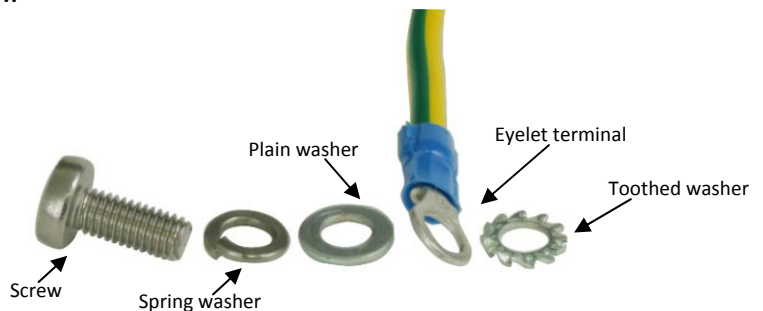
- Whenever two pieces of equipment connected to each other are far apart, it is possible that their ground connections could be at a different potential level. The data cable screens connecting the equipment's chassis on one end and the C6 AMM chassis on the other end can therefore be subject to a high current circulation capable of destroying the interface. To overcome this hazard such current must be steered away from the interface. To achieve this goal the following methods can be used:

Figure 50
Power supply diagram



- Use an equipotential bonding cable (16mm²) to connect the equipment' ground to the C6 AMM ground.
 - Connect the data cable screens to the equipotential bonding rail on both sides before connecting the cable to the interfaces.
- Insert the earthing eyelet terminal between the washers in the following sequence:
 - Spring washer
 - Plain washer
 - Eyelet faston
 - Toothed washer
 - Screw

Figure 51
DC Power supply connection detail



3.6.7 Power supply isolation

The C6 AMM power supply is galvanically isolated which means its output is electrically separated from its input. This feature has many benefits:

- Increases the noise immunity of the system
- Avoids input short circuits in systems with the power supply grounded
- Breaks ground loops which may cause interferences in the video signals.

3.6.8 Wiring diagram

The wiring diagram shows a simplified pictorial representation of the electrical circuit. It shows the components of the circuit as simplified shapes, and the power and signal connections between the devices.

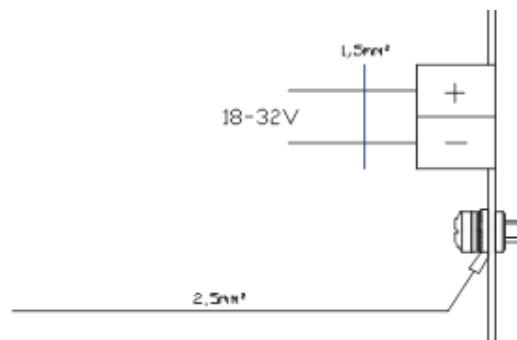


Figure 52
Power supply connection detail

3.6.9 Power connector assembly

The system is equipped with a connector cup to be installed on the two poles power connector. To properly assemble the connector please follow these instructions:

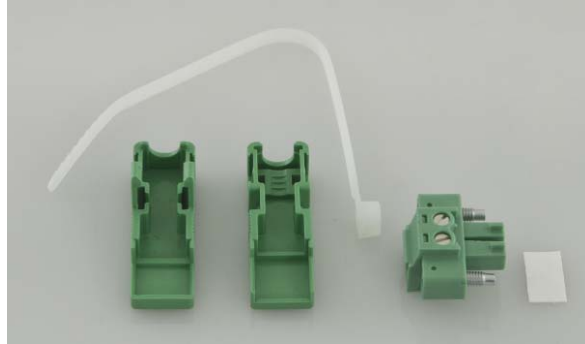


Figure 53
Power connector assembly

- Insert the cable tie in the cup as shown in the picture.



Figure 54
Power connector assembly

- Slide the cable tie as shown in the picture.

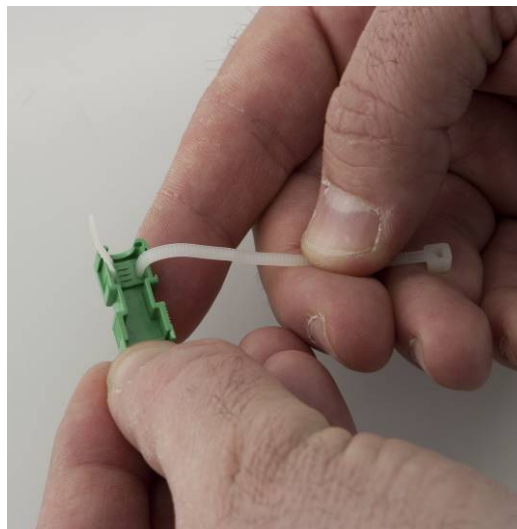


Figure 55
Power connector assembly

- Place the two poles plug connector in the cup as shown in the picture.

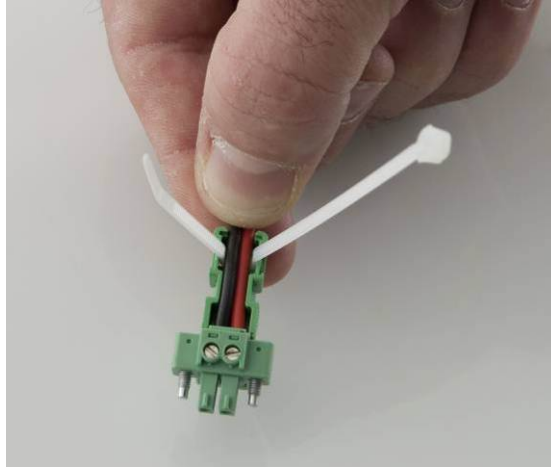


Figure 56
Power connector assembly

Tighten the cable tie.

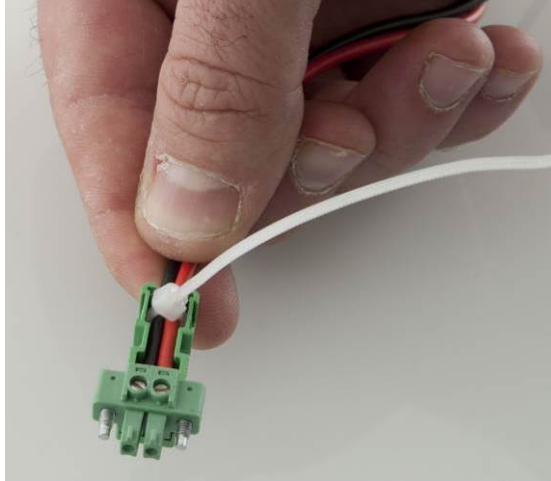


Figure 57
Cup installation

- Cut the excess part.

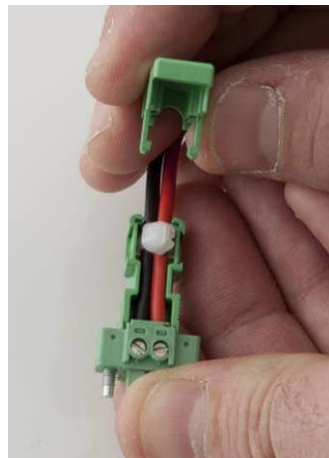


Figure 58
Cup installation

- Insert the white label and close the cup as shown in the picture.

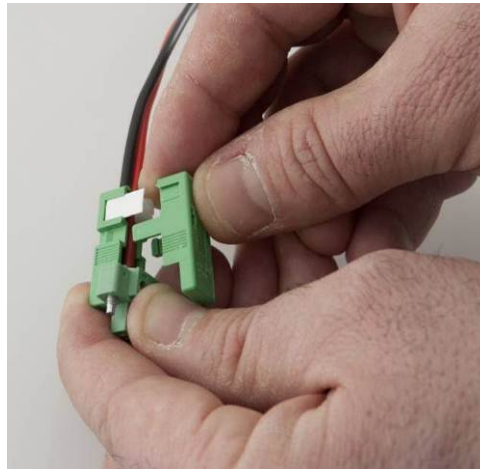


Figure 59
Cup installation

- Example of a correctly installed cup.

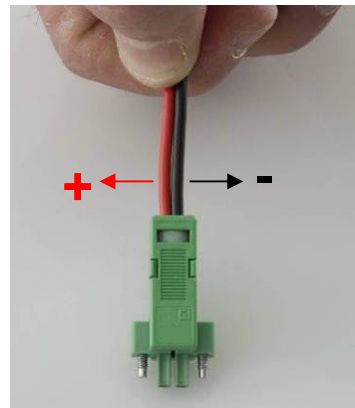


Figure 60
Power connector assembly

3.6.10 Power on

The system has to be connected to a 24 V $\overline{\text{---}}$ (18-32V $\overline{\text{---}}$) power supply which satisfies the requirements of safe extra low voltage (SELV) in accordance with IEC/EN/DIN EN/UL60950-1.



Note:

For further details refer to section 3.6.6
Grounding and bounding

- Remove the two poles plug connector from the system (the system is shipped with the power plug connected).
- Always check that the voltage drop along the supply wiring is not excessive and the input voltage remains above the minimum required (18V $\overline{\text{---}}$) in the worst load condition.
- Connect the ground cables (PE) to the earthing points.
- Connect the positive and the negative poles (also refer to the label on the back of the system) to their respective terminals of the two pole plug connector. Use wires with a cross-section of 1.5 mm² (AWG16).
- Use the supplied screwdriver to fix the power connector to the system.

Figure 61
Screwdriver detail



Note:

For further details refer to section 3.6.9
Power Connector assembly

Figure 62
Power on sequence

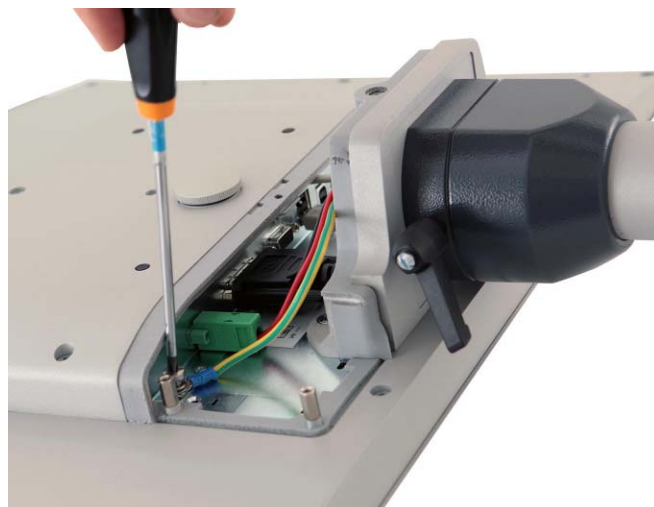


Figure 63
Power on sequence



Warning:

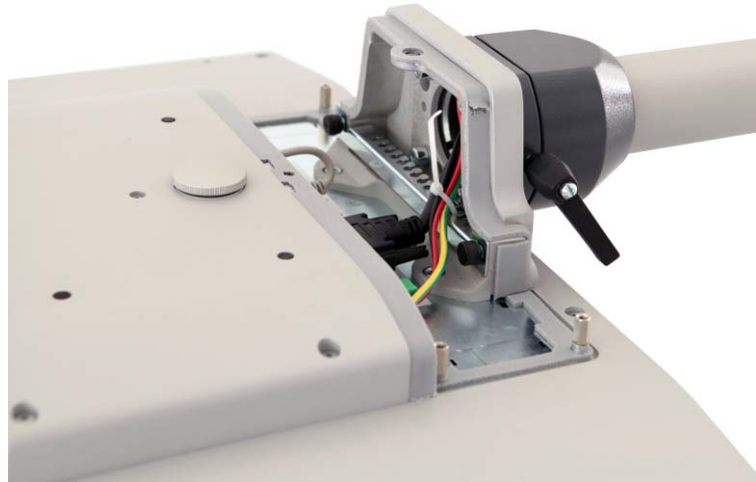
Check the adhesive gasket correctly adhere the cover when fixing it to the system after the connection.



Note:

For further details refer to section **6.1.10 Adhesive gasket technical data**

- Lock the cables the cable retainer bracket.



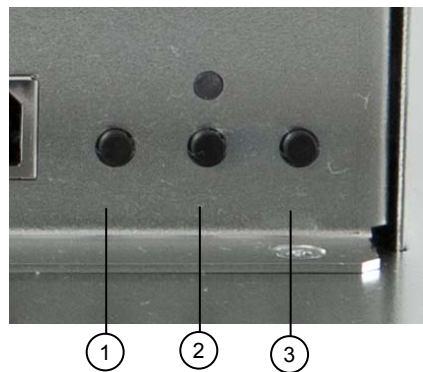
- Re-place the cover previously removed and fix it to the system.

3.6.11 OSD (On Screen Display)

Figure 64
OSD area



Figure 65
Keys for OSD adjustment



- ① + (←)
- ② - (→)
- ③ Menù / Select

3.6.12 OSD navigation

OSD is carried out pressing push-buttons Select +, - :

- **Menù / Select:** it selects the evidenced option, entering in an “under-menu” or exiting from current menu (back option). With standing OSD, + enters in main menu.
- **+ (←):** Increases the value of the selected control or select the next menu item.
- **- (→):** Decreases the value of the selected control or select the previous menu item.

3.6.13 On-Screen Display menu

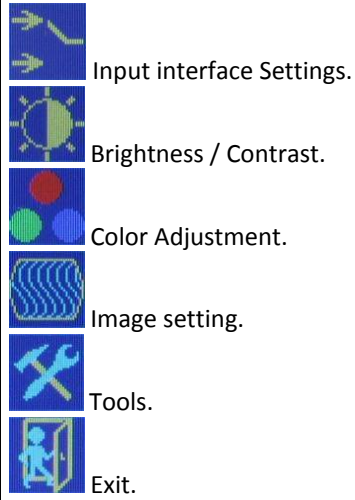


Figure 66
On-Screen Display menu

3.6.14 Input Interface Setting

Displays the input interface in use:



Figure 67
OSD - Input Interface Setting menu

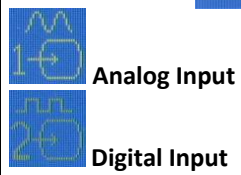


Figure 68
OSD - Input Interface Setting sub-menu

3.6.15 Brightness / Contrast

Figure 69
OSD – Brightness / Contrast menu



Figure 70
OSD - Brightness / Contrast sub-menu



Brightness: adjust the brightness.



Contrast: adjust the contrast.

3.6.16 Color Adjustment

Figure 71
OSD - Color Adjustment menu

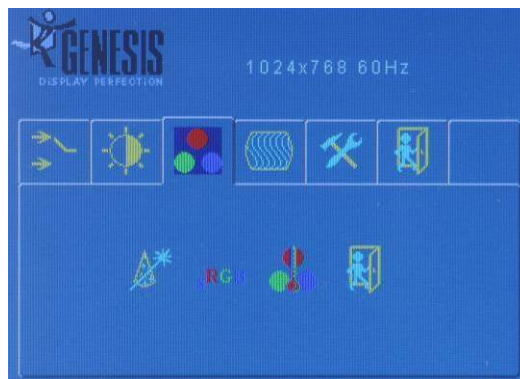


Figure 72
OSD - Color Adjustment Menu sub-menu



Auto Color Setup: Recall the color default settings.



Standard Color Setup: Adjust Red, Green, Blue color.



R.G.B. Color Temperature Setting: Change the color intensity of the temperature selected.

3.6.17 Image Setting

Figure 73
OSD – Image Setting Menu



Auto Config: Automatically adjust of Image Width, Phase, H-Position, V-Position settings.



Image Width: Regulate Image Width.



Phase Adjustment: Correct flickering text or lines.



H-Position: Adjust screen horizontal position.

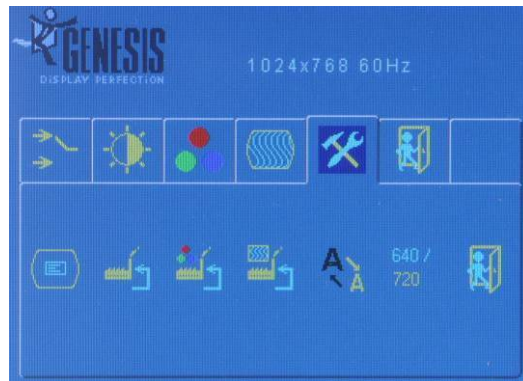


V-Position: Adjust screen vertical position.

Figure 74
OSD - Image Setting sub-menu

3.6.18 Tools

Figure 75
OSD – Tools menu



OSD Settings.



Restore the default settings.



Restore the color settings.



Restore the timing settings.



Text readability



Dos Graphic Mode


Figure 76
OSD - Tools sub-menu


3.6.19 Handle removal



The system is provided of two handles. If for any reason the user wants to remove them, follow the above sequence.



Warning

Only  screws can be removed by the user.

All the  screws **HAVE NOT** to be removed for any reason.

Tool required	Action
Exagonal screwdriver 2,5mm	Unscrew n.4  fixing screws
N.4 provided cups 	Replace the screws with the provided cups



- On the back of the system remove the 4 fixing screws  of the handles.




Figure 77
Handles removal

-  Screws to be removed

- Remove the handles and fill the holes with the provided cups.



Figure 78
Handles removal

-  Hole to be filled with the provided cup

SECTION **4**

**Maintenance and
service**

4.1 Calibration of the touchscreen

C6 AMM is designed to don't require touchscreen calibration, but in some cases, like update of the operating system, you must recalibrate the touch screen.



Note:

On capacitive system the calibration is not required.

- Go to Control Panel or Click on system tray icon and open **eGalax** setup application.

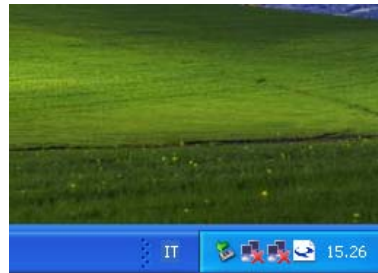


Figure 79
Calibration of the touchscreen

- Select 'Tools' tab

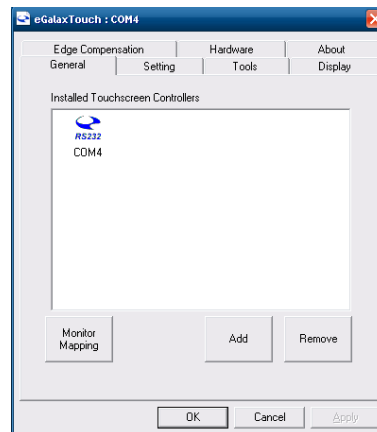


Figure 80
Calibration of the touchscreen

Select '4 point calibration'.

A more accurate option is available: 'Linearization'.

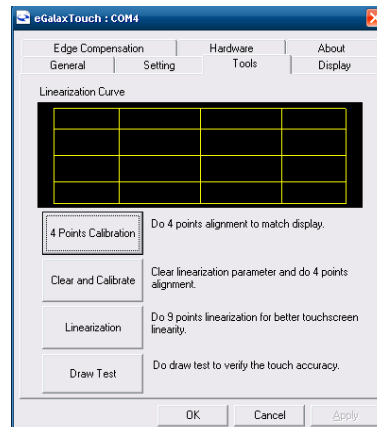


Figure 81
Calibration of the touchscreen

- User should follow the guide to touch and hold the blinking symbol in the calibration window until it shows “OK” to make sure that the utility can gather enough data for computation

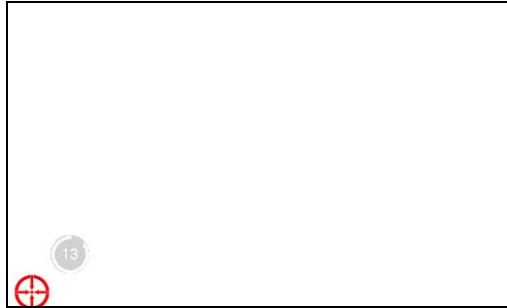


Figure 82
Calibration of the touchscreen

4.1.1 Touchscreen Application Tips

Use large buttons and a simple interface

Avoid complex user operations like double-clicks, scroll bars, drop-down menus, use of multiple windows or dragging. Remember that not all the operations that can be done using a mouse are equally comfortable using a touch screen.

Give the user feedback as soon as the screen is touched.

An immediate feedback on a successfully touch operation is very important to the user.

The feedback can be either visual (changing button aspect / 3D effects) or audio (“beep” or “click” on touch).

Turn the cursor off

It will help the user to focus on the entire screen, without being distracted by the cursor pointer.

Run your application full screen

Remove title and menu bars, to use the entire display area.

Avoid using a black background

Bright backgrounds, possibly containing a pattern, are the better choice for reducing glare and for hiding fingerprints.

**Note:**

clean the front panel of the system with a soft damp cloth only.

**Warning:**

Do not use detergents, solvents, cleaners or objects that could scratch the surface.

**Warning:**

switch off the power before any cleaning operation.

4.2 Maintaining & cleaning

C6 AMM is designed for maintenance-free operation except for the replacing of the battery backup when necessary. It is recommended to clean the touchscreen with a damp cleaning cloth and a display cleaning solution.

4.2.1 Procedure

Proceed as follows:

- a) Switch off the C6 AMM device or lock the touch screen.
- b) Spray the cleaning solution onto a cleaning cloth.
- c) Do not spray directly onto the display.
- d) Clean the display from the screen edge inwards.

4.3 Technical support & repairs

KEB offers wide-ranging, complete after-sales technical support. The staff who deal with this handle questions on the entire range of products skillfully, quickly, and efficiently.

You can phone our staff in the service department, and they will give you complete, prompt advice on how to resolve your problems.

telephone: +49 5263 401-0
fax: +49 5263 401 116
e-mai: combicontrol@keb.de

4.4 Recycling and disposal



C6 AMM can be recycled due to the use of materials with low environmental impact. Contact a certified disposal service company for environmentally sound recycling and disposal of your old devices.

SECTION **5**
**Technical
specifications**

5.1 Technical specifications

5.1.1 Certificates and approvals

Table 6
Certificates and approvals

Warranty & approvals		
	Emission	Conforms to: EN 61326-1 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements EMC Directive 2014/30/EU
	Immunity	Conforms to: EN 61326-1 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements EMC Directive 2014/30/EU
	Safety	Conforms to: EN 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements EN 61010-2-201 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-201: Particular requirements for control equipment
	RoHs	Directive 2011/65/EU
	ANSI/UL 61010-1, "Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements," and ANSI/UL 61010-2-201, "Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 2-201: Particular Requirements for Control Equipment."	



Note:

All displays are Color TFT-LCD with LED backlight designed for industrial application.

5.1.2 LCD characteristics

Table 7
LCDs characteristics

LCD characteristics		
Size (inch)	15.6" FWXGA	18.5" FHD
Type	Color LCD TFT	Color LCD TFT
Resolution (pxl x pxl)	1366x768	1366x768
Colors	16.7M	16.2M
Pixel pitch (mm)	0,252x0,252	0,300x0,300
Backlight	LED	LED
Luminance (cd/m2)	400	300
Contrast	500:1	1000:1
Viewing angle (°)	85°:85° (L/R) 80°:80° (U/L)	75°:75° (L/R) 70°:70° (U/L)
Lifetime (min.)	50.000h	50.000h

LCD characteristics		
Size (inch)	21.5" FHD	24.0" FHD
Type	Color LCD TFT	Color LCD TFT
Resolution (pxl x pxl)	1920x1080	1920x1080
Colors	16.2M	16.7M
Pixel pitch (mm)	0,248x0,248	0,276x0,276
Backlight	LED	LED
Luminance (cd/m2)	300	300
Contrast	5000:1	5000:1
Viewing angle (°)	89°:89° (L/R) 89°:89° (U/L)	89°:89° (L/R) 89°:89° (U/L)
Lifetime (min.)	50.000h	50.000h

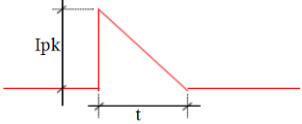
5.1.3 Technical data

Table 8
Technical data

Technical data		
Case	Installation	For pole or suspension arm mounting systems compatible with RITTAL (CPS) / ROLEC (TARAPLUS) / HASEKE (ULT KUPPLUNG 48)
	Material	Aluminum alloy EN AB46400
	Color	Anti-scratchable painted - RAL 9006
Front panel	LCD resistive	Aluminium TrueFlat • polycarbonate, Pantone Black color
	LCD capacitive	Aluminium TrueFlat and tempered glass • Col- or Black
	Keyboard (optional)	Aluminum TrueFlat • Polycarbonate Pantone Cool Grey 4C color
Touchscreen	Resistive	5 wires resistive technology • overlaminated with OCA (Optical Clear Adhesive) • on board controller
	Capacitive	Projective capacitive multitouch, 4 fingers • overlaminated with OCA (Optical Clear Adhesive) • Controller on module
Video Input	C6 AMM	1 x VGA 1 x DVI-D
	Remote Video link	DVI-D remotation with Cat5e SF/UTP cable
Power supply	Input voltage 18-36V DC • isolated	
Rear access inter- faces	1 x VGA (DB15F) • 1 x DVI-D Single Link • 2 x USB 2.0 (Type A) • 1 x USB 2.0 (HUB input, Type B)	
Environmental specifications	Operating temperature: 0° ± +50°C; Storage temperature: -5° ± +60°C; Humidity: 80% (non-condensing)	
Standard warranty	12 months • Warranty management by KEB headquarters	

5.1.3.1 Power supply technical data

Table 9
Power supply technical data

Power supply	
Type	Isolated DC- DC
Isolation voltage	500 VAC
Input voltage	18+32V DC
Input protection	Reverse polarity circuitry Overvoltage 6.3A soldered fuse
Power consumption	45W @ 24V (30W Typ.)
Inrush current impulse	
Ipk : < 13A t: 2.0 ms	

The power supply board is provided with a FAST FUSE 6.3A SMD. The fuse can be replaced only in factory.

Figure 83
Power supply board



Figure 84
Power supply board



5.1.3.2 System power consumption

In order to calculate the system power consumption it is necessary to add one item for every field of the following tables.

Table 10
System power consumption

Fied	Item	ConsumptionPower (W)
Basic configurations	LCD TFT 15,6" • Touch-Screen with USB interface • Aluminum and polycarbonate TrueFlat front panel • 24V DC isolated power supply	16
	LCD TFT 15,6" • Touch-Screen Multitouch • Aluminum and glass TrueFlat front panel • 24V DC isolated power supply	
Ddisplay & touchscreen	21,5" LCD TFT Wide 16:9 • 1920x1080 (FHD), 16M colors • LED backlight, 300 cd/m2 • Viewing angle L:R/U:L (typ): 89°:89°/89°:89°	+ 21
	21,5" W Touch-Screen • 5 wires resistive technology • Controller on module	

5.1.4 Adhesive gasket technical data

The connector area is protected with a special gasket. Be careful when removing the cover, not to damage the gasket.

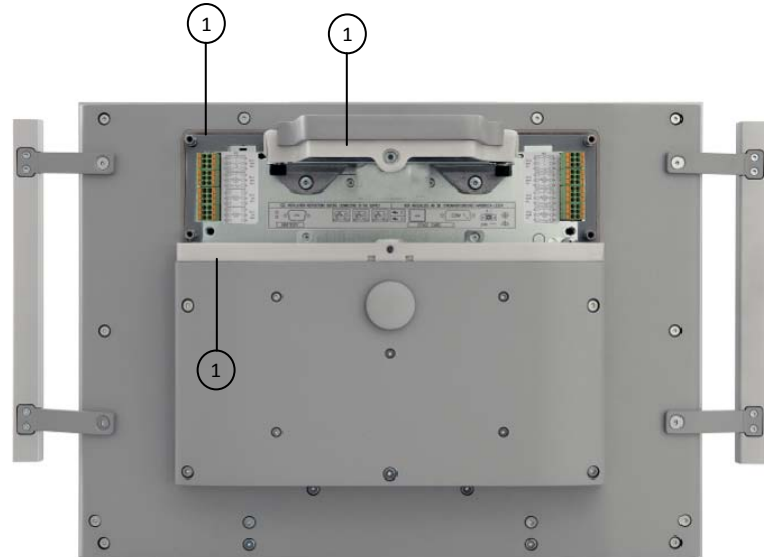


Figure 85
Adhesive gasket detail

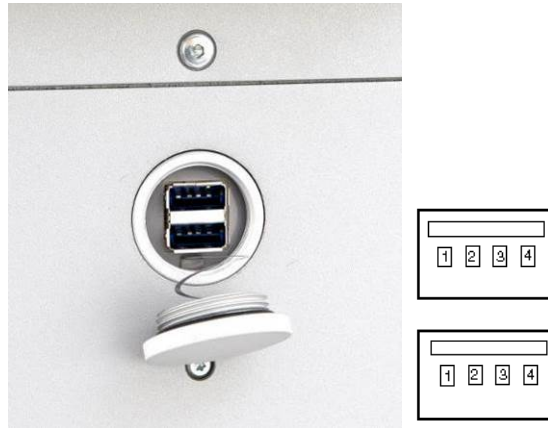
① Adhesive gasket position

412/BT 130	Technical specifications
Composition	Silicone foam
Cell structure	Closed (15% open)
Color	White
UNI 8457- UNI 9174	Class 1 a
afnor nf 16 101	Class f 1
UL 94	VO
Shore hardness 00 (ISO 2240)	45

Acrylic adhesive	Technical specifications
Sylicon paper	120 gr/m ² thickness 0,1 mm
adesivo-	50 gr/ m ² thickness 0,05 mm
Temperature range	Continuous + 130°C
Temperature range	Intermittence + 180°C

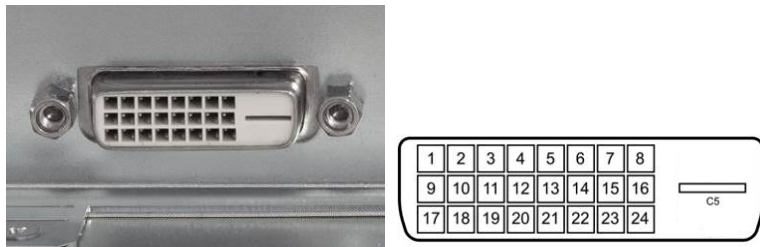
5.1.5 USB2 Type A technical data

Figure 86
USB3.0 detail



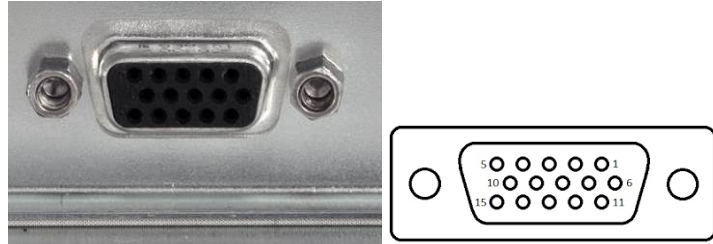
PIN	Signal
1	+5 Vcc
2	USB Data -
3	USB Data +
4	GND

5.1.6 DVI-D technical data



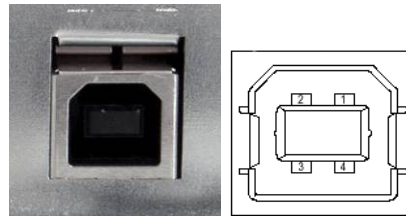
PIN	Signal
1	TMDS Data Channel 2-
2	TMDS Data Channel 2+
3	Shield for TMDS Data 2/4
4	N.C.
5	N.C.
6	DDC Clock
7	DDC Data
8	Analog Vertical Sync
9	TMDS Data Channel 1-
10	TMDS Data Channel 1+
11	Shield for TMDS Data 1/3
12	N.C.
13	N.C.
14	Power (+5V)
15	Ground
16	Hot Plug Detect
17	TMDS Data Channel 0-
18	TMDS Data Channel 0+
19	Shield for TMDS Data 0/5
20	N.C.
21	N.C.
22	TMDS Clock Shield
23	TMDS Clock+
24	TMDS Clock -
C5	Analog Ground

5.1.7 VGA technical data



PIN	Signal
1	Red video
2	Green video
3	Blue video
4	ID GND
5	DCC GND
6	Red GND
7	Green GND
8	Blue GND
9	DDC +5V
10	GND
11	ID GND
12	Bi-Directional Data (SDA)
13	H.Sync
14	V.Sync
15	Data Clock (SCL)

5.1.8 USB Type B technical data



PIN	Signal
1	+5 Vcc
2	Data -
3	Data +
4	GND

5.1.9 Dimension Drawings

5.1.9.1 15.6" bottom attack

Figure 87
15.6" bottom attack dimensions

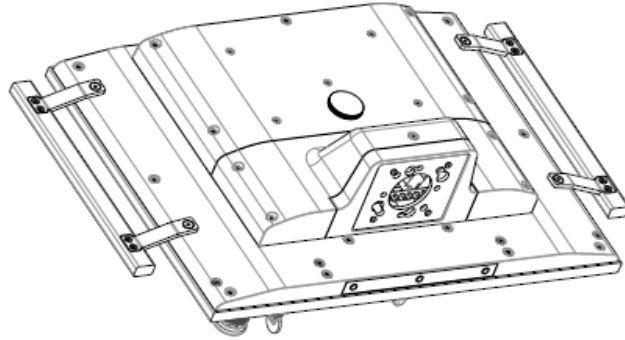


Figure 88
15.6" bottom attack dimensions

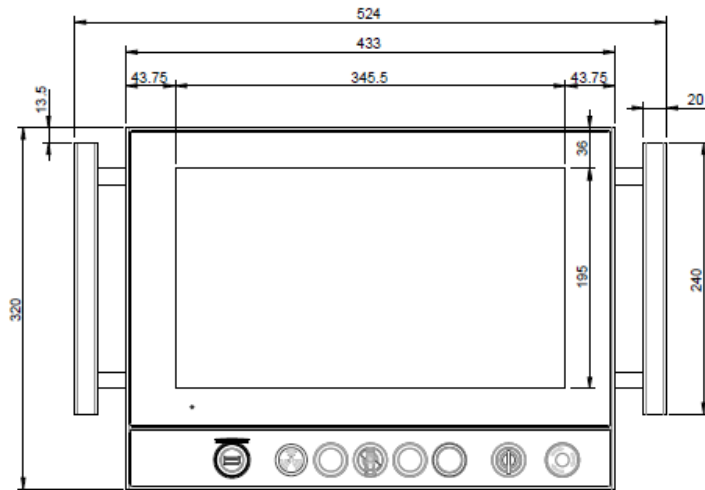


Figure 89
15.6" bottom attack dimensions

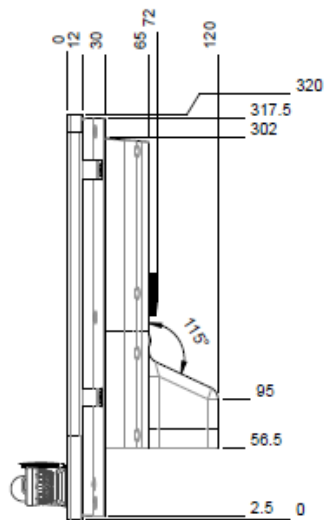


Figure 90
15.6" bottom attack dimensions

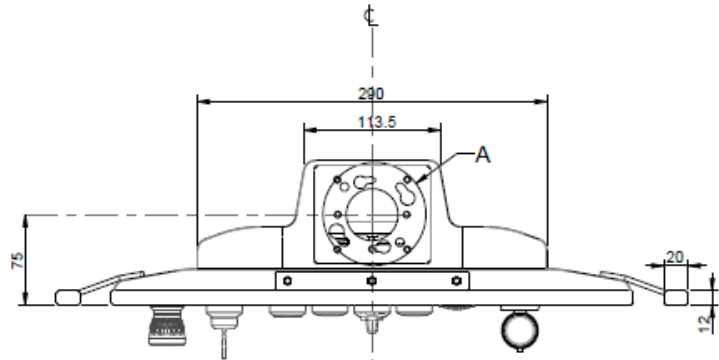


Figure 91
15.6" bottom attack dimensions

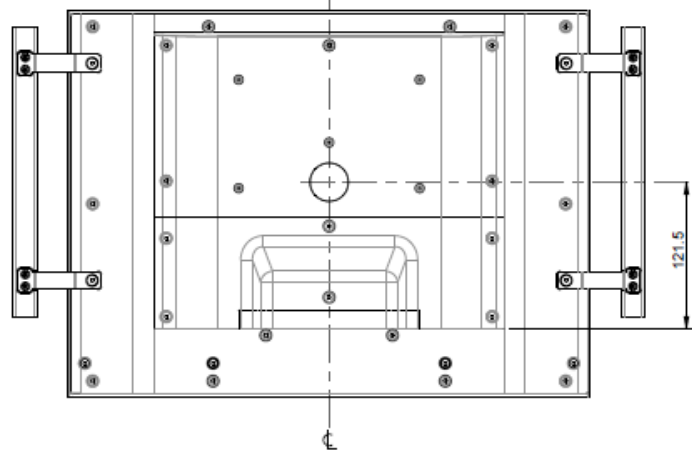
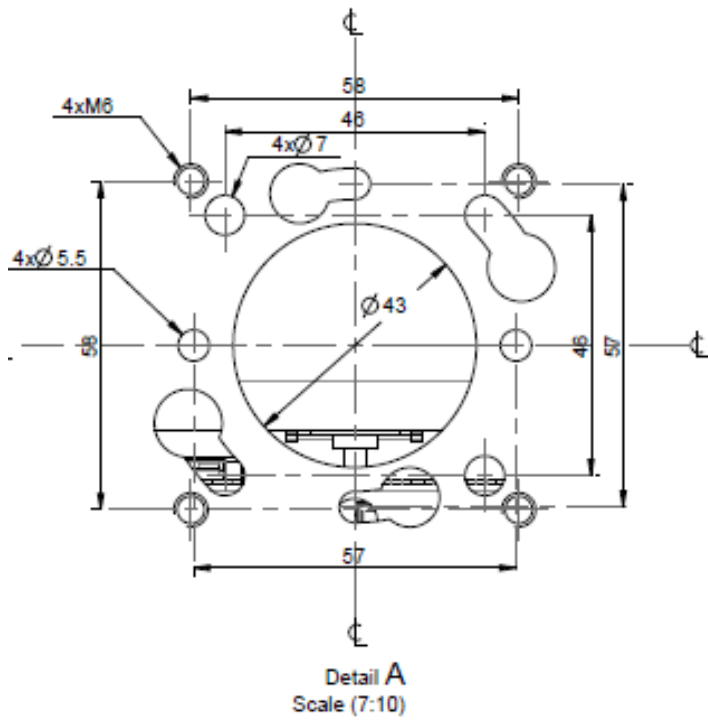


Figure 92
15.6" bottom attack dimensions



5.1.9.2 15.6" top attack

Figure 93
15.6" top attack dimensions

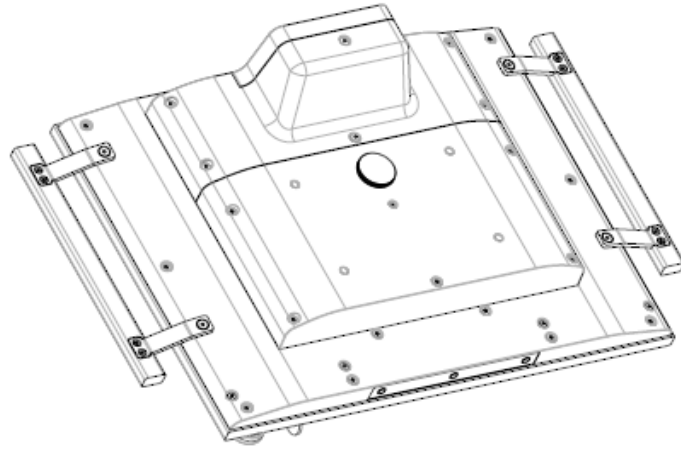


Figure 94
15.6" top attack dimensions

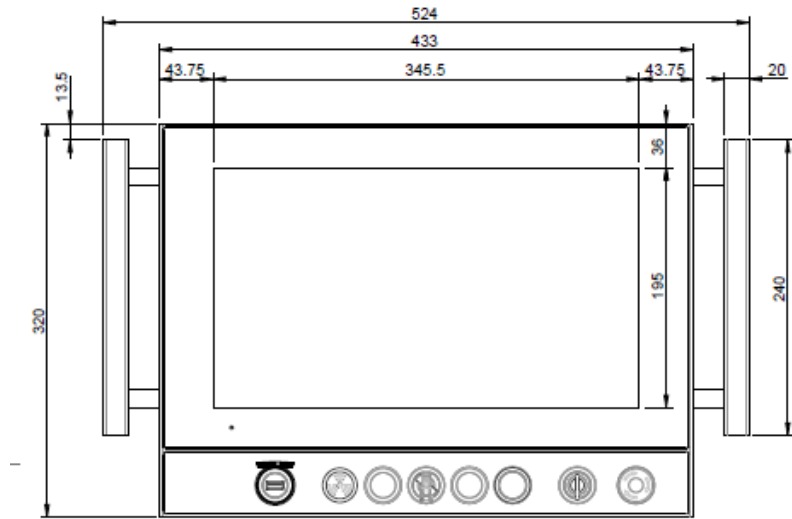


Figure 95
15.6" top attack dimensions

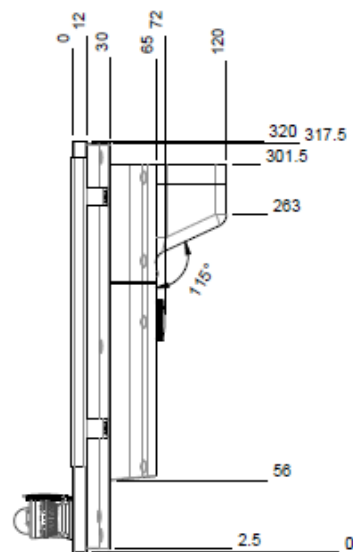


Figure 96
15.6" top attack dimensions

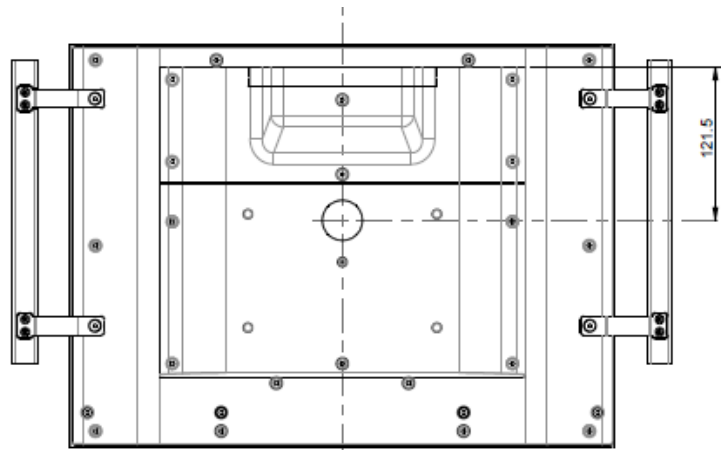


Figure 97
15.6" top attack dimensions

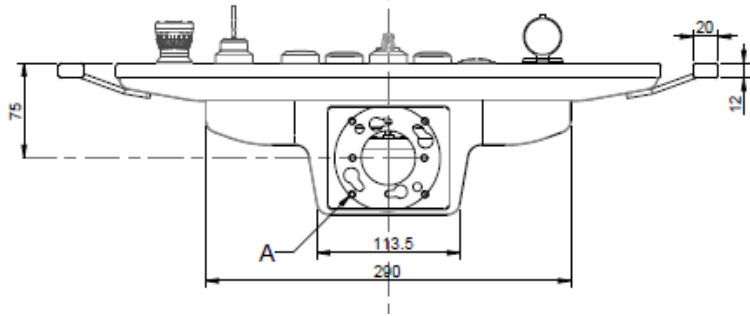
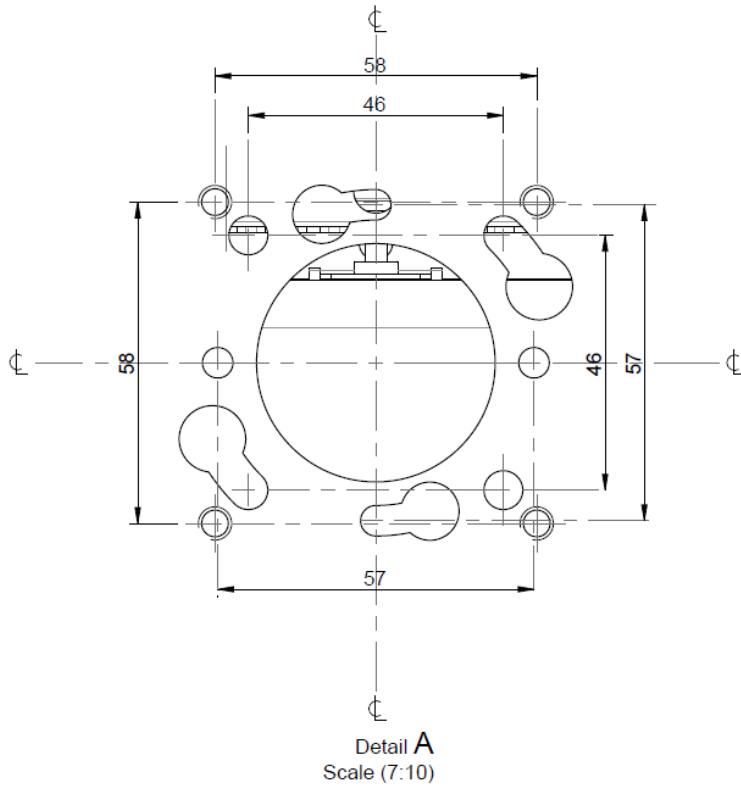


Figure 98
15.6" top attack dimensions



5.1.9.3 18.5" bottom attack

Figure 99
18.5" bottom attack dimensions

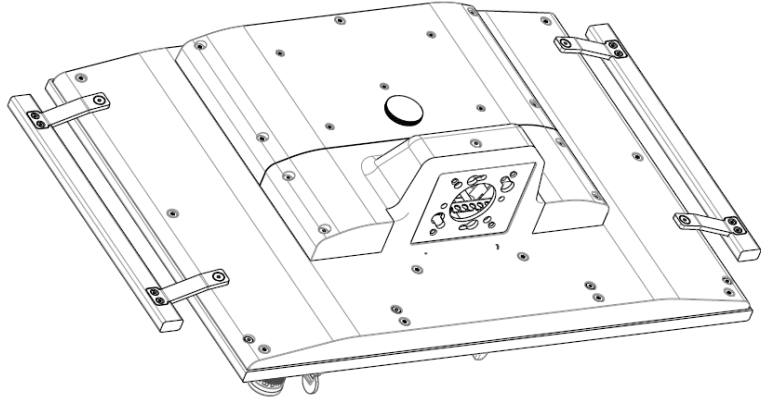


Figure 100
18.5" bottom attack dimensions

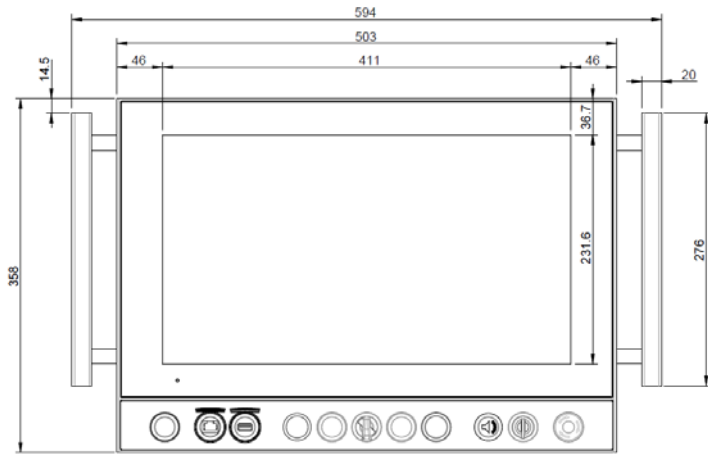


Figure 101
18.5" bottom attack dimensions

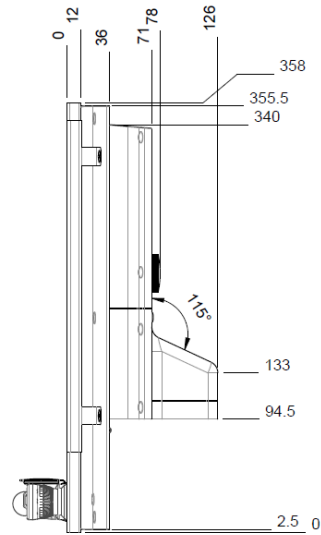


Figure 102
18.5" bottom attack dimensions

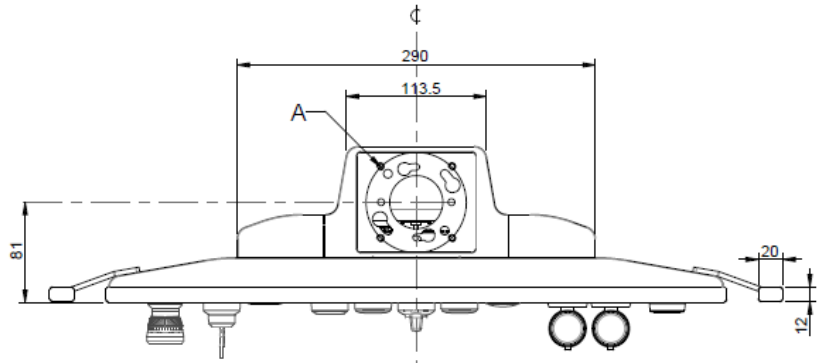


Figure 103
18.5" bottom attack dimensions

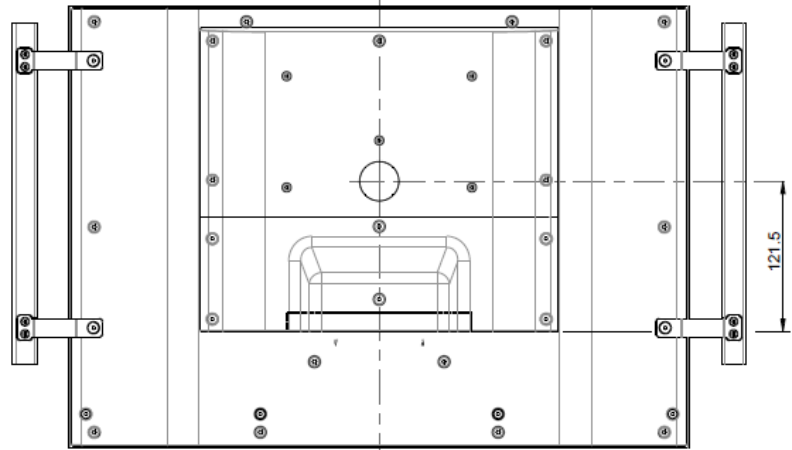
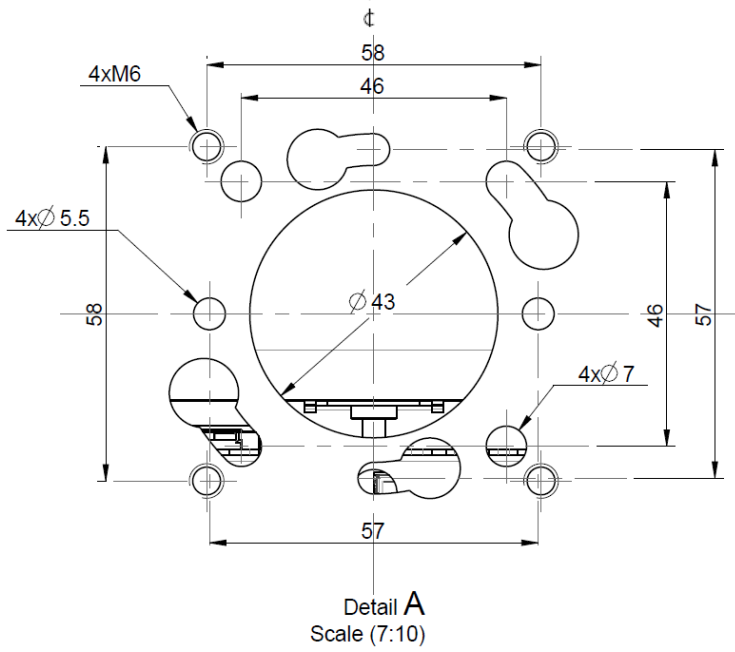


Figure 104
18.5" bottom attack dimensions



5.1.9.4 18.5" top attack

Figure 105
18.5" top attack dimensions

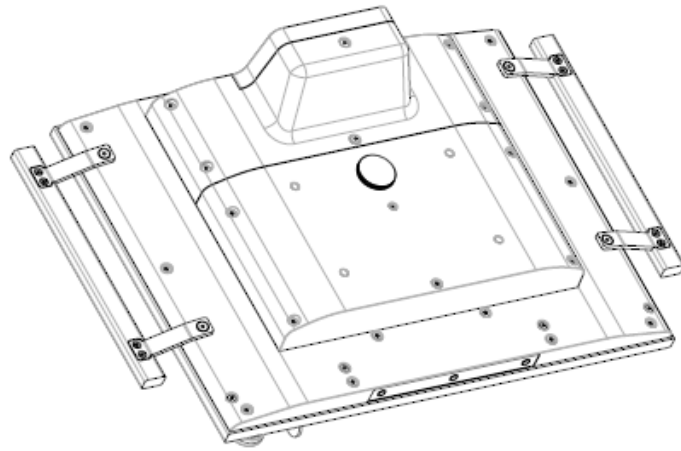


Figure 106
18.5" top attack dimensions

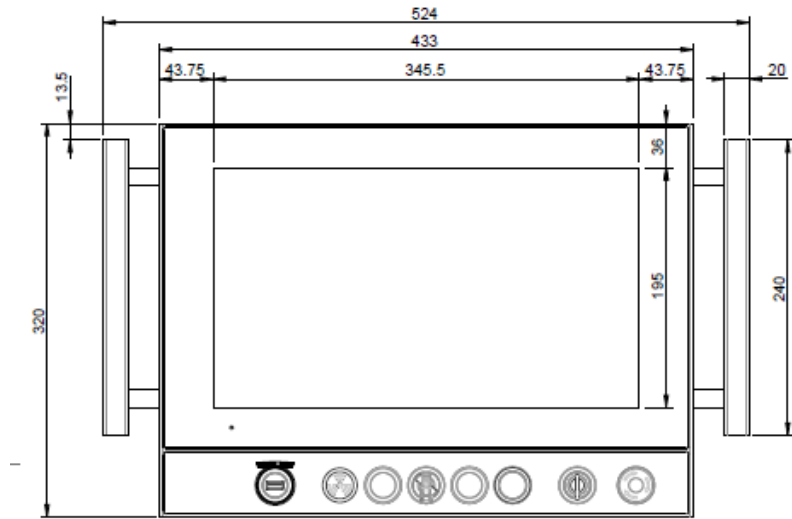


Figure 107
18.5" top attack dimensions

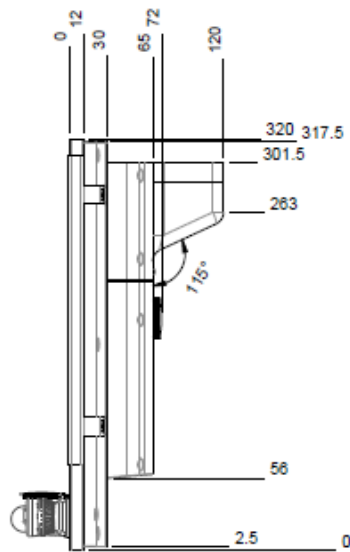


Figure 108
18.5" top attack dimensions

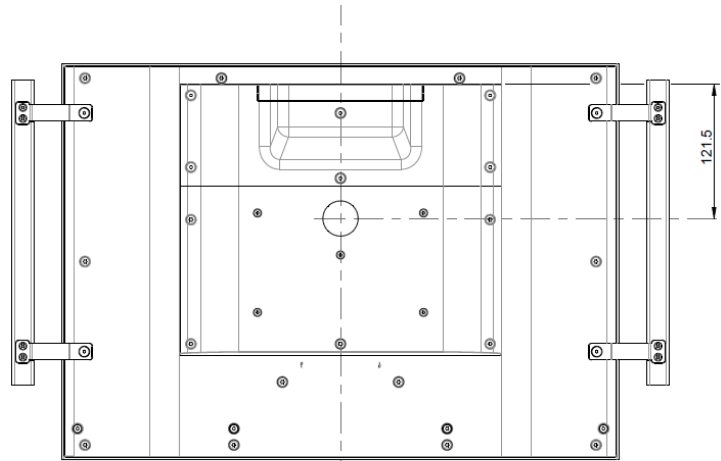


Figure 109
18.5" top attack dimensions

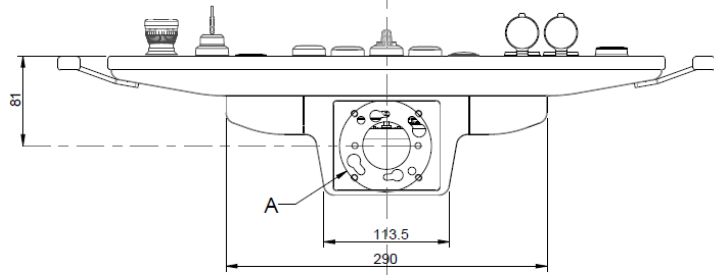
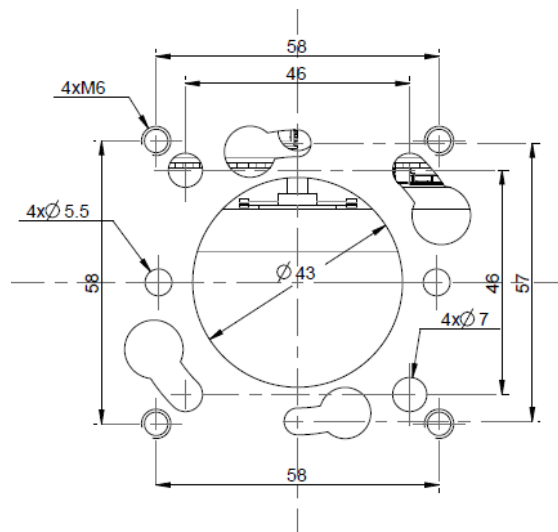


Figure 110
18.5" top attack dimensions



5.1.9.5 21.5" bottom attack

Figure 111
21.5" bottom attack dimensions

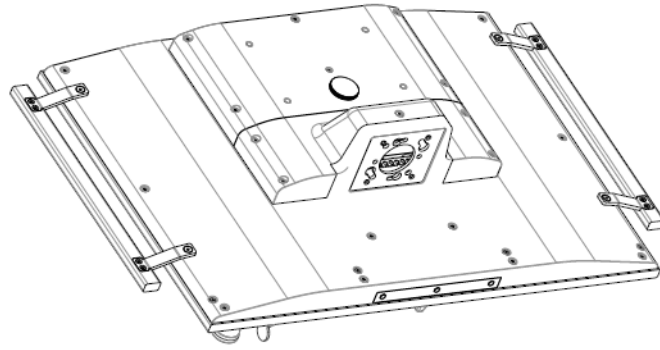


Figure 112
21.5" bottom attack dimensions

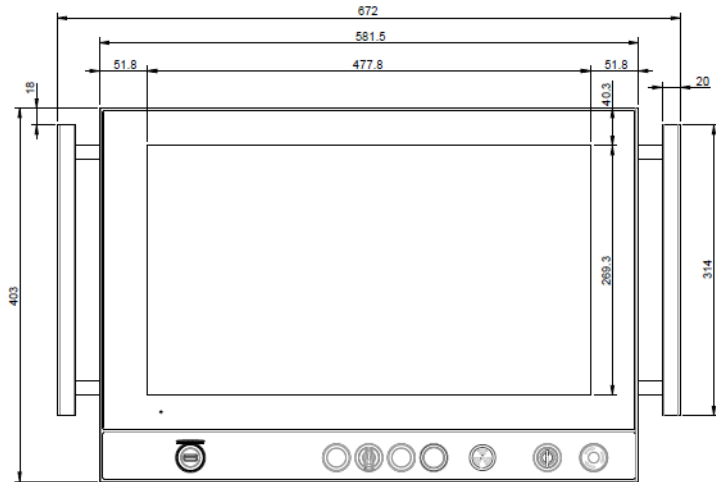


Figure 113
21.5" bottom attack dimensions

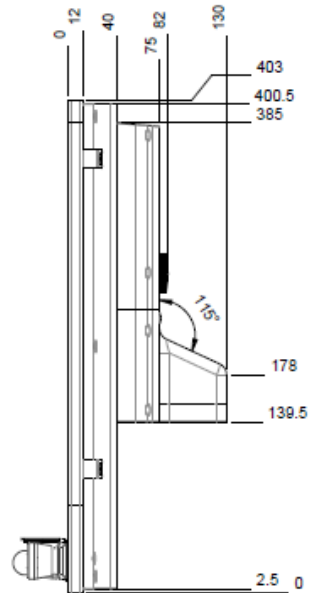


Figure 114
21.5" bottom attack dimensions

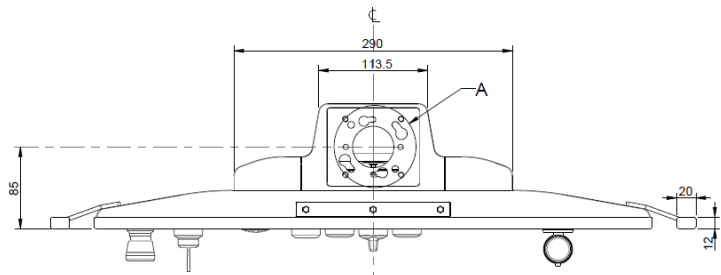


Figure 115
21.5" bottom attack dimensions

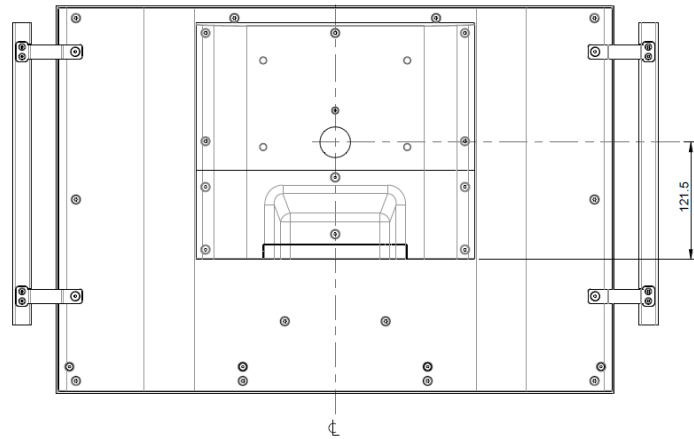
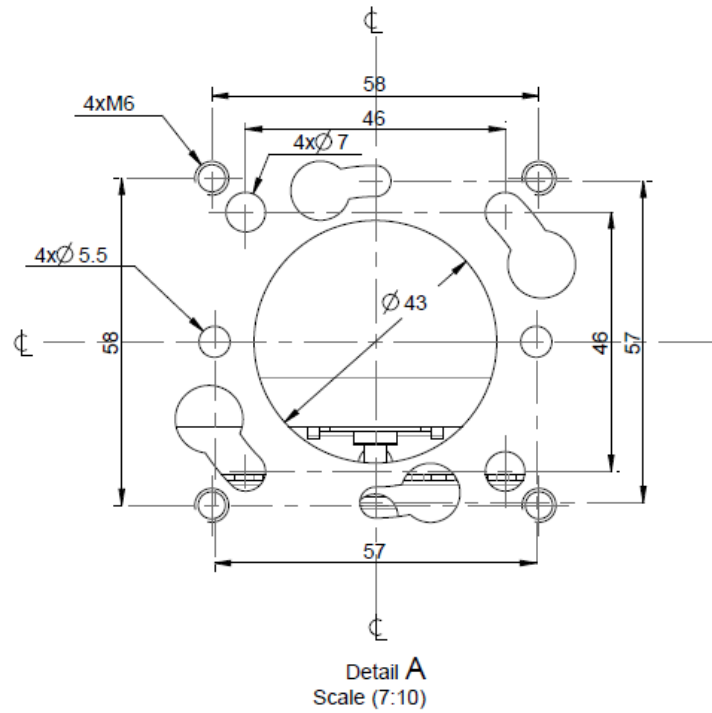


Figure 116
21.5" bottom attack dimensions



5.1.9.6 21.5" top attack

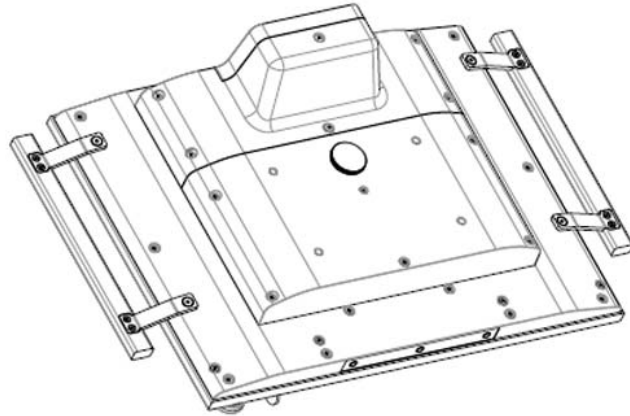


Figure 117
21.5" bottom attack dimensions

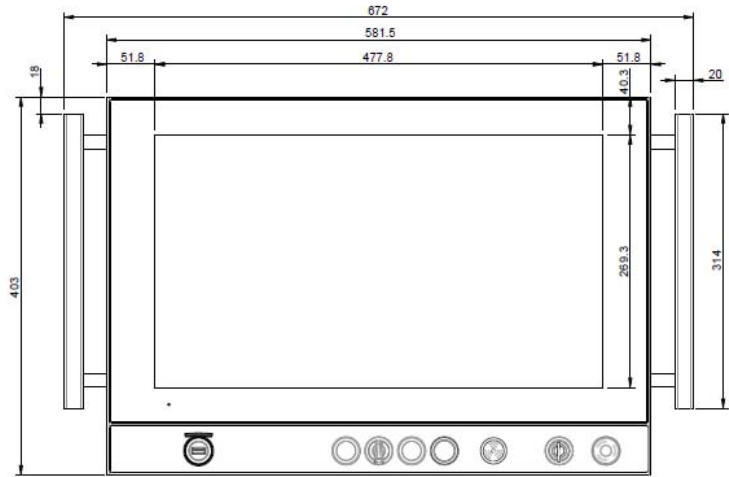


Figure 118
21.5" bottom attack dimensions

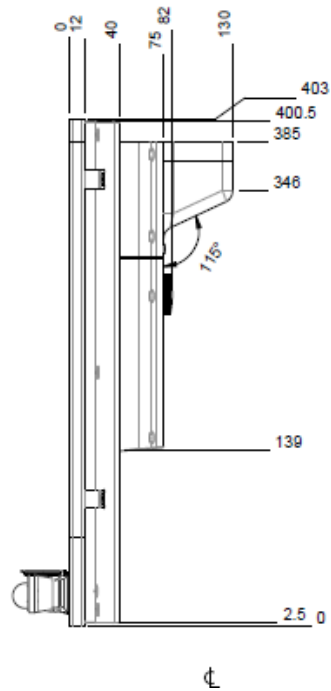


Figure 119
21.5" bottom attack dimensions

Figure 120
21.5" bottom attack dimensions

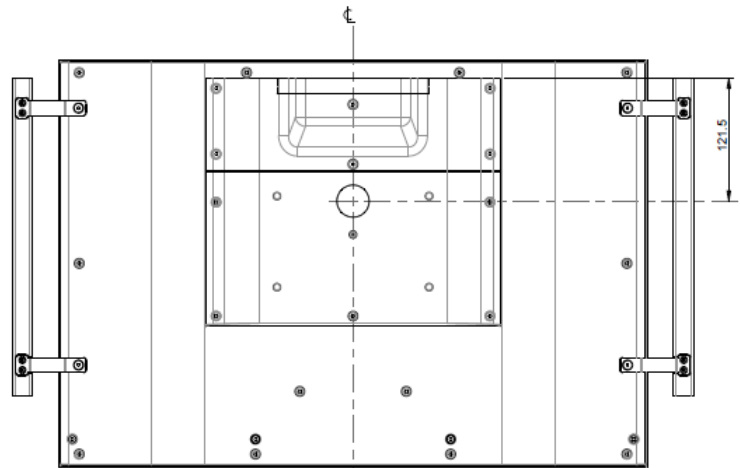


Figure 121
21.5" bottom attack dimensions

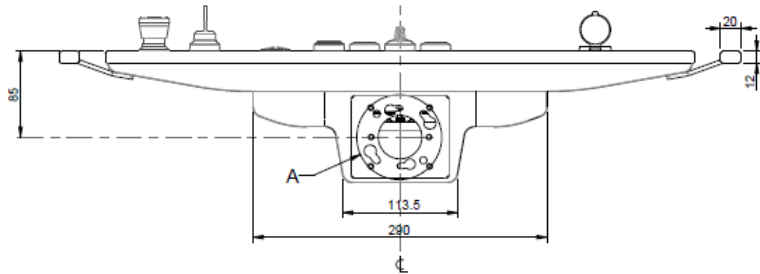
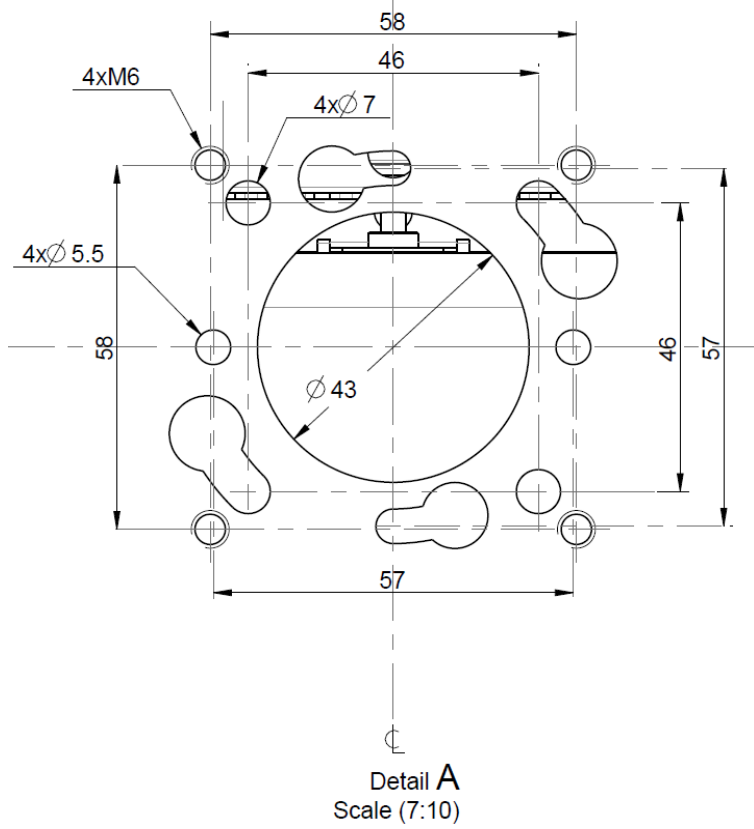


Figure 122
21.5" bottom attack dimensions



5.1.9.7 21.5" bottom attack with handles

Figure 123
21.5" top attack dimensions

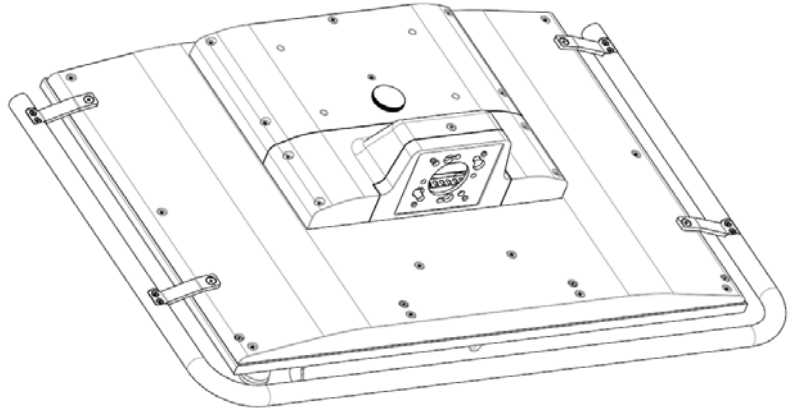


Figure 124
21.5" top attack dimensions

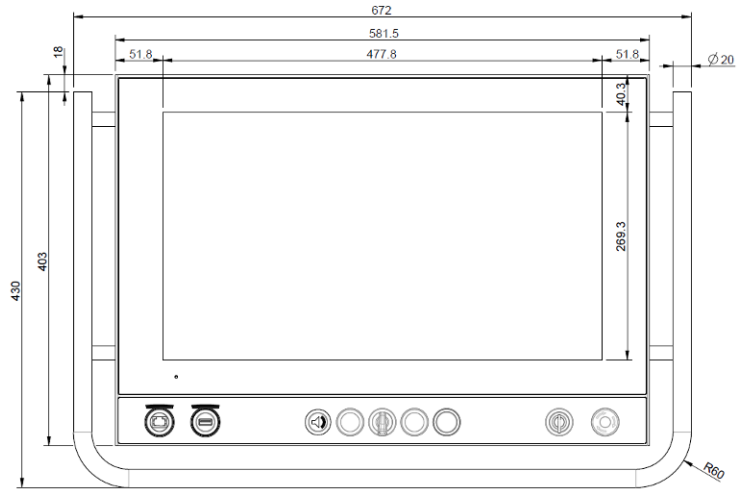


Figure 125
21.5" top attack dimensions

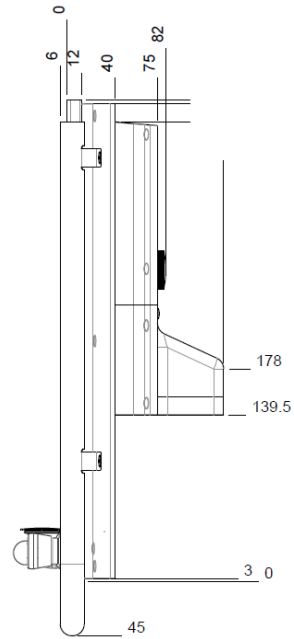


Figure 126
21.5" top attack dimensions

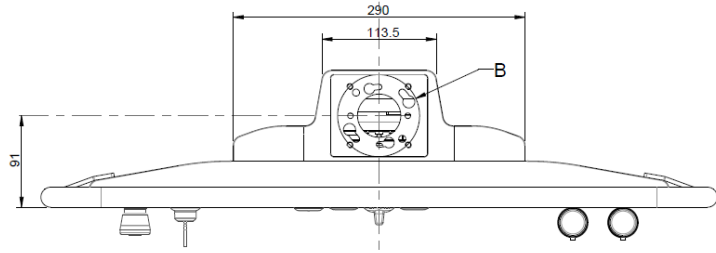


Figure 127
21.5" top attack dimensions

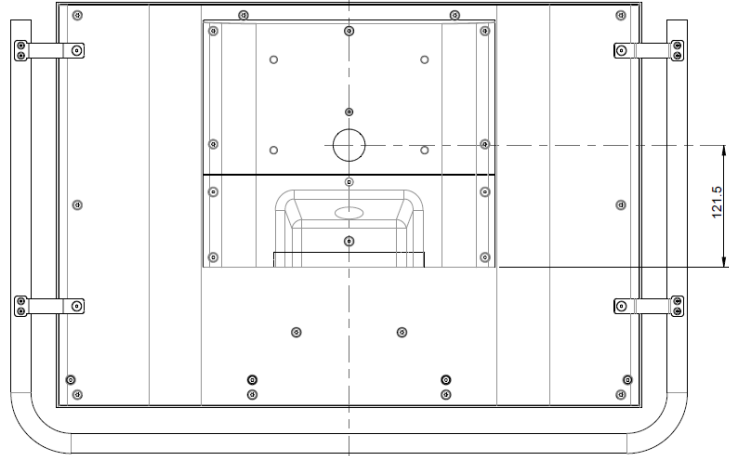
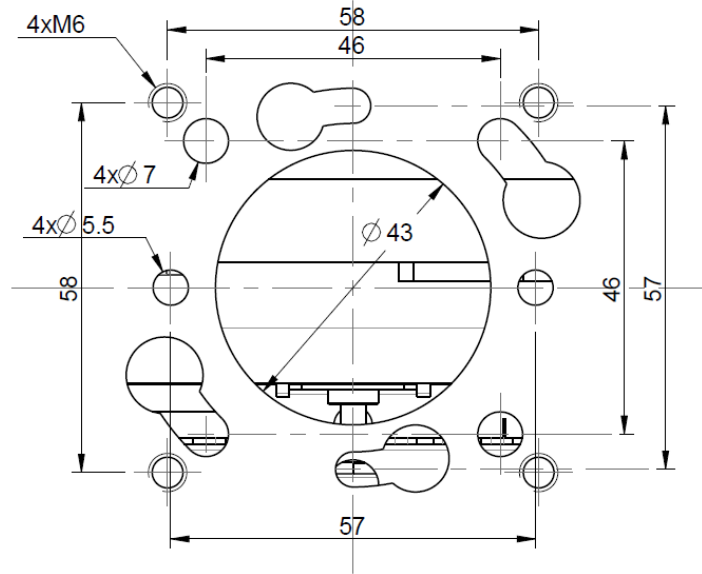


Figure 128
21.5" top attack dimensions



5.1.9.8 21.5" top attack with handles

Figure 129
21.5" top attack dimensions

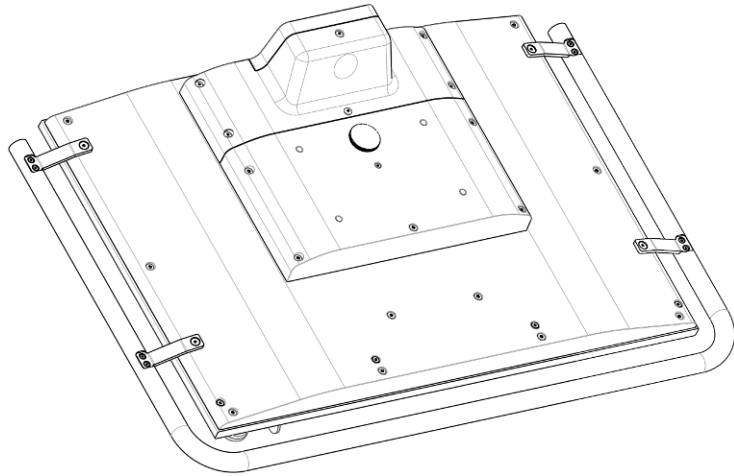


Figure 130
21.5" top attack dimensions

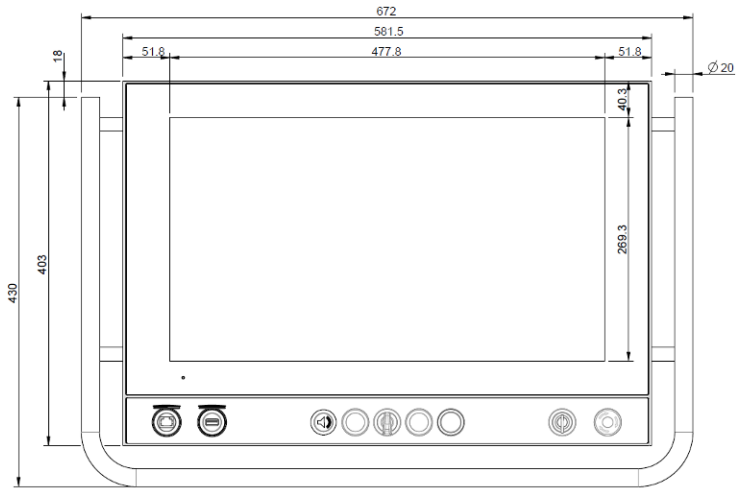


Figure 131
21.5" top attack dimensions

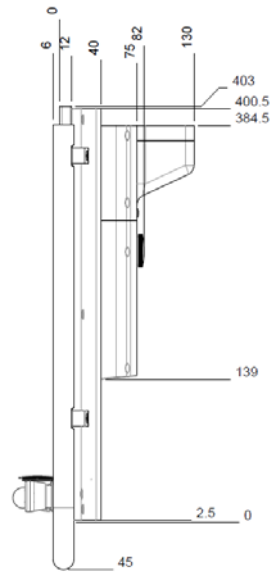


Figure 132
21.5" top attack dimensions

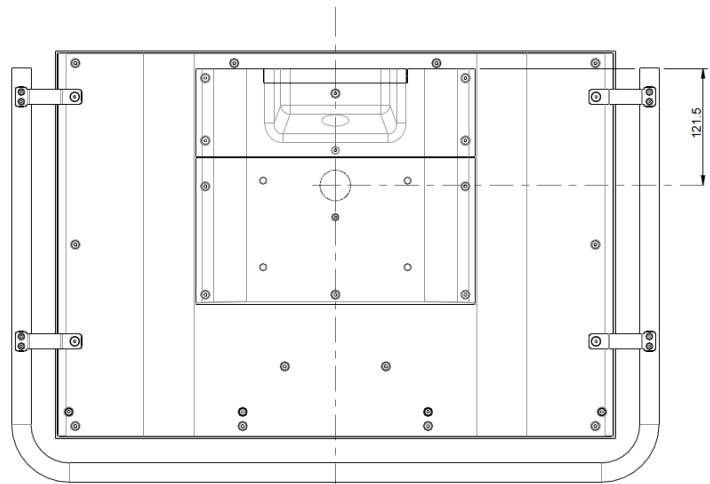


Figure 133
21.5" top attack dimensions

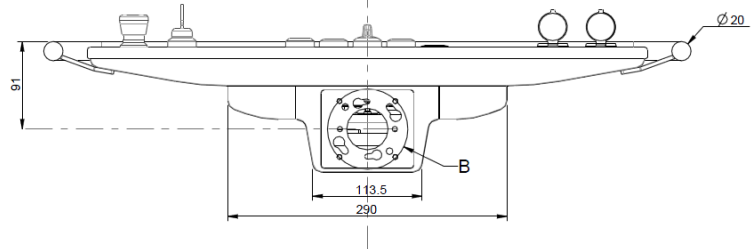
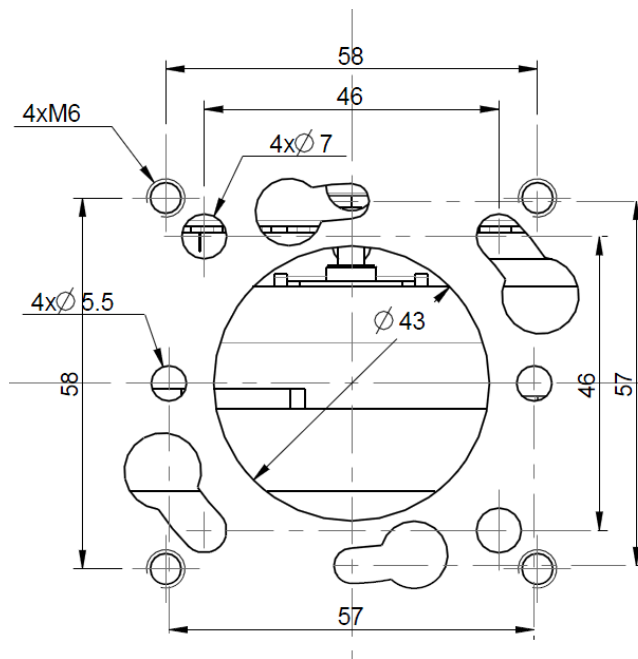


Figure 134
21.5" top attack dimensions



5.1.9.9 24.0" bottom attack

Figure 135
24.0" bottom attack dimensions

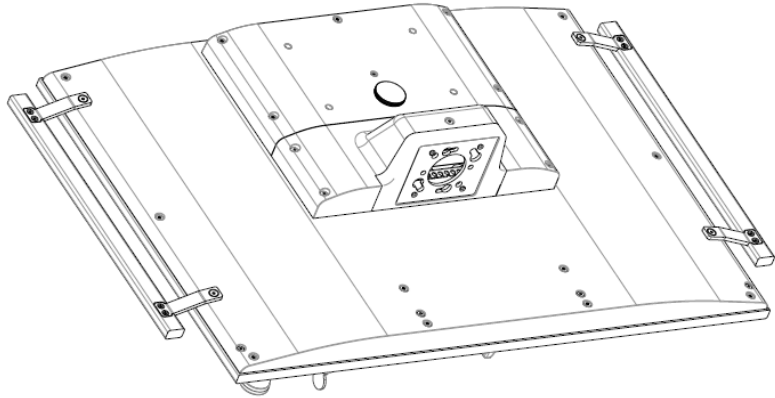


Figure 136
24.0" bottom attack dimensions

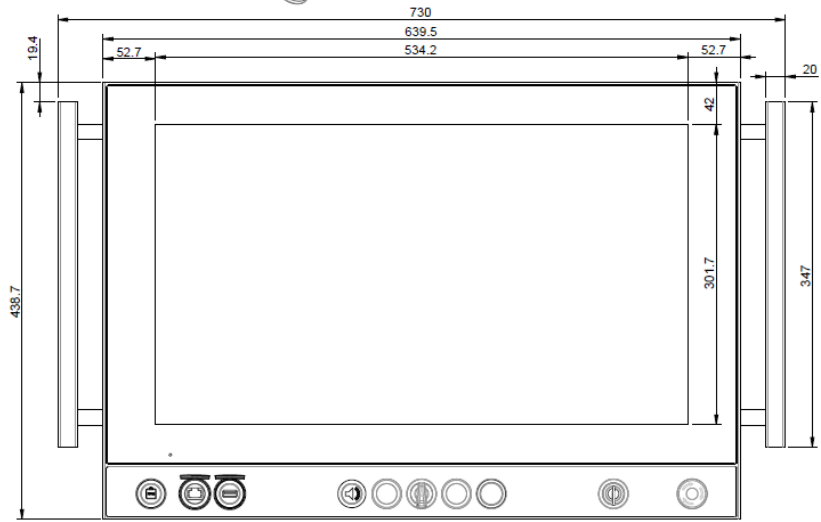


Figure 137
24.0" bottom attack dimensions

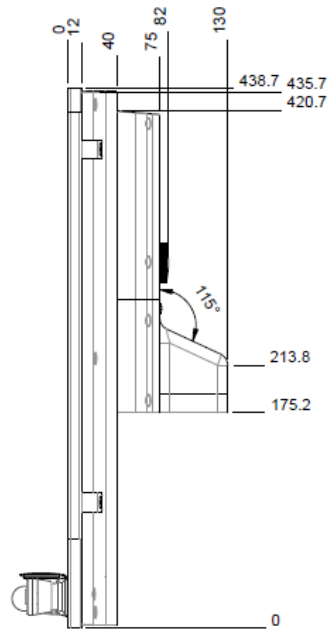


Figure 138
24.0" bottom attack dimensions

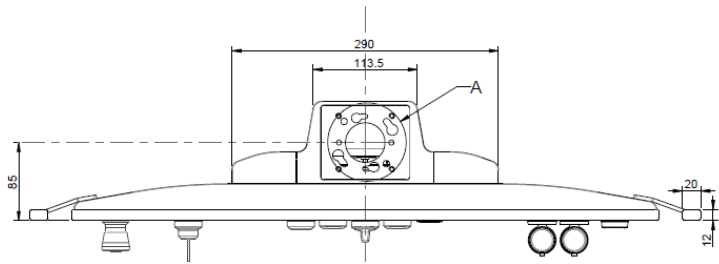


Figure 139
24.0" bottom attack dimensions

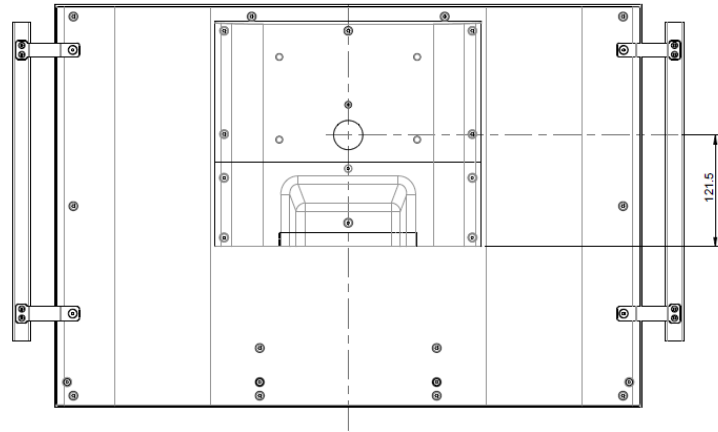
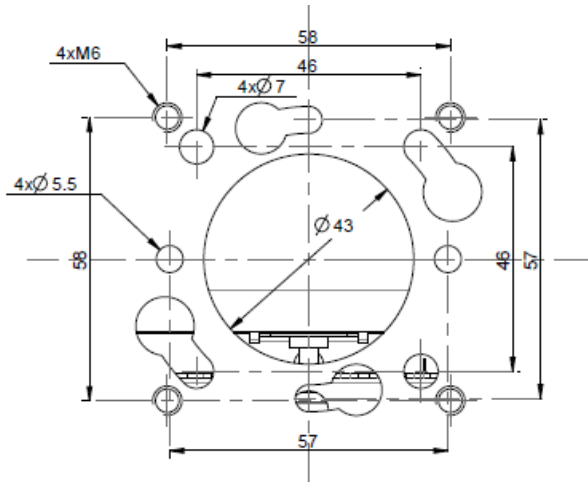


Figure 140
24.0" bottom attack dimensions



5.1.9.10 24.0" top attack

Figure 141
24.0" top attack dimensions

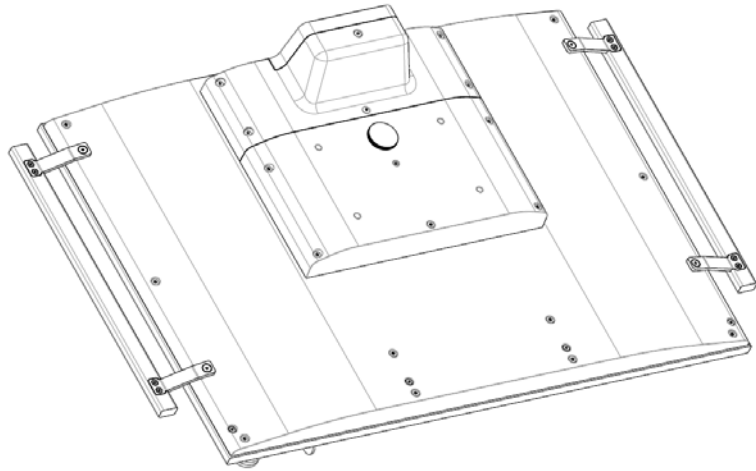


Figure 142
24.0" top attack dimensions

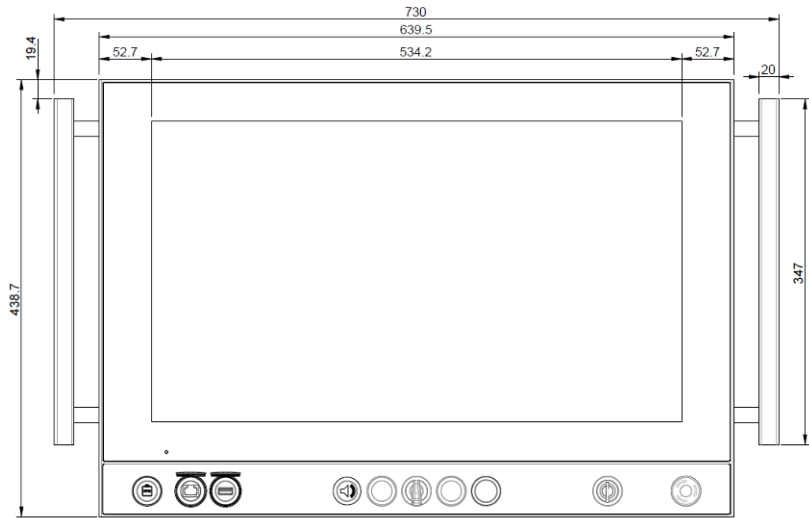


Figure 143
24.0" top attack dimensions

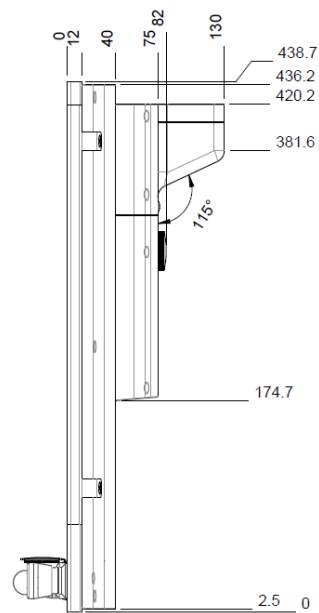


Figure 144
24.0" top attack dimensions

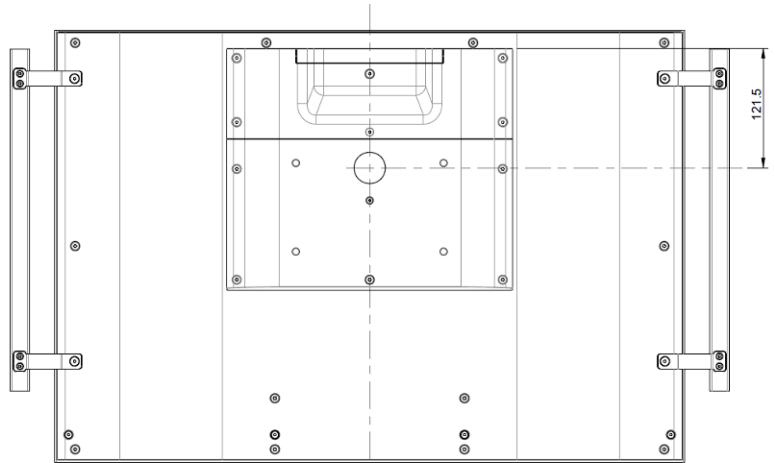


Figure 145
24.0" top attack dimensions

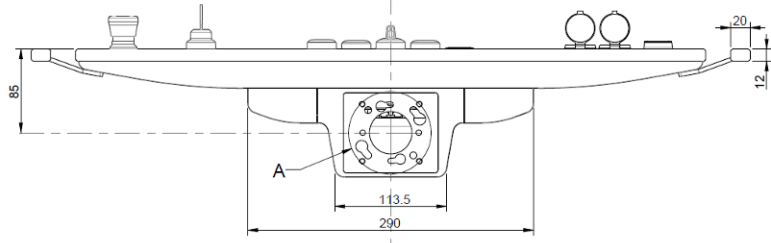
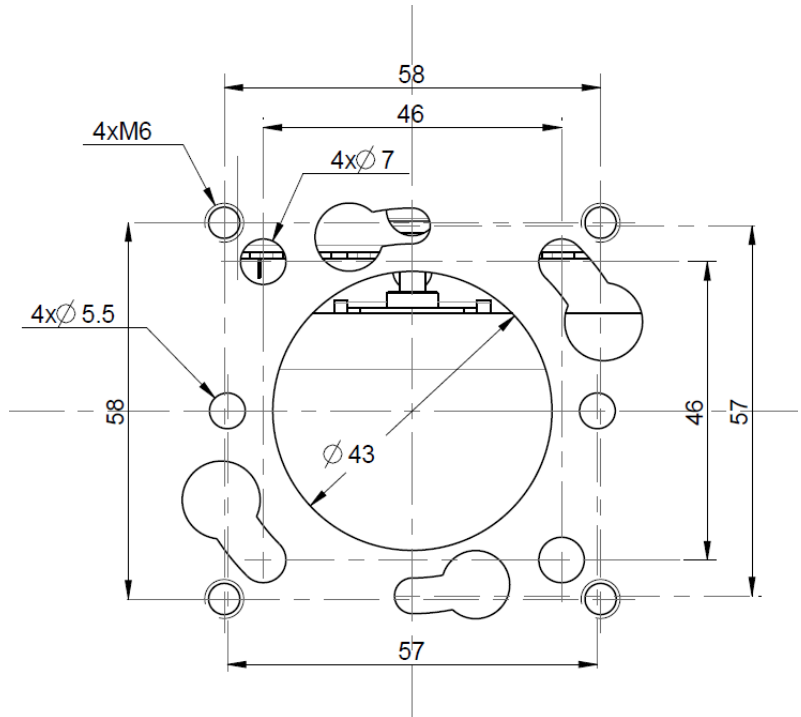


Figure 146
24.0" top attack dimensions



5.2 Technical support & repairs

KEB offers wide-ranging, complete after-sales technical support. The staff who deal with this handle questions on the entire range of products skilfully, quickly, and efficiently.

You can phone our staff in the service department, and they will give you complete, prompt advice on how to resolve your problems.

telephone: +49 5263 401-0
fax: +49 5263 401-116
e-mail: combicontrol@keb.de

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