» User Guide «

CC300 Operator Panel

User Guide (Preliminary Version 0.2)

P/N: XXXX-XXXX

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2. Introduction

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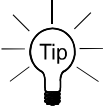
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Germany

2.1. Symbols used in this User Guide

Symbol   **Meaning**

This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.

This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.

This symbol indicates general information about the product and the user guide.

This symbol indicates detail information about the specific product configuration.

This symbol precedes helpful hints and tips for daily use.

3. Important Instructions

This chapter contains instructions which must be observed when using the CC300 Operator Panel. The manufacturer's instructions provide useful information on your device.

3.1. Note on the Warranty

Due to their limited service life, parts which by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law. This applies to batteries, for example.

3.2. Exclusion of Accident Liability Obligation

Kontron Europe GmbH shall be exempted from the statutory accident liability obligation if the user fails to observe the included document: "General Safety Instructions for IT Equipment" the hints in this manual or eventually the warning signs label on the device.

3.3. Liability Limitation / Exemption from the Warranty Obligation

In the event of damage to the device caused by failure to observe the included document "General Safety Instructions for IT Equipment", the hints in this manual or eventually the warning signs label on the device, Kontron Europe GmbH shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.

4. General Safety Instructions for IT Equipment

Please read this section carefully and observe the instructions for your own safety and correct use of the device.

Observe the warnings and instructions on the device and in the manual.

The CC300 Operator Panel has been built and tested by Kontron Europe in accordance to IEC/EN/UL/CSA 60950-1 (EN60950/VDE0805) and left the company in a perfectly safe condition.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

❑ This product shall be supplied by 60950-1 LPS or NEC Class 2 power supply.

❑ The device must be used in accordance with the instructions for use.

❑ The electrical installations in the room must correspond to the requirements of the local (country-specific) regulations.

❑ For DC power connection:
The DC power source should be able to be switched off and on via an isolating switch.
The unit is only completely disconnected from the DC main power source, when the DC power cord is disconnected either from the power source or the unit. Therefore, the DC power cord and its connectors must always remain easily accessible.

❑ Do not place the device in direct sunlight, near heat sources or in a damp place. Make sure the device has adequate ventilation.

❑ Only devices and components which fulfill the requirements of an SELV circuit (safety extra low voltage) in accordance with EN60950 may be connected to the interfaces of the system.

❑ The device is designed to be used in vertical (diagonal) position.

❑ The device generates heat during operation. Make sure it is adequately ventilated. Do not cover the cooling fins on the rear side of the device.

❑ Maintenance or repair on the open device may only be carried out by qualified personnel authorized by Kontron Europe GmbH which is aware of with the associated dangers.

❑ The device may only be opened in accordance with the description in this user guide for replacing the Lithium battery. The device must be switched off and disconnected from the power source.

❑ Only approved original accessories (optional parts) approved by Kontron Europe GmbH may be used.

❑ The DC-input must fulfill SELV requirements of EN60950-1 standard.

❑ The chassis of the CC300 Operator Panel must be protective earthed by establishing a **large-area contact** between the grounding cable and an appropriate grounding connection point.

❑ It must be assumed that safe operation is no longer possible,

- if the device has visible damage or
- if the device no longer functions.

In these cases the device must be shut down and secured against unintentional operation.

4.1. Electrostatic Discharge (ESD)

A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry. Therefore proper packaging and grounding techniques are necessary precautions to prevent damage. Always take the following precautions:

1. Transport boards in ESD-safe containers such as boxes or bags.

2. Keep electrostatic sensitive parts in their containers until they arrive at the ESD-safe workplace.

3. Always be properly grounded when touching a sensitive board, component, or assembly.

4. Store electrostatic-sensitive boards in protective packaging or on antistatic mats.

4.1.1. Grounding Methods

The following measures help to avoid electrostatic damages to the device:

1. Cover workstations with approved antistatic material. Always wear a wrist strap connected to workplace as well as properly grounded tools and equipment.

2. Use antistatic mats, heel straps, or air ionizers for more protection.

3. Always handle electrostatic sensitive components by their edge or by their casing.

4. Avoid contact with pins, leads, or circuitry.

5. Turn off power and input signals before inserting and removing connectors or connecting test equipment.

6. Keep work area free of non-conductive materials such as ordinary plastic assembly aids and styrofoam.

7. Use field service tools such as cutters, screwdrivers, and vacuum cleaners which are conductive.

8. Always place drives and boards PCB-assembly-side down on the foam.

4.2. Instructions for the Lithium Battery

The installed mainboard is equipped with a lithium battery.

For the replacing of this battery please observe the instructions described in the "**Replacing the Lithium Battery**" chapter.

Warning

Danger of explosion when replacing with wrong type of battery. Replace only with the same or equivalent type recommended by the manufacturer. The lithium battery type must be UL listed.

Do not dispose of lithium batteries in general trash collection. Dispose of the battery according to the local regulations dealing with the disposal of these special materials, (e.g. to the collecting points for dispose of batteries).

5. Electromagnetic Compatibility

5.1. Electromagnetic Compatibility (EU)

This product is intended only for use in industrial areas. The most recent version of the EMC guidelines (EMC Directive 2004/108/EC) and/or the German EMC laws apply. If the user modifies and/or adds to the equipment (e.g. installation of expansion cards) the prerequisites for the CE conformity declaration (safety requirements) may no longer apply.

Warning!
This is a class A product. In domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

5.2. FCC Statement (USA)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

(English): This Class A digital apparatus complies with the Canadian ICES-003.

(French): Cet appareil numérique de la class A est conforme à la norme NMB-003 du Canada.

5.3. Nameplate of the CC300 Operator Panel

The nameplate is located at the bottom rear side of the cabinet (see also Fig. 17, Pos. 8)

Fig. 1: CC300 Operator Panel - Nameplate

6. Scope of Delivery and optional Parts

Scope of Delivery:	❑ CC300 Operator Panel
Optional Parts:	❑ DP cable ❑ Blind panel ❑ Add-on panel ❑ Expansion panel ❑ Expansion panel 2F

7. Product Description

The CC300 operator panel is a Human Machine Interface (HMI) system designed for demanding industrial applications. As a workstation system with integrated touch screen display it is designed for installation in an instrument panel or other cabinets. For better handling and readability the operator panel can be tilt continuously out of its vertical position up to a maximum tilt angle of 45 degrees by a linear actuator (outwards, with the lower edge ahead).

Das CC300 operator panel consists of two main parts, the front plate and the rear cover.

The front of the CC300 operator panel is designed in glass; between the glass and the 21.5"display a PCAP touch (capacitive touch with multi-touch capability) is laminated on the glass. In addition, the glass front supports an emergency stop switch, an RFID antenna, capacitive buttons with LED backlight and a rotary/push button with LED backlight.

The rear cover consists of die cast aluminum and serves the following functions: Heat sink of the system, chassis for assembling of electronic modules, holder of the linear actuator (of the external tilting mechanism) and cable gland for all outgoing cables.

The CC300 operator panel accommodates an INTEL processor architecture board that will host the "LINUX 64 Bit" operating system. All components, hardware and hardware drivers are designed to support 100% the "ENGEL LINUX x86 64 Bit" operating system. An mSATA drive is installed as storage device. Optionally, the CC300 operator panel can be equipped with a 2.5" SSD or HDD drive.

The CC300 operator panel has two externally accessible USB 2.0 ports located at the left side of the chassis. The position of the USB ports is marked on the front plate with backlit symbols.

The CC300 operator panel provides two external LAN ports. Thus, it can be connected simultaneously e.g. to the corporate LAN and to a stored program control (SPC).

Via the RFID read/write zone at the glass front of the CC300 operator panel e.g. smart cards can be read or written contactless.

The CC300 operator panel is designed for 24V DC operation.

$\boxed{i}$	The CC300 operator panel will not meet any safety functions! Monitoring of all safety-related components (emergency stop, protective covers etc.) will be performed by particular safety modules of the terminal equipment.

☞   The CC300 operator panel complies with IP54 protection class.

The CC300 operator panel is a fanless system. The cooling of the unit is performed by the surface and the cooling fins of the aluminum cover on the rear side of the chassis.

☞   When powering on the CC300 operator panel, make sure that the cooling fins are not obstructed.

The CC300 operator panel can be extended with an add-on panel and one or several expansion panels. The add-on/expansion panels will be connected to the CC300 operator panel via an RS485 cable.

Fig. 2: Bottom view
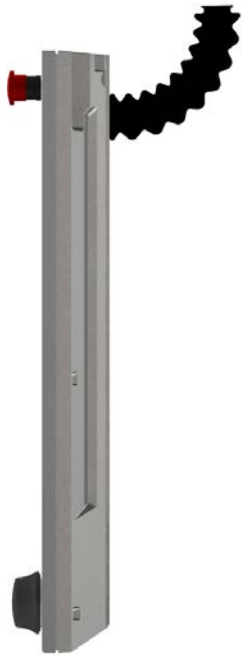
Fig. 3: Right view   *Fig. 4: Front view*   *Fig. 5: Rear view*   *Fig. 6: Left view*
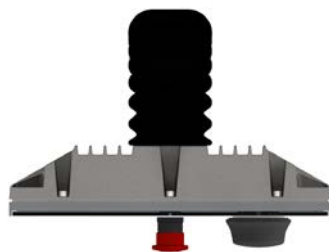
Fig. 7: Top view

Views of the CC300 operator panel (Fig. 2 to Fig. 7) with cable gland, without tilting mechanism.

7.1. Front Side View
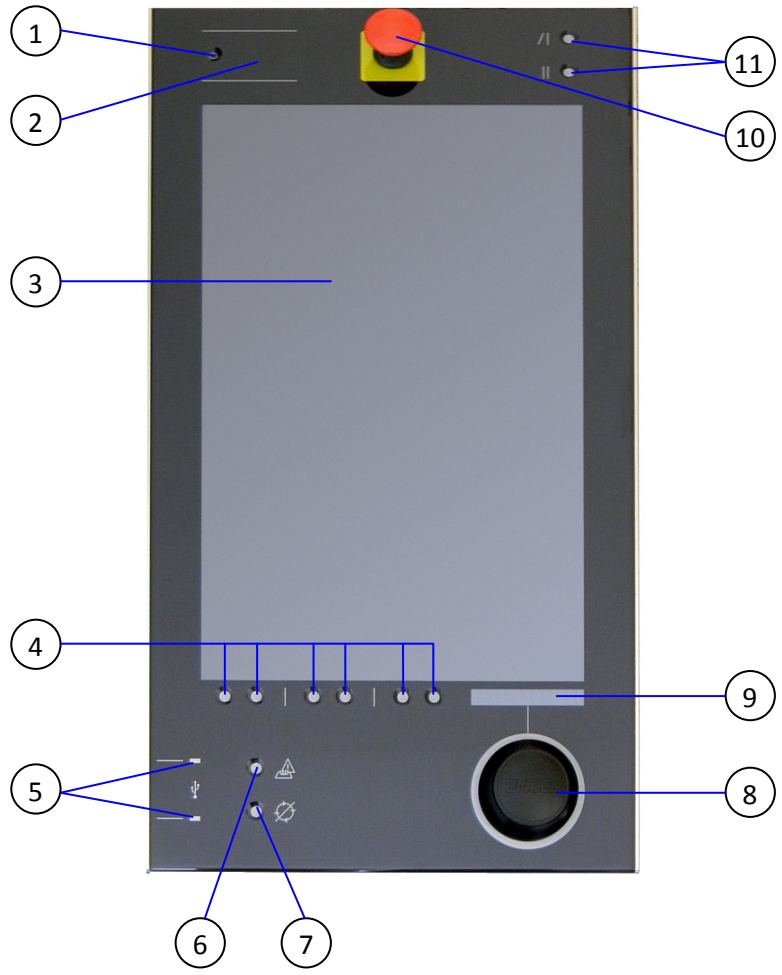
Fig. 8: Front view of the CC300 operator panel

Legend for Fig. 8:

1 On/Off button	7 Program interrupt button
2 RFID read/write zone	8 Rotary/push button (backlit)
3 21.5" TFT display with multi-touch	9 Display of the rotary/push button
4 Traversing buttons	10 Emergency stop switch
5 Markings for the two USB 2.0 ports (laterally mounted)	11 Buttons for tilting out and in the operator panel (up to 45 degrees max.)
6 Permissive button	

7.1.1. On/Off Button
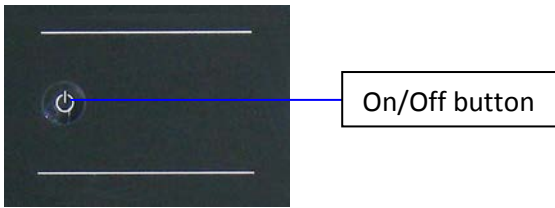
Fig. 9: On/Off button

The On/Off button allows to boot up/shut down the system. It is a capacitive button with white LED backlight, located top left on the front plate (see also Fig. 8, Pos. 1). The button responds to light touch of a finger or but for safety reasons it has to be pressed for 10 seconds (e.g. to initiate a shutdown of the system).

Even when the system is turned off via the On/Off button there is still a standby-voltage on the mainboard. The system is not completely disconnected from the main power supply (DC) by switching off via the On/Off button.

The unit is only completely disconnected from the DC main power supply, when the DC power is cut off by an isolating switch or when the power cord is disconnected either from the DC main power or the unit. Therefore, the DC power cord and its connectors must always remain easily accessible.

To avoid the risk of data loss, always shut down the system before you cut off the power using an isolating switch!

7.1.2.

7.1.3. RFID Read/Write Zone
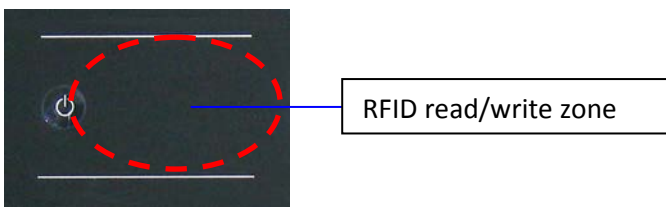
Fig. 10: RFID-read/write zone

On the right side of the On/Off button the RFID read/write zone is located (see also Fig. 8, Pos. 2). At this position the RFID antenna is mounted to the rear side of the front glass. RFID-equipped objects (e.g. ID cards, smart cards, RFID labels) can be read or written by the CC300 operator panel, when held against the front glass within the read/write zone. The RFID data will be processed by the installed software (e.g. user login with different authorizations for different user accounts).

7.1.4. Emergency Stop Switch

Fig. 11: Emergency stop switch

The emergency stop switch is located centered above the display on the glass front (see also Fig. 8, Pos. 10). Machines and processes connected to the contacts of the emergency stop switch (and, where required, also monitored by the CC300 operator panel) can be halted immediately according to EN ISO 13850. For this, the emergency stop button has to be pressed firmly. The switch locks in place and can only be released by turning the knob clockwise.

The emergency stop switch has four (optional: six) switching contacts that cut off the connected 24 V circuits when being pressed.

☞   The emergency stop switch is installed in the CC300 operator panel for the purpose of easy and quick accessibility but it has an entirely independent function.

When the emergency stop switch is pressed, the CC300 operator panel will not be halted or switched off.

7.1.5. Buttons for Tilting the CC300 Operator Panel

Fig. 12: Buttons for tilting out and in the CC300 operator panel

For better handling and readability the operator panel can be tilt continuously out of its vertical position up to a maximum tilt angle of 45 degrees by a linear actuator.

By pressing the "Tilt out" button, the CC300 operator panel tilts outwards (with the lower edge ahead) until the button is released. When the maximum tilt angle of 45 degrees is reached, the tilt-out process will also be stopped.

By pressing the "Tilt in" button, the CC300 operator panel tilts back (with the lower edge ahead) in the direction of the vertical mounting position until the button is released. When the vertical mounting position is reached, the tilt-in process will also be stopped.

The "Tilt out" and "Tilt in" buttons, as well as their symbols, are backlit white. During being pressed, the particular button and the corresponding symbol are backlit blue.

7.1.6. Touch Display

The CC300 operator panel is equipped with a 21.5" TFT display and a capacitive touch (PCAP) with multi-touch capability (see also Fig. 8, Pos. 3). The surface of the display and the touch is protected by the front glass. The touch display responds to the light touch of a finger or glove (the touch display is factory-calibrated for operation with the PU-coated glove types *Solidstar 1327* and *Camapur Cut 620*) and offers the same degree of user comfort as a computer mouse.

For technical specification of the touch display refer to the chapter 9 "Technical Data".

☞   Do not use a hard or a pointed object (like a screw driver) to operate the touch screen or the capacitive buttons, since it can scratch or damage the front glass.

7.1.7. Touch Display Care and Cleaning

☞   The front panel and the touch screen are protected by a continuous glass plate that should be handled with care and cleaned regularly.

Use a lint-free cloth with mild detergent (e.g. glass cleaner) and water for cleaning the glass front. Do not use strong or abrasive detergents or solvents, which could attack plastic parts (e.g. the rotary/push button) or scratch the front glass.

i   The capacitive touch screen is factory-calibrated and needs no recalibration.

7.1.8. Traversing Buttons

Fig. 13: Traversing buttons below the touch display

Directly below the touch display, arranged in pairs, six traversing buttons are located, (see also Fig. 8, Pos. 4), which are processed by the capacitive touch of the display. The function of the buttons may be changed by the software; the current function will be displayed on the display directly above the corresponding buttons.

7.1.9. Markings for the USB Ports
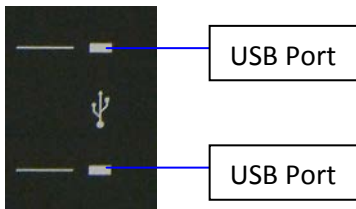
Fig. 14: Markings for laterally mounted USB 2.0 ports

At the bottom left of the front plate, an USB symbol and two markings for the positions of the laterally (behind the front plate) mounted USB 2.0 ports are located (see also Fig. 8, Pos. 5 and Fig. 23). The USB symbol and the markings are backlit white.

7.1.10. Permissive Button and Program Interrupt Button
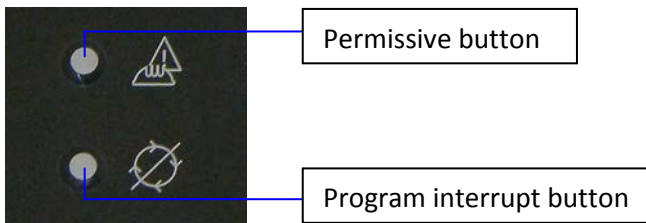
Fig. 15: Permissive button and program interrupt button

Below the traverse buttons, on the right of the USB markings, the permissive button (see also Fig. 8, Pos. 6) and the program interrupt button (see also Fig. 8, Pos. 7) are located.

The capacitive permissive button will be used in certain situations in addition to a traverse button or a button displayed on the display. In idle mode, the permissive button and its related symbol are backlit white. The backlight changes to blue when the permissive button is pressed.

By pressing the capacitive program interrupt button (error acknowledgement button), all upcoming error messages will be acknowledged an a running automatic cycle will be interrupted. In idle mode, the program interrupt button and its related symbol are backlit *white*. The backlight changes to *orange* when the program interrupt button is pressed.

7.1.11. Rotary/Push Button with Display

Display of the rotary/push

Rotary/push button

Illumination of the rotary/push button
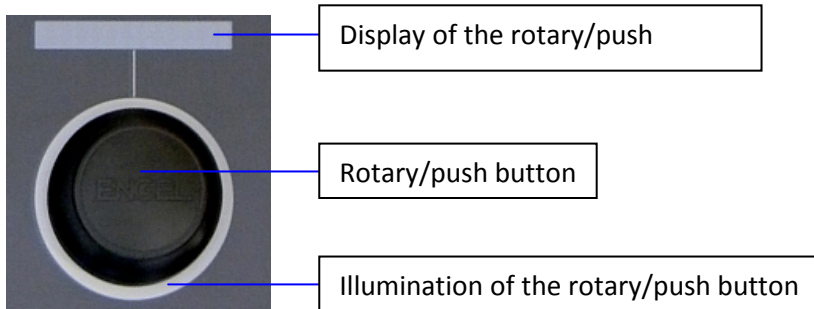
Fig. 16: Rotary/push button with illumination and display

At the bottom right of the front plate, below the touch display, the rotary/push button with display is located (see also Fig. 8, Pos. 8 and Pos. 9). The rotary/push button can be adjusted to the left and to the right to a maximum of 30 degrees and is self-resetting when released. Furthermore, the rotary/push button provides a push button function. Around the rotary/push button a white backlit ring is mounted that can change its color to red, green and orange by software.

The display of the rotary/push button is part of the touch display and visualizes the set values.

7.2. Rear View
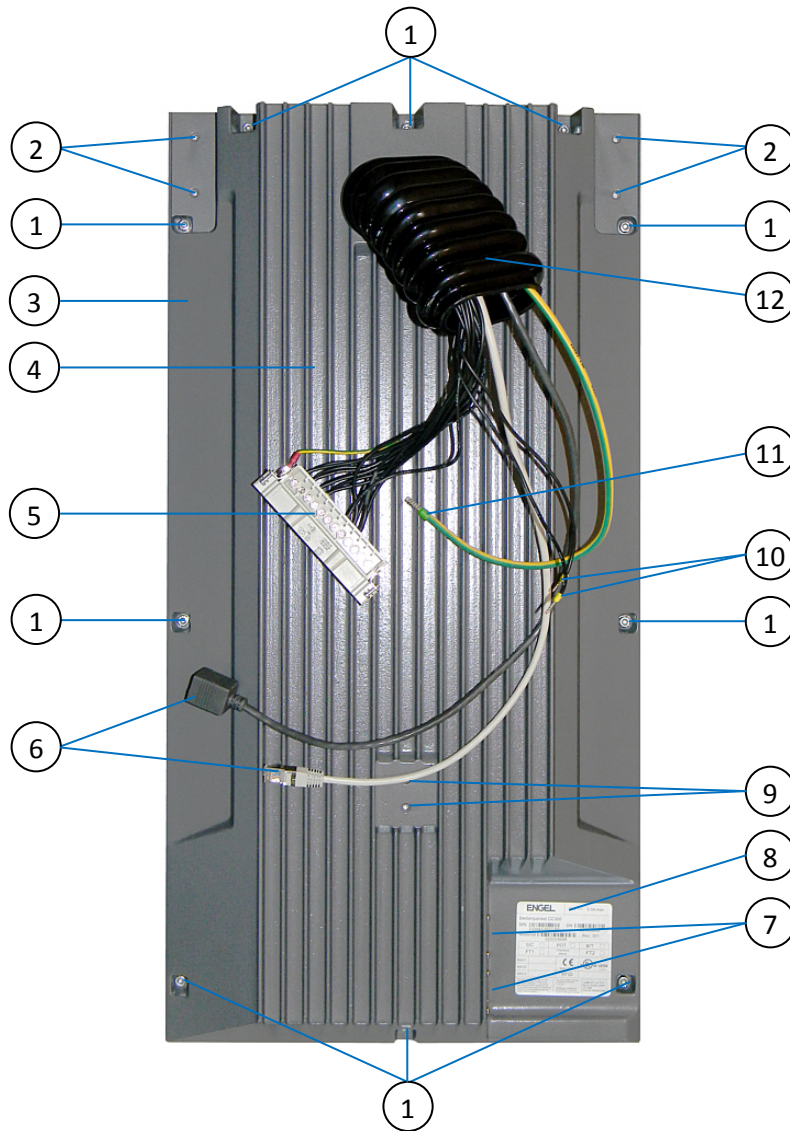
Fig. 17: Rear side of the CC300 operator panel

Legend for Fig. 17 :

1   Screws that secure the rear cover at the front plate

2   Threaded holes for mounting the CC300

3   Aluminum rear cover of the CC300

4   Cooling fins of the aluminum rear cover

5   Harting connector (24-pole)

6   2x LAN cables (Ethernet 10/100/1000; 1x male, 1x female)

7   2x USB 2.0 ports

8   Nameplate

9   Threaded holes for mounting the linear actuator

10 Connection cables for the linear actuator

11 Grounding cable

12 Cable gland (flexible cable inlet)

Optionally, an additional DP cable (DisplayPort cable) can be connected to the mainboard and led out through the cable gland. A digital display can be connected to the DP cable.

7.2.1. Harting Connector

Fig. 18: Harting connector

All outgoing cables of the CC300 operator panel are routed through the cable gland at the rear side of the cabinet (see also Fig. 17, Pos. 12). Except for the cables for the linear actuator and the grounding cable, all single wires are combined in the 24-pole Harting connector (Fig. 18). For the pin assignment of the Harting connector, refer to chapter 10.1.1 "Harting Connector".

7.2.1.1. Power Supply via the Harting Connector

The power supply of the CC300 operator panel will be provided via pin 7 (24 Volts; cable No. 6) and pin 19 (0 Volts; cable No. 5) of the Harting connector.

7.2.1.2. Control and Signal Lines

The power supply of the linear actuator, the interrupt circuits 1 to 4 (optional: 1 to 6) of the emergency stop switch and other control lines (power transformer switch-off, Dig In 1) are also routed through the 24-pin Harting connector. For the pin assignment of the Harting connector, refer to chapter 10.1.1 "Harting Connector".

7.2.2. Connection Cables for the Linear Actuator

The two single cables marked "1" and "2" (see Fig. 17, Pos. 10) will be connected to the linear actuator of the tilting mechanism.

7.2.3. Grounding Cable (PE)

Grounding cable (yellow/green)
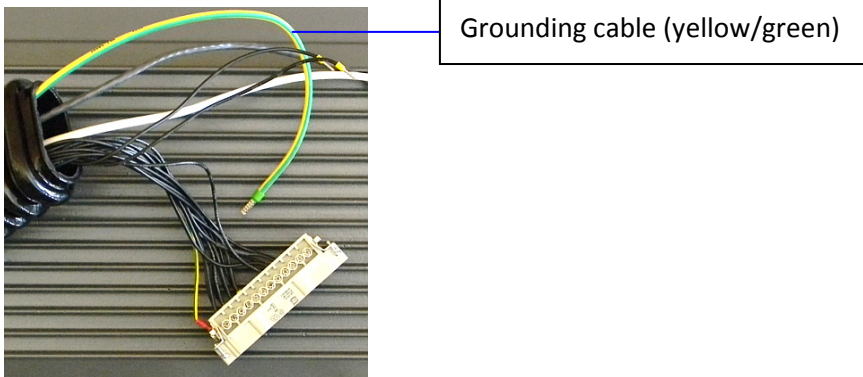
Fig. 19: Grounding cable

The CC300 operator panel must be grounded by establishing a **large-area contact** between the grounding cable (see also Fig. 17, Pos. 11) and an appropriate grounding contact. The cross section of the grounding cable is 6 mm^2.

7.2.4. LAN Cable

"LAN 0"cable

"LAN 1"cable
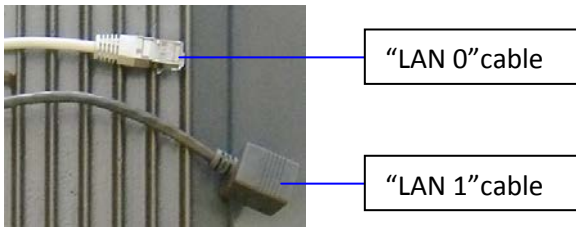
Fig. 20: LAN cables

The „LAN 0" LAN cable is equipped with a male RJ 45 connector (Ethernet 10/100/100 Base-T) and provides the connection between the CC300 operator panel and the company network.

The "LAN 1" LAN cable is equipped with a female RJ45 connector (Ethernet 10/100/100 Base-T) and can be connected e.g. to a stored program control (SPC) for controlling an injection molding machine.

7.3. Left and Right Side View
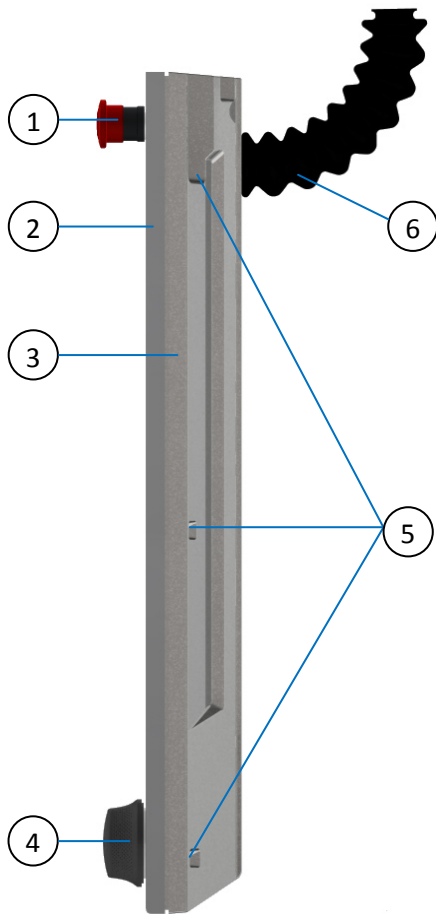
Fig. 21: Right side of the CC300 operator panel
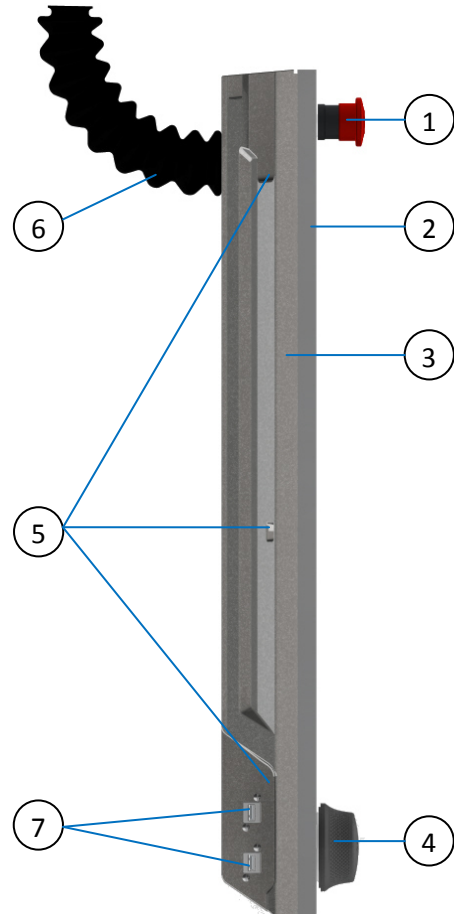
Fig. 22: Left side of the CC300 operator panel

Legend for Fig. 21 **and** Fig. 22**:**

1   Emergency stop switch

2   Front plate of the CC300

3   Aluminum rear cover of the CC300

4   Rotary/push button

5   Screws that secure the rear cover at the front plate

6   Cable gland

7   Cavity with 2x USB 2.0 ports

7.3.1. USB Ports

Fig. 23: USB ports

In a cavity at the left side of the aluminum cover, two USB 2.0 ports (see also Fig. 22, Pos. 7) are located. The cavity is deep enough that plugged-in USB sticks will not restrain the tilting mechanism of the CC300 operator panel.

7.4. Top and Bottom View
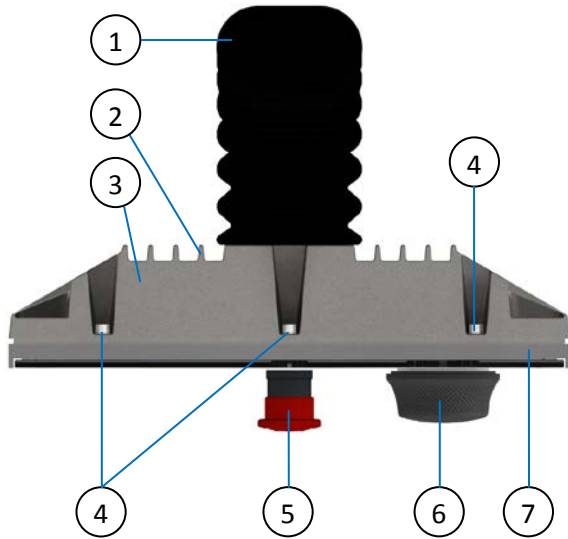
Fig. 24: Top view of the CC300 operator panel
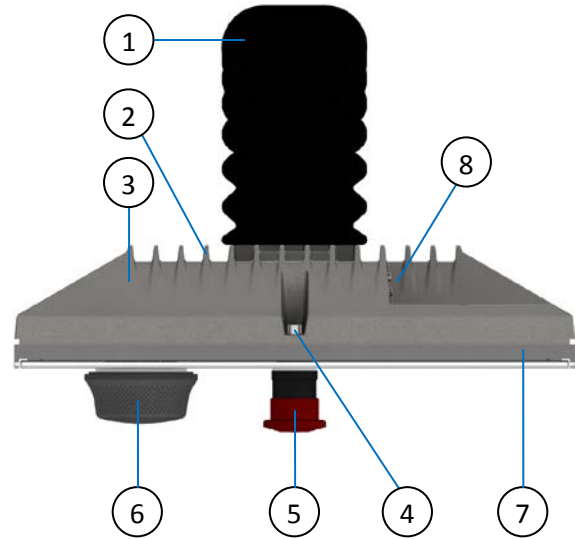
Fig. 25: Bottom view of the CC300 operator panel

Legend for Fig. 23 and Fig.24:

1	Cable gland	5	Emergency stop switch
2	Cooling fins of the aluminum rear cover	6	Rotary/push button
3	Aluminum rear cover of the CC300	7	Front plate of the CC300
4	Screws that secure the rear cover at the front plate	8	2x USB 2.0 Ports

7.5. Accessing internal Components

This section contains important information that you must read before accessing internal components. Follow these procedures properly when handling any internal components of the system.

The replacement of the lithium battery (optional: the installation and removal of memory modules, drives or cables) should only be carried out by qualified specialists, in accordance with the description contained in this manual.

Before removing the cover of the CC300 operator panel in order to gain access to the internal components, the system must be powered down and the power cord has to be disconnected from the power source.

It is not allowed to operate the system without installed cover.

Please observe the safety instruction for handling assemblies with static sensitive device. Disregarding of this warning instruction can result in damage to the device.

7.5.1. Opening the CC300 Operator Panel

To open the CC300 operator panel, perform the following steps:

1. Place the device on a soft underlayment (e.g. a thick PE foam sheet) with the front plate facing down (see Fig. 26). Make sure that the underlayment is dimensioned so that only the glass plate rests on the underlayment and the emergency stop switch and the rotary/push button **do not** rest on the underlayment or table.

2. Remove the 10x screws (M5 x 10) and the bonded seals that fix the rear cover to the front plate (see Fig. 17, Pos. 1).

The screws (M5 x 10) and the bonded seals must be replaced after 3 to 5 times of tightening and loosening for continuing compliance with IP54 protection class!

3. Lift the rear cover on the left side (seen from behind, with the emergency stop switch at the top!) carefully a few inches (see Fig. 26).

Rear cover

Auxiliary switch block

Front plate

Soft underlayment
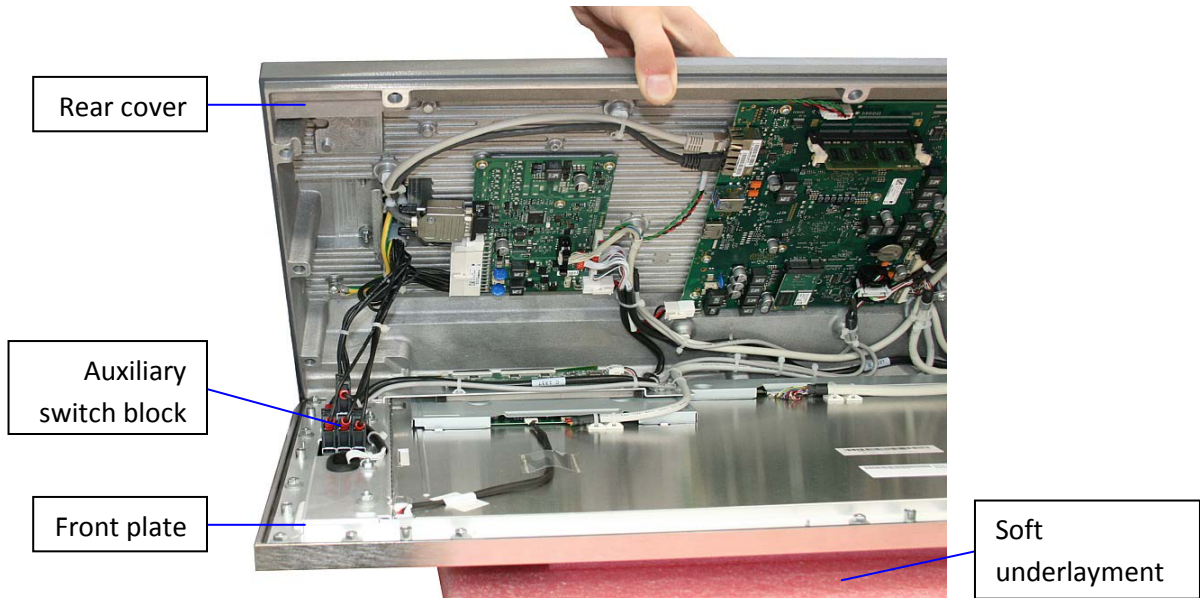
Fig. 26: Carefully open the CC300 a few inches

⚠️ **Attention: The device can only be opened fully after the auxiliary switch block (of the emergency stop switch) has been removed!**

(It is recommended that the rear cover is held by a second person while the auxiliary switch block is removed!)

4. Unlock the auxiliary switch block with a screwdriver and pull it out of its mounting (see Fig. 27).

Unlock the auxiliary switch block and remove it
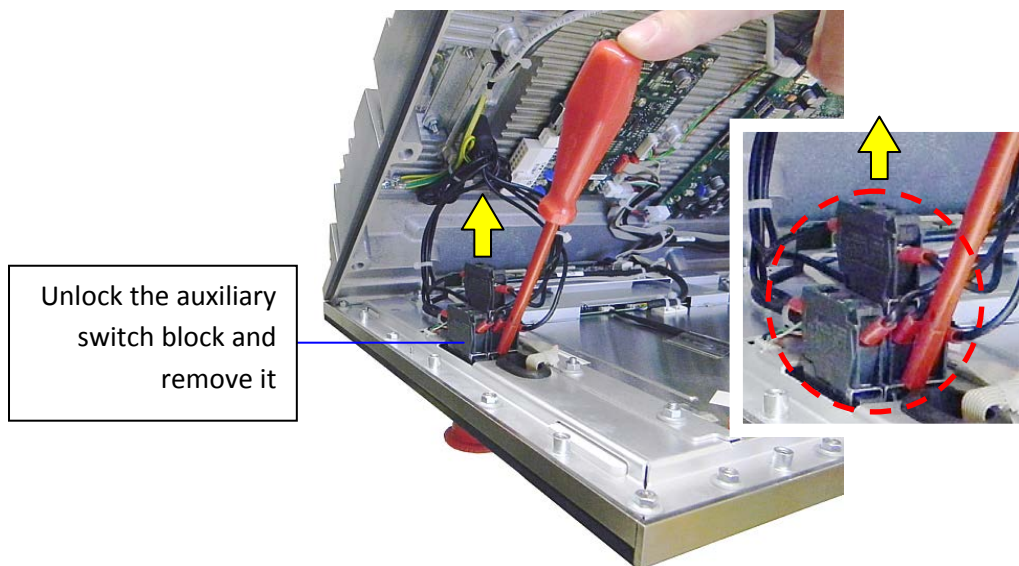
Fig. 27: Unlocking and removing the auxiliary switch block

5. Now the CC300 operator panel can be folded apart carefully.

Fig. 28: CC300 operator panel, fully opened

Legend for Fig. 27:

1	Circuit area above the display	8	Position of the lithium battery on the CPU board
2	Mounting of the auxiliary switch block (of the emergency stop switch)	9	CPU board (mainboard)
3	Front plate with aluminum frame	10	Aluminum rear cover
4	Display with capacitive touch	11	I/O board
5	Surrounding seal	12	Mounting and opening of the cable gland
6	Circuit area below the display	13	Auxiliary switch block (detached)
7	2x USB ports (externally accessible)		

7.5.2. Closing the CC300 Operator Panel

Closing the CC300 operator panel will be performed in reverse order:

1. Carefully fold the aluminum rear cover back onto the front plate, but leave the rear cover open a few inches (see Fig. 26).
It is recommended that the rear cover is held by a second person while the auxiliary switch block is inserted into its mounting!

2. Press the auxiliary switch block of the emergency stop switch (see Fig. 28, Pos.13) into its mounting so that it clicks into place (see Fig. 28, Pos.2 and Fig. 27).

3. Carefully close the housing completely. Make sure that no cables are jammed and that the surrounding seal is in correct position and will not be damaged (see Fig. 28, Pos. 5).

4. Fix the rear cover to the front plate with the 10x screws (M5 x 10) and bonded seals removed in chapter 7.5.1 "Opening the CC300 Operator Panel", step 2 (see Fig. 17, Pos. 1).

Do not exceed the maximum torque of x Nm when fastening the cabinet screws!

(Value not yet defined!)

8. Maintenance and Prevention

Kontron Europe systems require minimal maintenance and care to keep them operating correctly.

❑ Occasionally wipe the system with a soft dry cloth.

❑ You should only remove persistent dirt by use of a soft, slightly damp cloth (use only a mild detergent).

❑ For the touch screen cleaning refer to the chapter 7.1.7. "Touch Display Care and Cleaning".

8.1. Replacing the Lithium Battery

The mainboard of the CC300 operator panel is equipped with a lithium battery. To replace the lithium battery, proceed as follows:

1. Open the CC300 operator panel, as described in chapter 7.5.1 "Opening the CC300 Operator Panel".

2. The lithium CMOS battery is located in a holder on the CPU board (mainboard) of the CC300 operator panel (see Fig. 28, Pos. 8 and Fig. 29).

3. Open the retaining spring by pushing it to the side with a screwdriver and remove the lithium battery (see Fig. 29).

Lithium battery

Holder (socket) of the Lithium battery

Open the retaining spring and remove the Lithium battery
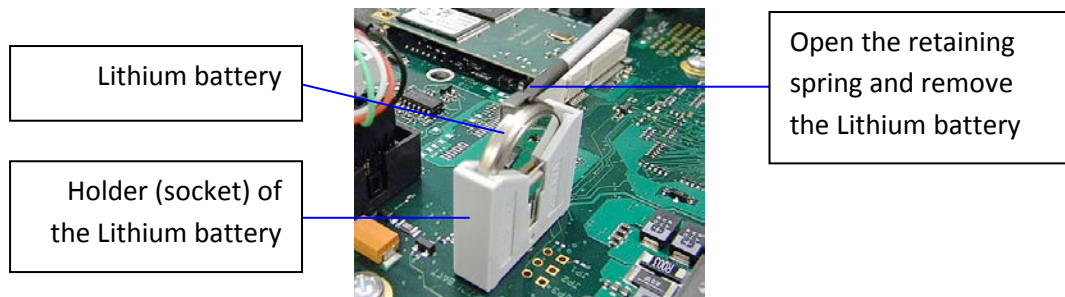
Fig. 29: Removong the lithium battery from the battery holder

4. Insert a new lithium battery into the battery holder.

5. Pay attention to the polarity of the battery (the positive pole marked "+" is connected to the retaining spring) and make sure that the retaining spring is locked (see Fig. 29).

6. The lithium battery must only be replaced with the same type of battery or with a type of battery recommended by Kontron Europe GmbH. The type of the lithium battery must be UL listed.

7. Close the CC300 operator panel as described in chapter 7.5.2 "Closing the CC300 Operator Panel".

Do not dispose of lithium batteries in general trash collection. Dispose of the battery according to the local regulations dealing with the disposal of these special materials, (e.g. to the collecting points for dispose of batteries).

8.2. Replacing the Emergency Stop Switch

- to be completed -

8.3. Replacing the Rotary/Push Button

-to be completed-

8.4. Replacing the mSATA Module

-to be completed-

8.5. Replacing the Cable Gland

-to be completed-

8.6. Firmware Updates

8.6.1. System BIOS Update Procedure

To update the System BIOS the BIOS ROM File and the update tools shall be copied onto a bootable DOS USB Stick (no EMM386 or himem driver installed).

The USB Stick shall be the first Boot Device and must have following files:

1B754003.bin   BIOS Image (current BIOS; this file may change!)
AFUDOS.exe   Flash Tool
pr_bios.bat   Batch file

To start the update process, run the included batch file.

After BIOS flash update is finished, perform a power cycle to restart the system.

On the next boot the BIOS will enter Setup automatically.

8.6.2. Firmware Update of the IO Board

-to be completed-

8.6.3. Firmware Update of the Rotary/Push Button

-to be completed-

8.6.4. Firmware Update of the RFID Module

-to be completed-

8.6.5. Firmware Update of the capacitive Touch

-to be completed-

9. Technical Data

CC300 Operator Panel	Technical Data
System	Customer-specific HMI panel PC with glass front
Operating System	ENGEL LINUX x86 64bit
Cooling Concept	Fanless system
Cabinet	Front: glass front with aluminum frame, Rear: die cast aluminum cover
Protection Class	IP 54 (entire system)
Power Supply	24 V DC (see also chater 9.2 "Electrical Specifications")
External Interfaces	See chapter 9.1 "External Connectors and Interfaces"
Display	TFT LCD Display, 21.5", 1920x1080, 16:9 portrait format, multi-touch, contrast: 400:1, 16 million colors, brightness: 250 cd minimum, LED backlight, view angle: 85x85x85x85 minimum Optionally, an additional external display can be connected via DP cable
Touch Screen	Capacitive PCAP multi-touch
RFID	EM65 (Euromap Standard RFID ISO15693), 13.56 Mhz, read and write functionality, implementation for user login
Emergency Stop Switch	Four (optional: six) emergency stop circuits (24V break circuits), switch is self-locking and can only be unlocked by turning the button
Front Glass	Clear glass, thermally tempered, thickness: 5mm (+/- 0.2 mm), printed on the rear side, 5 capacitive buttons integrated in the glass, LED backlight for buttons and symbols
Buttons in the Glass Front	Capacitive buttons (milled in the front glass) with LED backlight, partly with software-controlled color change when pressed
Rotary/Push Button	Can be adjusted to the left/right to a maximum of 30 degrees, self-resetting when released, push button function, white backlit ring that can change its color to red, green and orange by software
Mainboard	Kontron SBC-754
CPU	Intel Celeron 847E
Memory	2GB (1 socket, SO DIMM, DDR3, 1.066 MHz)
Drives	1x mSata, 8GB (optional: 2.5" HDD/SSD via SATA, drive bay available)
LAN	2x Ethernet 10/100/1000
IO Board	B750 IO board, reverse voltage protection and short circuit protection

9.1. External Connectors and Interfaces

Interface	Amount	Position	Data		
LAN cable	2	external	▪ Type: ▪ Connector: ▪ Source:	10/100/1000 Mbit RJ45 CPU board	
DP cable optional	1	external	▪ Type: ▪ Connector: ▪ Source:	Display port DP (DisplayPort) CPU board	
Power cable	1	external	▪ Type: ▪ Connector: ▪ Source:	Power Connector Main Harting 24-pin I/O board	
Expansion Panel cable	1	external	▪ Type: ▪ Connector: ▪ Source:	Control RS485 DSUB I/O board	
Expansion Panel cable	1	external	▪ Type: ▪ Connector: ▪ Source:	Power 4-Pin I/O board	
Emergency Stop circuits	1	external	▪ Type: ▪ Connector: ▪ Source:	Control 8 wires in Harting connector Emergency Stop switch	
USB Port	2	external	▪ Type: ▪ Connector: ▪ Source:	USB 2.0 USB A CPU board	
Grounding (PE) cable	1	external	▪ Type: ▪ Connector: ▪ Source:	PE End-sleeve Chassis internal PEN	

9.2. Electrical Specifications

CC300 Operator Panel	Electrical Data	
Power Supply	24VDC (+/- 20%), 3.5A max.	
Component	Theoretical Value (Measured Value)	
CPU Board B754 (including CPU 847E)	27	W
LCD Panel	23 (16)	W
SSD 2x	3	W
I/O-Board	2	W
RFID	1	W
Rotary/push button	2	W
USB external 2x - power	0.5	W
Total dissipated internal	**58.5** (51.5)	W
USB external 2x	5	W
Linear actuator CAHB	44 (36)	W
Total input power (including all possible loads)	**107.5** (92.5)	W

9.3. Environmental Specifications

Thermal Management	Passive Cooling (CPU and entire system)
Operating Temperature	+5 °C to +50 °C (41 °F to 122 °F)
Storage/Transit Temperature	-30 °C to +80 °C (-22 °F to 176 °F)
Operating Rel. Humidity	5% to 95%, non-condensing
Storage/Transit Rel. Humidity	5% to 95%, non-condensing
Operating Altitude	0 m to 2000 m (0 ft. to 6560 ft.)
Storage/Transit Altitude	0 m to 10000 m (0 ft. to 32800 ft.)
Operating Shock	15 G, 11 ms duration, half-sine
Storage/Transit Shock	30 G, 11 ms duration, half-sine
Operating Vibration	5 Hz to 150 Hz, 0.5 G
Storage/Transit Vibration	5 Hz to 150 Hz, 1.0 G
Protection Class	IP54 (entire system)

9.4. Mechanical Specifications

Dimensions	**CC300 Operator Panel**
Height	675 mm (26.57")
Width	346 mm (13.62")
Depth	76 mm (2.99")
Weight	13 kg (28.66 lbs)
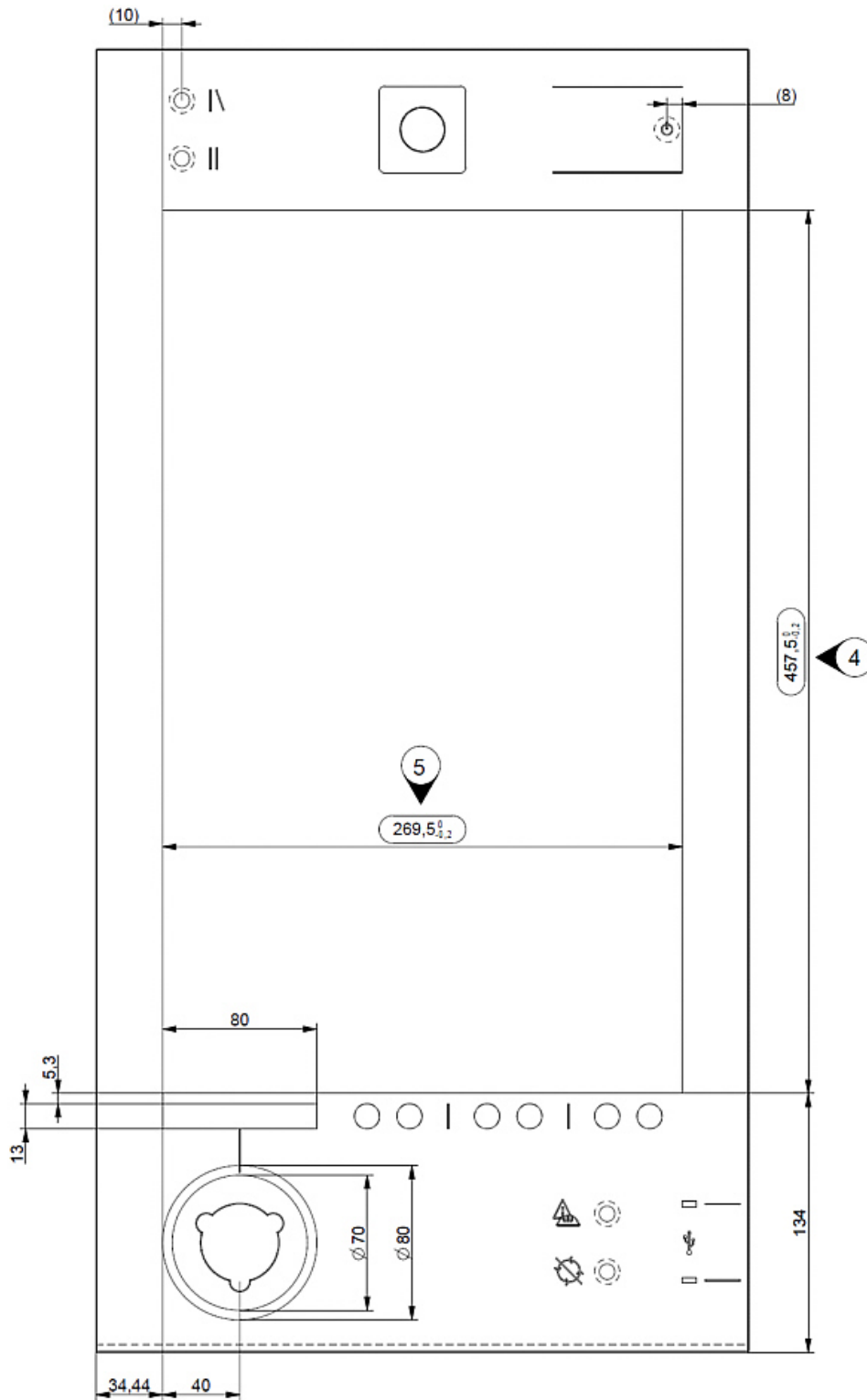
Fig. 30: Dimensioned view of the CC300 glass front (print side - reversed image)

CC300 – Rear side

CC300 – left Side

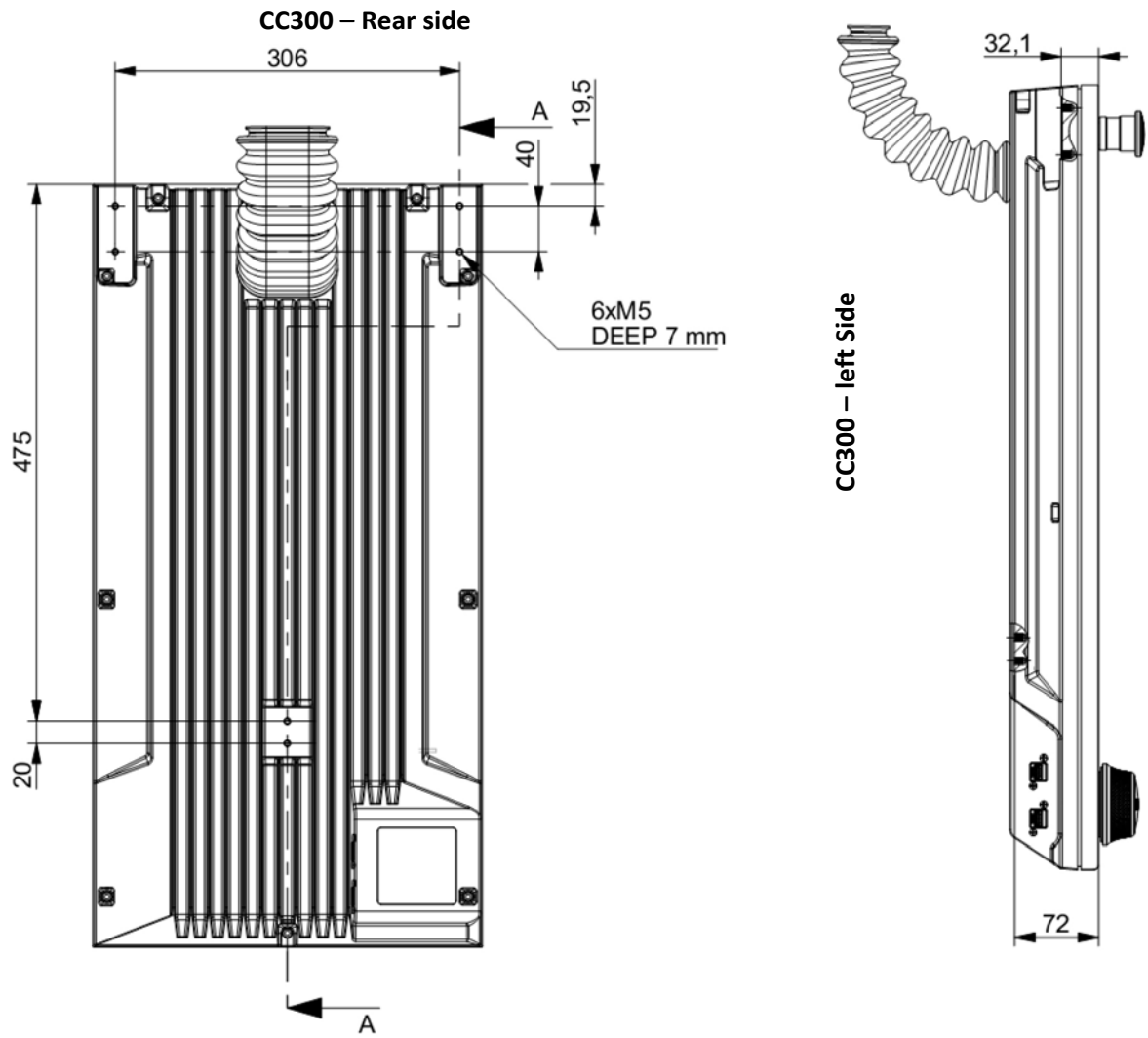*Fig. 31: Dimensioned rear and side view of the CC300 operator panel*

9.5. International Compliance, Approvals and Certificates

CE Directives	
Low Voltage Directive (Electrical Safety)	2006/95/EC
EMC Directive	2004/108/EC
RoHS II Directives	2011/65/EU

Electrical Safety	Standards
EUROPE	EN 60950-1
USA	UL 60950-1
CB Scheme	IEC 60950-1

EMC	Standards
EUROPE	Electromagnetic compatibility - Part 6-4: Generic standards – Emission standard for industrial environments: EN 61000-6-4 Industrial, scientific and medical (ISM) radio-frequency equipment – Radio disturbance characteristics - Limits and methods of measurement: EN 55011 Electromagnetic compatibility - Part 6-3: Generic standards – Emission standard for residential, commercial and light industrial environments: EN 61000-6-2 Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 10 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar Applications: EN 50 364 Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services: EN 301 489-1 /-3 Electromagnetic compatibility and Radio spectrum Matters (ERM) - Short Range Devices (SRD) - Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz: EN 300 330-1 /-2
U.S.A.	FCC 47 CFR Part 15, Class A FCC Part 15.225
Canada	ICES-003 class A RSS210 A2.6

10. Interfaces – Pin Assignments

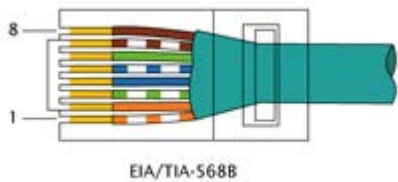Low-active signals are indicated by a minus sign.

10.1.1. Harting Connector
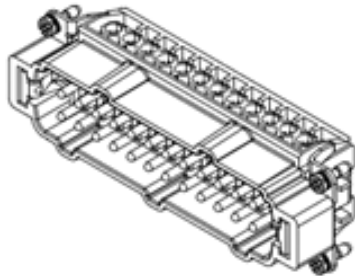
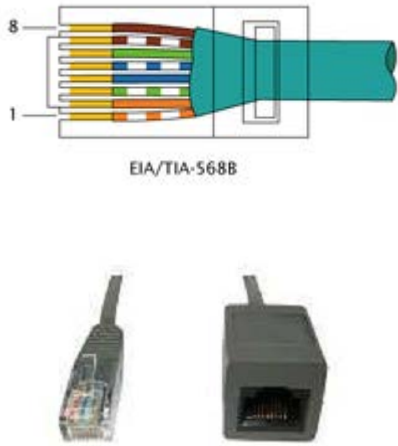24-pole Harting connector (Type Harting HAN 24 E, wire cross section: AWG 18)

Pin No.	Wire No.	Signal Name	Pin	Wire No.	Signal Name
Pin 1	8	Emergency Stop channel 1 - 1	Pin 13	12	Emergency Stop channel 1 - 2
Pin 2	9	Emergency Stop channel 2 - 1	Pin 14	13	Emergency Stop channel 2 - 2
Pin 3	10	Emergency Stop channel 3 - 1	Pin 15	14	Emergency Stop channel 3 - 2
Pin 4	11	Emergency Stop channel 4 - 1	Pin 16	15	Emergency Stop channel 4 - 2
Pin 5		Emergency Stop channel 5 - 1 (not implemented)	Pin 17		Emergency Stop channel 5 - 2 (not implemented)
Pin 6		Emergency Stop channel 6 - 1 (not implemented)	Pin 18		Emergency Stop channel 6 - 2 (not implemented)
Pin 7	6	24V panel power supply	Pin 19	5	0V panel power supply
Pin 8	4	24V power transformer (linear actuator)	Pin 20	3	0V power transformer (linear actuator)
Pin 9	7	Power transformer switch-off	Pin 21	16	Dig In 1
Pin 10		free	Pin 22		free
Pin 11		free	Pin 23		free
Pin 12		free	Pin 24		free
		Connector grounding (lateral)			

10.1.2. LAN 0 cable

Pin	Signal Name	Standard Modular Plug $(RJ45)$
1	MDI0+	
2	MDI0-	
3	MDI1+	
4	MDI2+	
5	MDI2-	
6	MDI1-	
7	MDI33+	
8	MDI3-	

(The LAN cable is connected to the LAN 0 port of the mainboard and led out of the cabinet.)
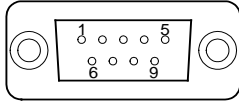
10.1.3. LAN 1-Kabel

Pin	Signal Name	Standard Modular Plug/Socket $(RJ45)$
1	MDI0+	
2	MDI0-	
3	MDI1+	
4	MDI2+	
5	MDI2-	
6	MDI1-	
7	MDI33+	
8	MDI3-	

(The LAN extension cable is connected to the LAN 1 port of the mainboard and led out of the cabinet.)
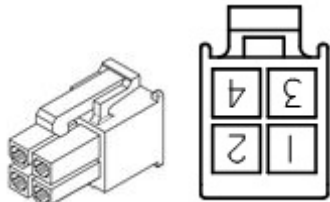
10.1.4. RS485 Cable

This cable is required for connecting an expansion panel.

Pin	Signal Name	Direction	9-pin D-SUB Connector (female)
1	IDENT#	Out-	
2	RxD+ (Receive Data)	In	
3	TxD+ (Transmit Data++)	Out	
4	NUM_IDENT#	In-	
5	GND (Signal Ground)	Power	
6	TERM#	In	
7	RXD- (Receive Data)	In	
8	TXD- (Transmit Data)	Out	
9	n.c.	-	

(The RS485 extension cable is connected to the RS485 port on the mainboard and led out of the cabinet.)
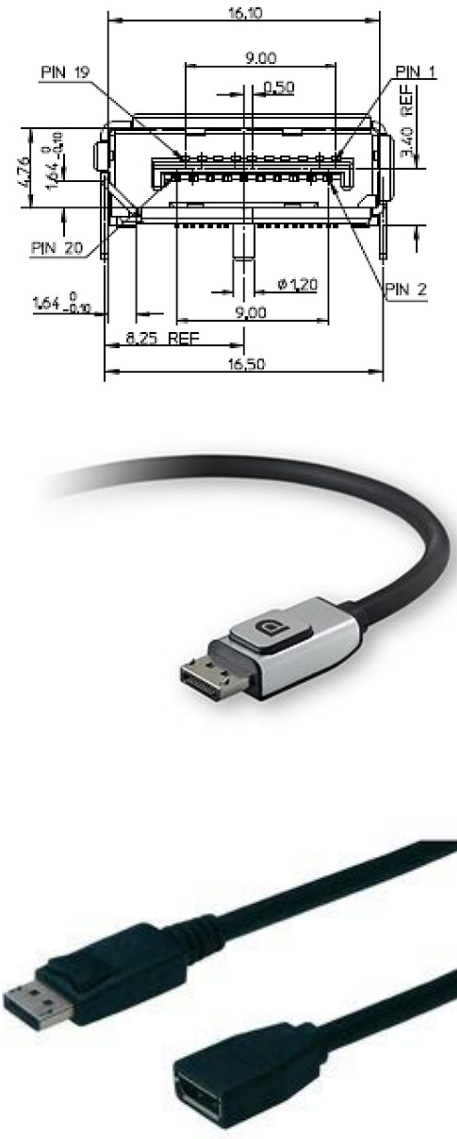
10.1.5. Power Cable for Expansion Panel

This cable is required for connecting an expansion panel.

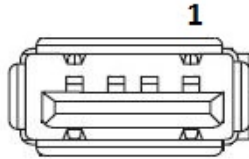| Pin	Signal Name	4-pin, 2.54mm, Mini-Fit Connector (with Latch and Polarization, Cross Section: AWG17)
1	+24V	
2	GND	
3	+24V	
4	GND	

(The power cable is connected to the IO board and led out of the cabinet.)

10.1.6. DP Connector (Standard: DisplayPort 1.2)

Pin	Signal Name	20-pin DP Connector
1	ML LANE 0+	
2	GND (ML LANE 0)	
3	ML LANE 0-	
4	ML LANE 1+	
5	GND (ML LANE 1)	
6	ML LANE 1-	
7	ML LANE 2+	
8	GND (ML LANE 2)	
9	ML LANE 2-	
10	ML LANE 3+	
11	GND (ML LANE 3)	
12	ML LANE 3-	
13	AUX_SEL#	
14	Pull-down to GND	
15	AUX CH+	
16	GND (AUX CH)	
17	AUX CH-	
18	Hotplug	
19	GND (GND_DDC)	
20	+3.3V (DDC EEPROM power) 750mA fused	

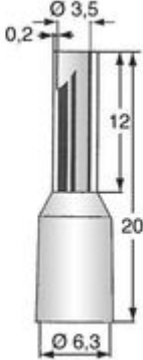(The DisplayPort is located on the mainboard and can be optionally led out of the cabinet via DP cable or DP extension cable.)

10.1.7. USB Ports

Pin	Signal Name	4-pin USB Connector Type A Version 2.0
1	+5V USB-A output (500mA max.)	
2	USB-A Data -	
3	USB-A Data +	
4	Ground	

The two externally accessible USB 2.0 ports are connected to the mainboard via cable. The 5V outputs are separately, electronically fused to 500mA each. Another two USB 2.0 ports are located on the mainboard.

10.1.8. Grounding Cable (PE)

	Grounding Cable (PE)
Cross section: $6mm^2$ Cable color: Yellow/green Connector: End sleeve $6.0mm^2/12mm$	