OPERATING INSTRUCTION

# Control Panels CP600

## CP620(-x), CP630(-x), CP635(-x), CP651(-x), CP661(-x), CP665(-x), CP676(-x)

# Content

# Introduction

The operational guidelines described below is information which relates to the device, place of employment, transportation, storage, assembly, use and maintenance.

This Operating Instruction describes the main features of the CP600 Control Panels. The Operating Instructions refers to the following models:

| Picture | Type | Description |
|---|---|---|
|  | CP620, CP620- WEB | Control panel with TFT color 4.3” widescreen display touchscreen |
|  | CP630, CP630- WEB | Control panel with TFT color 5.7” display touchscreen |
|  | CP635, CP635-B, CP635-WEB | Control panel with TFT color 7” widescreen display touchscreen |
|  | CP635-FB, CP-635-FW | Control panel with TFT color 7” widescreen display touchscreen |
|  | CP651, CP651-WEB | Control panel with TFT color 10.4” display touchscreen |
|  | CP661, CP661-WEB | Control panel with TFT color 12.1” display touchscreen |
|  | CP665, CP665-WEB | Control panel with TFT color 13.3” widescreen display touchscreen |
|  | CP676, CP676-WEB | Control panel with TFT color 15” display touchscreen |

# Before You Start

## Safety Notices

**DANGER!**

Indicates an imminent risk. It will lead to death or serious injury if not avoided.

**WARNING!**

Indicates a possible risk. It may lead to death or serious injury if not avoided.

**CAUTION!**

Indicates a possible risk. It may lead to light or slight injury or material damage if not avoided.

## Markups

- Enumeration.

✓ Precondition for an operation instruction or a description.

→ Operation instruction with one step.

1. Operation instruction with several steps.

   ➤ Result of an operation.

**NOTE**

Helpful information with background information or an emphasized notice.

**TIP**

Application tips or other useful information and suggestions.

# Product Overview

The Control Panels combine state-of-the-art features and top performance with an outstanding design. They are the ideal choice for all demanding HMI applications including factory and building automation.

These Control Panels have been designed to run the PB610 Panel Builder 600 software.

- PB610 Panel Builder 600 Runtime included. Full compatibility with PB610 Panel Builder 600.
- Full vector graphic support. Native support of SVG graphic objects.
  Transparency and alpha blending.
- Full object dynamics: Control visibility and transparency, move, resize, rotate any object on screen. Change properties of basic and complex objects.
- TrueType fonts.
- Multilanguage applications. Easily create and manage your applications in multiple languages to meet global requirements. Far East languages are supported. Tools available in PB610 Panel Builder 600 support easy third-party translations and help reducing development and maintenance costs of the application.
- Data display in numerical, text, bargraph, analog gauges and graphic image formats.
- Rich set of state-of-the-art HMI features: Data acquisition, alarm handling, scheduler and timed actions (daily and weekly schedulers, exception dates), recipes, users and passwords, e-mail and RSS feeds, rotating menus.
- Includes support for a set of communication drivers.
- Multiple drivers communication capability.
- Remote monitoring and control. Client-Server functionality.
- Offline and online Simulation with PB610 Panel Builder 600.
- Powerful scripting language for automating HMI applications. Script debugging improves efficiency in application development.
- Rich gallery of vector symbols and objects.
- Project templates.

# Standards and Approvals

The Control Panels have been designed for installation and use in an industrial environment in compliance with the 2004/108/EC EMC Directive.

The products have been designed in compliance with:

| | |
|---|---|
| EN 61000-6-4:2007+A1:2011 | EN 55011 Class A |
| EN 61000-6-2:2005 | EN 61000-4-2 |
| | EN 61000-4-3 |
| | EN 61000-4-4 |
| | EN 61000-4-5 |
| | EN 61000-4-6 |

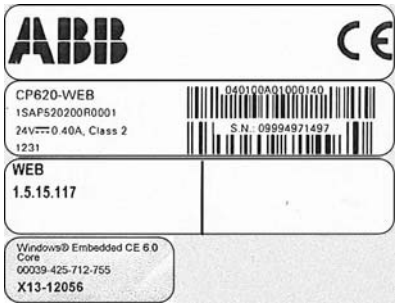
The installation of these devices into the residential, commercial and light-industrial environments is allowed only in the case that special measures are taken in order to get ensure conformity to EN 61000-6-3.
The products are in compliance with the Restrictions on Certain Hazardous Substances (RoHS) Directive 2011/65/EU. In compliance with the above regulations the products are CE marked.

**NOTE**

If the mounting surface is not plane and robust enough, the degree IP69K is not guaranteed. A special mounting flange is included to provide the necessary support.

# Product Identification

The Control Panel products are identified by a product label. The label reports several information, including the model name, the part number, the power supply, the date of production (in the following format: ywwy) and two barcodes. The first code is the version code, the second one the serial number (S.N.).




*Example of product label*

| Information on type plate (example) | Description |
|---|---|
| CP620 | Product type |
| 1SAP520200R0001 | Product part number |
| 1231 | ywwy – week and year of production |
| 09994971497 | Serial number |
| 040100A01000140 | Version number of the product |
| WEB 1.5.15.117 | Version number of the MicroBrowser (only valid for CP6**-WEB) |

# Technical Specifications

| Parameter | Value |
|---|---|
| Touchscreen technology | Resistive |
| Back-up battery | 3V 50mAh Lithium, rechargeable, not user-replaceable, model VL2330 |
| Fuse | Automatic |
| Serial Port | RS-232, RS-485, RS-422 software configurable |
| User memory | Flash 128 MB for CP620, CP620-WEB, CP630, CP630-WEB, CP635, CP635-B, CP635-WEB<br>Flash 256 MB for CP635-FB, CP635-FW<br>Flash 256 MB for CP651, CP651-WEB, CP661, CP661-WEB, CP665, CP665-WEB, CP676, CP676-WEB |
| Recipe memory | Flash |
| Hardware clock | Clock/calendar with back-up battery |
| Accuracy RTC<br>(at 25 °C operating) | < 100 ppm |

# Environmental Conditions

| Parameter | Value | According to |
|---|---|---|
| Operating temperature<br>(surrounding air temperature) | 0 °C … +50 °C<br>for CP635-Fx: -20 °C … +60 °C | EN 60068-2-14 |
| Storage temperature | -20 °C … +70 °C<br>for CP635-Fx: -40 °C … +85 °C | EN 60068-2-14 |
| Operating and storage humidity | 5 % … 85 % RH not-condensing | EN 60068-2-30 |
| Vibrations | 5 Hz … 9 Hz, 7 mm $_{p-p}$<br>9 Hz … 150 Hz, 1 g | EN 60068-2-6 |
| Shock | ± 50 g, 11 ms, 3 pulses per axis | EN 60068-2-27 |
| Protection class | IP66 front panel *<br>for CP635-Fx: IP69K | EN 60529 |

*) The front face of the Control Panel unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the “Environmental Conditions”. Even though the CP600 unit’s level of resistance is equivalent to these standards, oils that should have no effect on the control panel can possibly harm the unit. This can occur in areas where either vaporized oils are present, or where low viscosity cutting oils are allowed to adhere to the unit for long periods of time. If the control panel’s front face protection sheet becomes peeled off, these conditions can lead to the ingress of oil into the control panel and separate protection measures are suggested.

If the installation gasket is used for a long period of time, or if the unit and its gasket are removed from the panel, the original level of the protection cannot be guaranteed.

## CP635-FB, CP635-FW:

### Main Features

- Stainless steel bezel 316/1.440l
- Food-compatible gasket
- Food standard sealing compliant with FDA 21 CFR 177.2006
- PCAP touchscreen, can be operated with gloves for food areas
- Designated according to DIN EN 1672-2
- Designated according to the EHEDG Guideline

### Chemical Resistance

Protective front foils are made with high-quality polyester. Polyester withstands exposure of more than 24 h duration under DIN 42 115 Part 2 to wide range of chemicals without visible change.

| | |
|---|---|
| Sodium hydroxide | 50 % |
| Ammonia | < 32 % |
| Sulphuric acid | 30 % |
| Acetic acid | < 50 % |

| | |
|---|---|
| IP69K standard | |
| Water temperature | 80 °C (176 °F) |
| Pressure | 8 … 10 MPa (80 … 100 bar) (1160 … 1450 psi) |
| Flow rate | 14 … 16 l/m (3.7 … 4 gal/m) |
| Nozzle distance | 10 … 15 cm (4 … 6 inch) |
| Angles | 0° 30° 60° 90° |
| Timing | 30 s/each angle |

# Electromagnetic Compatibility (EMC)

Test executed on the 230 V AC side of the Power Supply (EN 61000-4-11).

| **Parameter** | **Value** | **According to** |
|---|---|---|
| Radiated disturbance test | Class A | EN 55011 |
| Electrostatic discharge immunity test | 8 kV (air electrostatic discharge)<br>4 kV (contact electrostatic discharge) | EN 61000-4-2 |
| Radiated, radio-frequency, electromagnetic field immunity test | 80 MHz … 1 GHz, 10 V/m<br>1.4 GHz … 2 GHz, 3 V/m<br>2 GHz … 2.7 GHz, 1 V/m | EN 61000-4-3 |
| Burst immunity test | ± 2 kV DC power port<br>± 1 kV signal line | EN 61000-4-4 |
| Surge immunity test | ± 0.5 kV DC power port (line to earth)<br>± 0.5 kV DC power port (line to line)<br>± 1 kV signal line (line to earth) | EN 61000-4-5 |
| Immunity to conducted disturbances inducted by radio-frequency field | 0.15 … 80 MHz, 10 V | EN 61000-4-6 |
| Voltage dips, short interruptions and voltage variations immunity test | Port: AC mains. Level:<br>100 % / duration: 1 cycle and 250 cycles (50 Hz);<br>40 % / duration: 10 cycles (50 Hz);<br>70 % / duration: 25 cycles (50 Hz);<br>Phase: 0°-180° | |

# Durability Information

| Parameter | Value of CP600 | Value of CP635-FB, CP635-FW |
|---|---|---|
| Backlight service life<br>(LED type) | MTBF value: 40,000 h<br>(time of continuous operation until the brightness of the backlight reaches 50 % of the rated value when the surrounding temperature reach 25 °C), see[1] | |
| Battery lifetime | 10 years if the surrounding temperature is 25 °C<br>5 years if the surrounding temperature is 40 °C | |
| Front foil (without directly expose to sunlight or UV ray) | 10 years if the surrounding temperature is 25 °C | |
| UV Resistance | Indoor applications: After 300 h cycled humidity in QUV accelerated weathering, some yellowing and brittleness may be present. | |
| Touch panel<br>(resistive film, analog) | 1,000,000 or more of activations, see[2] | Not applicable<br>(capacitive touchscreen with no mechanical stress), see[3] |
| Touchscreen reliability | > 1 million operations | Not applicable<br>(capacitive touchscreen with no mechanical stress) |

[1] Extended use in environments where the surrounding air temperature is 40 °C or higher may degrade backlight quality/reliability/durability.
[2] Solvent resistance:
Contact for ½ hour at 21 °C, no visible effect: Acetone, Butyl Cellosolve, Cyclohexanone, Ethyl Acetate, Hexane, Isopropyl Alcohol, MEK, Methylene Chloride, Toluene, Xylene
Contact for 24 hours at 49 °C, no visible effect: Coffee, Ketchup, Lemon Juice, Mustard (slight yellow stain), Tea, Tomato Juice.
[3] Solvent resistance:
Contact of more than 24 hours, no visible effect: Acetone, Acetic acid <50%, Ammonia <32%, Hydrochloric acid <10%, Hydrogen peroxide <25%, Potassium Hydroxide (Caustic Potash) <2%, Sodium hydroxide 50%, Sodium hypochlorite <20%, Sulphuric Acid 30%, Toluene

# Technical Data

| **Model** | **CP620, CP620-WEB** | **CP630, CP630-WEB** |
|---|---|---|
| Display/Backlight | TFT Color / LED | TFT Color / LED |
| Colors | 64 K | 64 K |
| Resolution | 480 x 272 | 320 x 240 |
| Diagonal (inches) | 4.3” | 5.7“ |
| Dimming | Yes | Yes |
| Touchscreen | Yes | Yes |
| User memory flash | 128 MB | 128 MB |
| SC card slot | Yes | Yes |
| Recipe memory | Yes. Flash memory storage limited only by available memory | Yes. Flash memory storage limited only by available memory |
| Serial Port | RS-232, RS-485, RS 422, DB9 female, software configurable | RS-232, RS-485, RS 422, DB9 female, software configurable |
| Ethernet port | 2 x 10/100 Mbit/s with integrated switch | 2 x 10/100 Mbit/s with integrated switch |
| USB port | 1 x host interface, version 2.0 and 1.1 | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 |
| Expansion slot for future optional plugin modules | 1 x | 2 x |
| Battery | Rechargeable | Rechargeable |
| Real-time clock | Yes | Yes |
| Voltage | 18 … 32 V DC *) | 18 … 32 V DC *) |
| Current rating (at 24 V DC) | 0.4 A | 0.65 A |
| Weight | 1 kg | 1 kg |

*) For applications not requiring compliance with EN 61131-2 and specifically in reference to 10 ms voltage dips, the minimum power supply voltage is 10 V DC.

| **Model** | **CP635-FB, CP635-FW** | **CP635, CP635-B, CP635-WEB** |
|---|---|---|
| Display/Backlight | TFT Color / LED | TFT Color / LED |
| Colors | 64 K | 64 K |
| Resolution | 800 x 480 | 800 x 480 |
| Diagonal (inches) | 7“ widescreen | 7“ widescreen |
| Dimming | Yes | Yes |
| Touchscreen | Yes | Yes |
| User memory flash | 256 MB | 128 MB |
| SC card slot | Yes | Yes |
| Recipe memory | Yes. Flash memory storage limited only by available memory | Yes. Flash memory storage limited only by available memory |
| Serial Port | RS-232, RS-485, RS 422, DB9 female, software configurable | RS-232, RS-485, RS 422, DB9 female, software configurable |
| Ethernet port | 2 x 10/100 Mbit/s with integrated switch | 2 x 10/100 Mbit/s with integrated switch |
| USB port | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 |
| Expansion slot for future optional plugin modules | - | 2 x |
| Battery | Rechargeable | Rechargeable |
| Real-time clock | Yes | Yes |
| Voltage | 18 … 32 V DC *) | 18 … 32 V DC *) |
| Current rating (at 24 V DC) | 0.9 A | 0.7 A |
| Weight | 1.5 kg | 1 kg |

*) For applications not requiring compliance with EN 61131-2 and specifically in reference to 10 ms voltage dips, the minimum power supply voltage is 10 V DC.

| **Model** | **CP651, CP651-WEB** | **CP661, CP661-WEB** |
|---|---|---|
| Display/Backlight | TFT Color / LED | TFT Color / LED |
| Colors | 64 K | 64 K |
| Resolution | 800 x 600 | 800 x 600 |
| Diagonal (inches) | 10.4” | 12.1“ |
| Dimming | Yes | Yes |
| Touchscreen | Yes | Yes |
| User memory flash | 256 MB | 256 MB |
| SC card slot | Yes | Yes |
| Recipe memory | Yes. Flash memory storage limited only by available memory | Yes. Flash memory storage limited only by available memory |
| Serial Port | RS-232, RS-485, RS-422, DB9 female, software configurable | RS-232, RS-485, RS-422, DB9 female, software configurable |
| Ethernet port | 2 x 10/100 Mbit/s<br>with integrated switch | 2 x 10/100 Mbit/s<br>with integrated switch |
| USB port | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 |
| Expansion slot for future optional plugin modules | 2 x | 2 x |
| Battery | Rechargeable | Rechargeable |
| Real-time clock | Yes | Yes |
| Voltage | 18 … 32 V DC *) | 18 … 32 V DC *) |
| Current rating (at 24 V DC) | 1 A | 1.2 A |
| Weight | 2.1 kg | 2.8 kg |

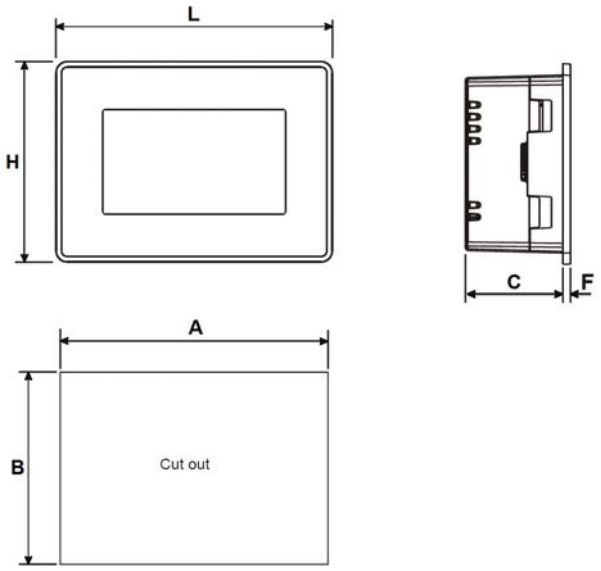
*) For applications not requiring compliance with EN 61131-2 and specifically in reference to 10 ms voltage dips, the minimum power supply voltage is 10 V DC.

| **Model** | **CP665, CP665-WEB** | **CP676, CP676-WEB** |
|---|---|---|
| Display/Backlight | TFT Color / LED | TFT Color / LED |
| Colors | 64 K | 64 K |
| Resolution | 1280 x 800 | 1024 x 768 |
| Diagonal (inches) | 13.3” | 15“ |
| Dimming | Yes | Yes |
| Touchscreen | Yes | Yes |
| User memory flash | 256 MB | 256 MB |
| SC card slot | Yes | Yes |
| Recipe memory | Yes. Flash memory storage limited only by available memory | Yes. Flash memory storage limited only by available memory |
| Serial Port | RS-232, RS-485, RS-422, DB9 female, software configurable | RS-232, RS-485, RS-422, DB9 female, software configurable |
| Ethernet port | 2 x 10/100 Mbit/s<br>with integrated switch | 2 x 10/100 Mbit/s<br>with integrated switch |
| USB port | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 | 2 x host interface,<br>1 version 2.0 and 1.1,<br>1 version 2.0 |
| Expansion slot for future optional plugin modules | 2 x | 2 x |
| Battery | Rechargeable | Rechargeable |
| Real-time clock | Yes | Yes |
| Voltage | 18 … 32 V DC *) | 18 … 32 V DC *) |
| Current rating (at 24 V DC) | 1.2 A | 1.4 A |
| Weight | 2.8 kg | 3.5 kg |

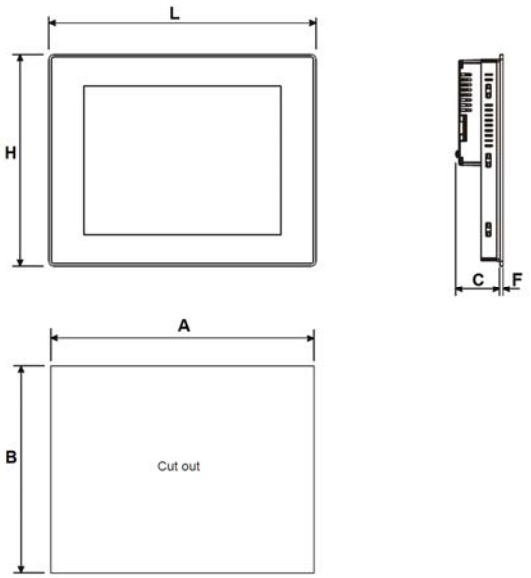
*) For applications not requiring compliance with EN 61131-2 and specifically in reference to 10 ms voltage dips, the minimum power supply voltage is 10 V DC.

# Dimensions

CP620, CP620-WEB




CP630, CP630-WEB,
CP635, CP635-B, CP635-WEB,
CP635-FB, CP635-FW,
CP651, CP651-WEB, CP661, CP661-WEB
CP665, CP665-WEB, CP676, CP676-WEB




| Model | A | | B | | C | | H | | L | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | inches | mm | inches | mm | inches | mm | inches | mm | inches | mm | inches |
| CP620, -WEB | 136 | 5.35” | 96 | 3.78” | 52 | 2.05” | 107 | 4.21” | 147 | 5.78” | 4 | 0.16” |
| CP630, -WEB | 176 | 6.93” | 136 | 5.35” | 47 | 1.85” | 147 | 5.79” | 187 | 7.36” | 4 | 0.16” |
| CP635, -B, -WEB | 176 | 6.93” | 136 | 5.35” | 47 | 1.85” | 147 | 5.79” | 187 | 7.36” | 4 | 0.16” |
| CP635-FB, -FW | 176 | 6.93” | 136 | 5.35” | 44 | 1.73” | 177 | 6.96” | 217 | 8.54” | 4 | 0.16” |
| CP651, -WEB | 276 | 10.87” | 221 | 8.70” | 56 | 2.20” | 232 | 9,13” | 287 | 11.30” | 4 | 0.16” |
| CP661, -WEB | 326 | 12.83” | 256 | 10.08” | 56 | 2.20” | 267 | 10.51” | 336 | 13.23” | 4 | 0.16” |
| CP665, -WEB | 326 | 12.83” | 256 | 10.08” | 56 | 2.20” | 267 | 10.51” | 336 | 13.23” | 4 | 0.16” |
| CP676, -WEB | 381 | 15.00” | 296 | 11.65” | 60 | 2.36” | 307 | 12.09” | 392 | 15.43” | 4 | 0.16” |

| Model | CSD: Minimum compass safe distance of standard compass | | CSD2: Minimum compass safe distance of steering compass, standby steering compass and emergency compass | |
|---|---|---|---|---|
| | mm | inches | mm | inches |
| CP620, -WEB | 350 | 13.78” | 200 | 7.87” |
| CP630, -WEB | 350 | 13.78” | 200 | 7.87” |
| CP635, -B, -WEB | 450 | 17.72” | 250 | 9.84” |
| CP635-FB, -FW | N.A. | N.A. | N.A. | N.A. |
| CP651, -WEB | 600 | 23.62” | 400 | 15.75” |
| CP661, -WEB | 250 | 9.84” | 150 | 5.91” |
| CP665, -WEB | 500 | 19.69” | 150 | 5.91” |
| CP676, -WEB | 550 | 21.65” | 300 | 11.81” |

# Installation Environment

The equipment is not intended for continuous exposure to direct sunlight. This might accelerate the aging process of the front panel film.

The equipment is not intended for installation in contact with corrosive chemical compounds.
Check the resistance of the front panel film to a specific compound before installation.

Do not use tools of any kind (screwdrivers etc.) to operate the touchscreen of the panel.

In order to meet the front panel protection classifications, proper installation procedure must be followed:

✓ The borders of the cutout must be flat.

✓ The cutout for the panel must be of the dimensions indicated in this manual.

→ Screw up each fixing screw until the plastic bezel corner get in contact with the panel.

The IP66 is guaranteed only if:

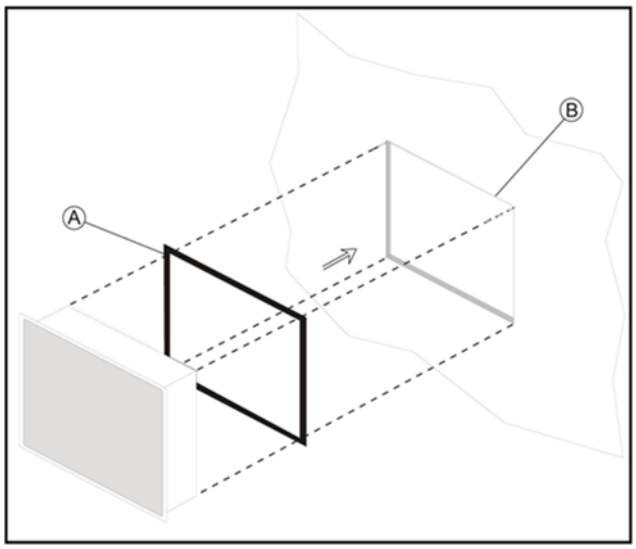
- Maximum deviation from the plane surface to the cut-out: ≤ 0.5 mm
- Thickness of the plate the equipment is mounted: 1.5 mm to 6 mm
- Maximum surface roughness where the gasket is applied: ≤ 120 µm

## Applying the Gasket

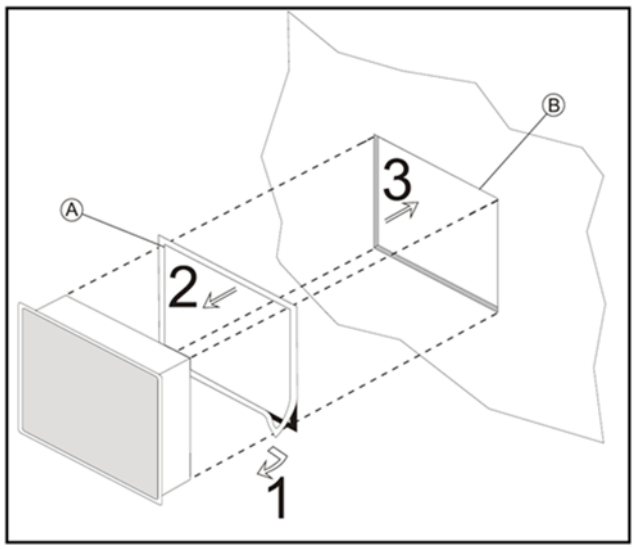
→ Apply the gasket on the rear of the frame.

**NOTE**

If the mounting surface is not plane and robust enough, the degree IP69K is not guaranteed. A special mounting flange is included to provide the necessary support.




CP620, CP620-WEB, CP630, CP630-WEB, CP635, CP635-B, CP635-WEB, CP635-FB, CP635-FW

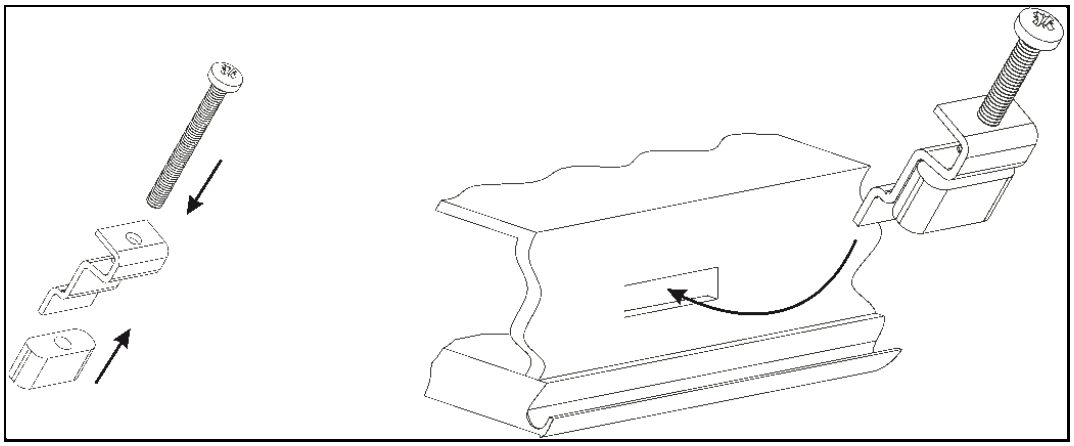



CP651, CP651-WEB, CP661, CP661-WEB, CP665, CP665-WEB, CP676, CP676-WEB

**A** Gasket **B** Installation cut-out

# Installation Procedure

→ Place the fixing brackets.

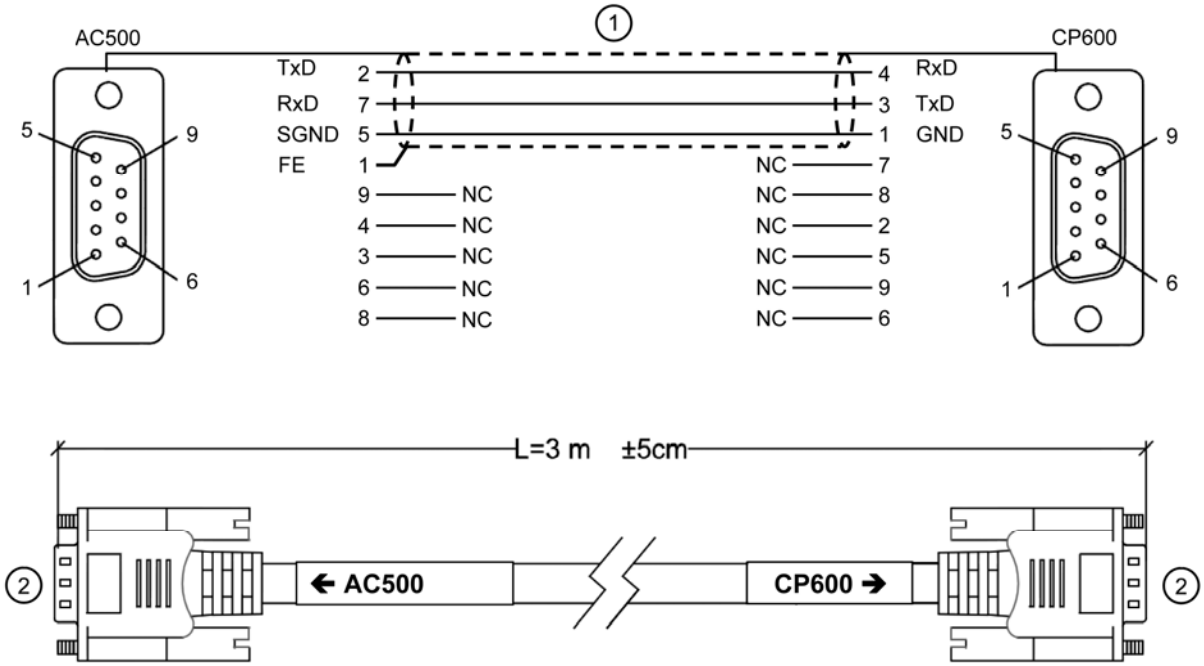


**CAUTION!**

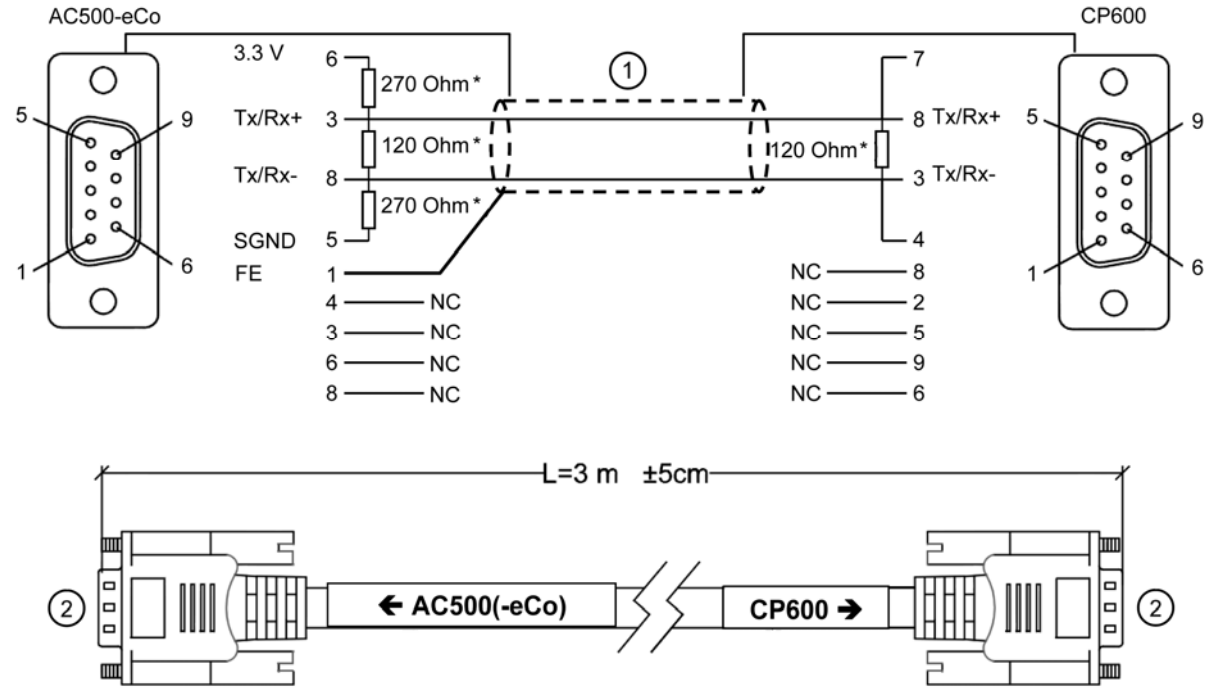
Screw each fixing screw until the bezel corner gets in contact with the panel.

## Communication Cables

The communication cable must be chosen for the type of device being connected.



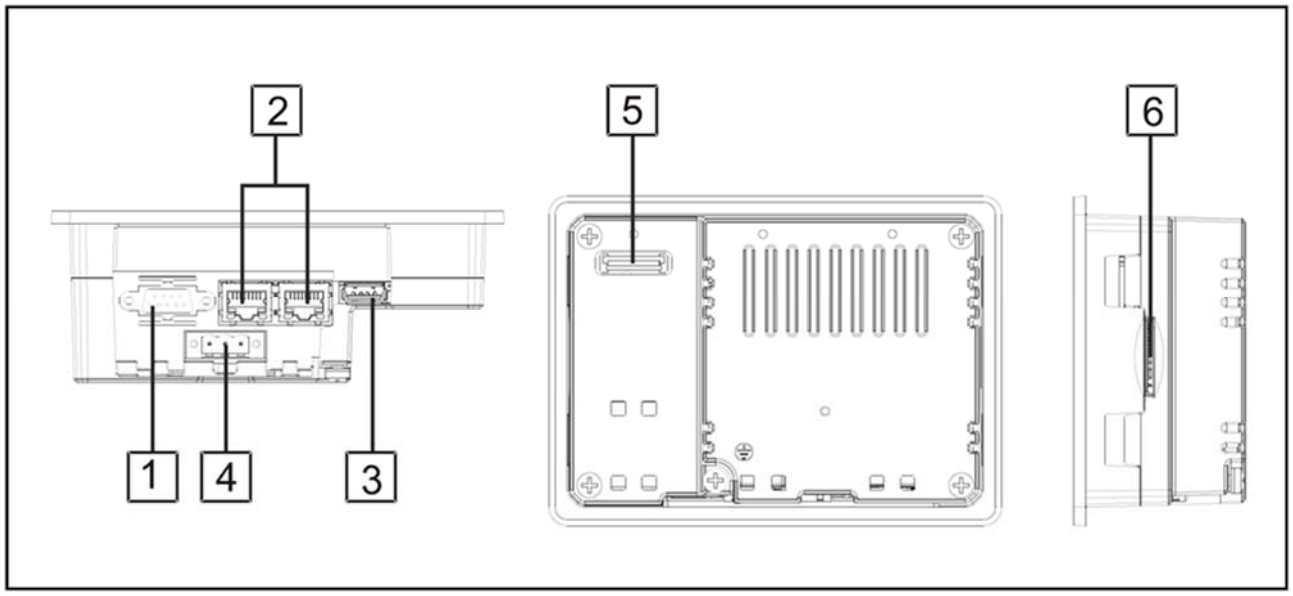

*Connection to an AC-500 with the TK681 CP600-AC500 RS232 communication cable*



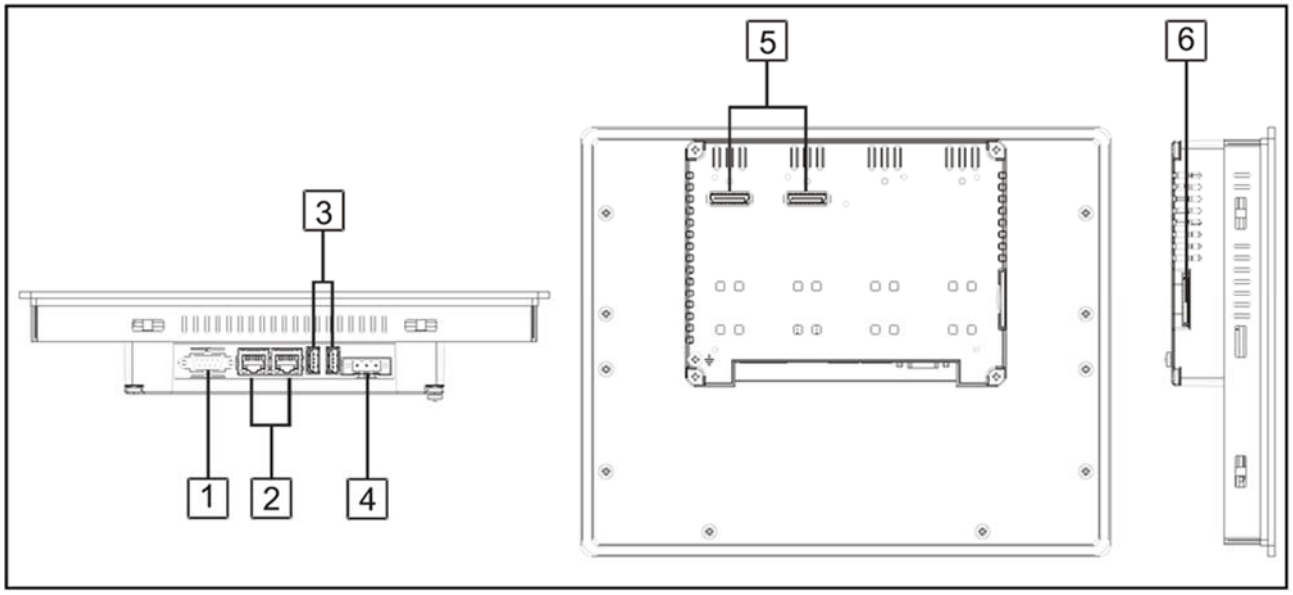

*Connection to an AC-500(-eCo) with the TK682 CP600-AC500-eCo RS485 communication cable*
**) all resistors: 0.25 W*

**1** Shield **2** SubD9 male

# Connections




| | | | | | |
|---|---|---|---|---|---|
| **1** | Serial port | **3** | USB port | **5** | Expansion slot for plugin module |
| **2** | 2x Ethernet port | **4** | Power supply connector | **6** | SD card slot |




| | | | | | |
|---|---|---|---|---|---|
| **1** | Serial port | **3** | 2x USB port | **5** | 2x Expansion slot for plugin modules |
| **2** | 2x Ethernet port | **4** | Power supply connector | **6** | SD card slot |

# Serial Port

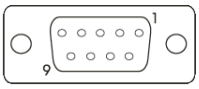
The serial port is used to communicate with the PLC or with another type of controller.

Different electrical standards are available for the signals in the PLC port connector: RS-232, RS-422, RS-485.

**NOTE**

It is always necessary to use the correct cable type to connect on the PLC.
If the proper cable is not used, communication with the PLC will not be possible.

The serial port is software programmable. Make sure you select the appropriate interface in the programming software.



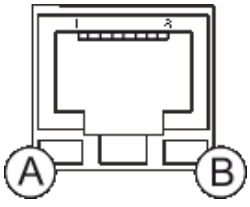

*Serial port.*

| **RS-232** | | **RS-422, RS-485** | |
|---|---|---|---|
| **Pin** | **Description** | **Pin** | **Description** |
| 1 | GND | 1 | GND |
| 2 | | 2 | |
| 3 | TX | 3 | CHA- |
| 4 | RX | 4 | CHB- |
| 5 | | 5 | |
| 6 | +5 V output | 6 | +5 V output |
| 7 | CTS | 7 | CHB+ |
| 8 | RTS | 8 | CHA+ |
| 9 | | 9 | |

The communication cable must be chosen for the type of device being connected.

# Ethernet Port

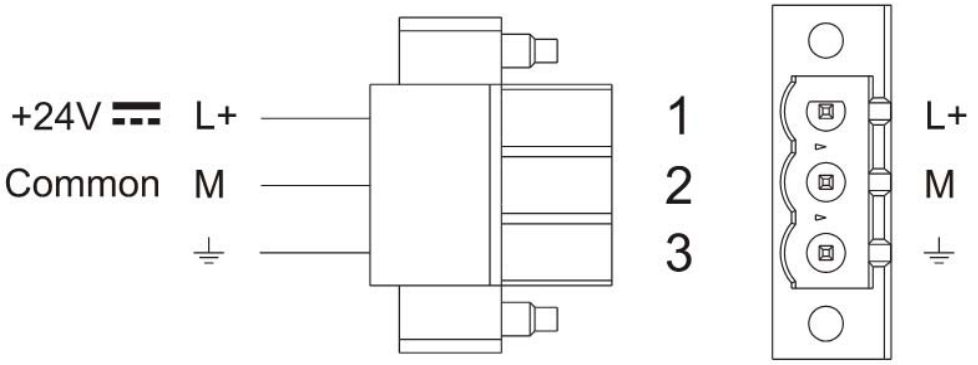
The Ethernet port has two status indicators.




*Ethernet Port*

| | | | | | |
|---|---|---|---|---|---|
| A | OFF: | Valid link has not been detected | B | ON: | No activity |
| | ON: | Valid link has been detected | | OFF: | Activity |

# Power Supply, Grounding and Shielding




*DC Power Connector, Female - R/C Terminal Blocks (XCFR2), manufactured by Weidmüller Inc., Cat. No. BLZ 5.08, torque 4.5 lb-in*

**NOTE**

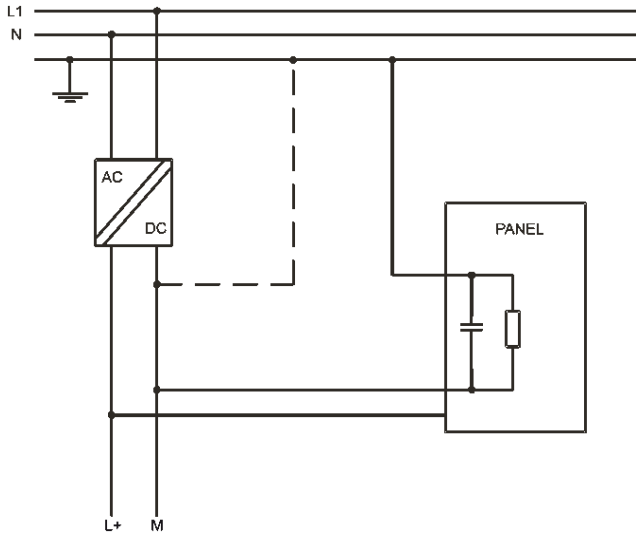
Ensure that the power supply has enough power capacity for the operation of the equipment.

The unit must always be grounded to earth. Grounding helps limit the effects of noise due to electromagnetic interference on the control system.

1. Do the earth connection using either the screw or the fasten terminal located near the power supply terminal block. A label helps identify the ground connection.
2. Connect to ground the terminal 3 on the power supply terminal block.
3. The power supply circuit may be floating or grounded. In the latter case, connect to ground the power source common as shown in the figure below with a dashed line.

When using the floating power scheme, note that the panes internally connects the power common to ground with a 1 MΩ resistor in parallel with a 4,7 nF capacitor.

The power supply must have double or reinforced insulation.




*Suggested wiring for the power supply.*

All the electronic devices in the control system must be properly grounded. Grounding must be performed according to applicable regulations.

# Battery

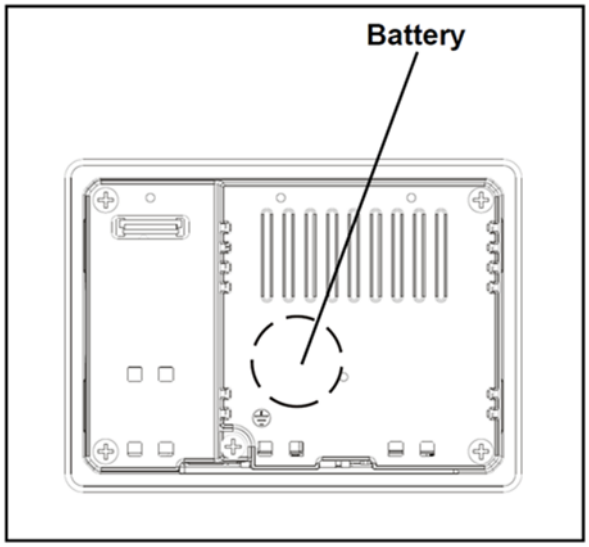
The Control Panels are equipped with a rechargeable lithium battery, not user-replaceable.

The battery maintains the hardware real-time clock (date and time).

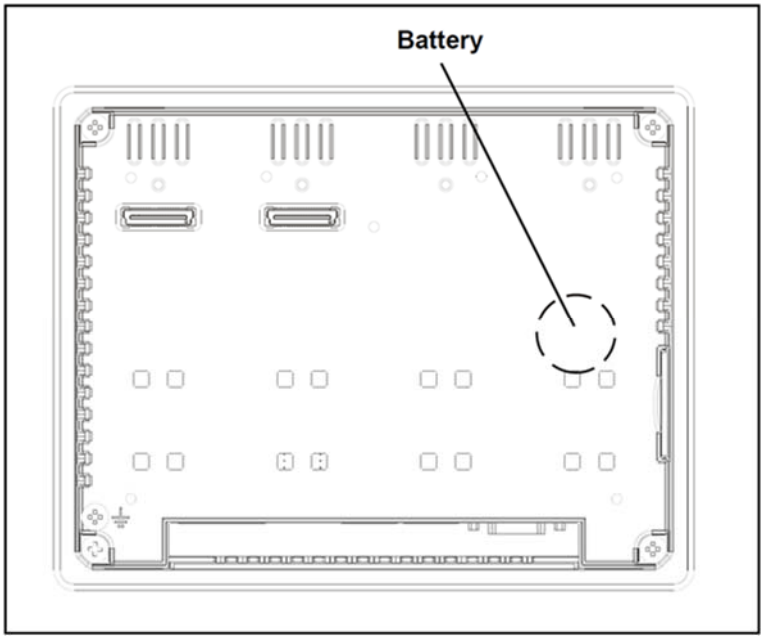
### Charging the Battery

→ At first installation recharge the battery for 48 h.

➤ When the battery is charged, it assures a period of 3 month of data back-up at 25 °C.




CP620, CP620-WEB




CP630, CP630-WEB, CP635, CP635-B, CP635-WEB, CP635-FB, CP635-FW,
CP651, CP651-WEB, CP661, CP661-WEB, CP665, CP665-WEB, CP676, CP676-WEB

**NOTE**

The battery must not be disposed as unsorted domestic waste.

→ Dispose the battery according to the local regulations.

# Cleaning Faceplates

The equipment must be cleaned only with a soft cloth and neutral soap product. Do not use solvents.

# Getting Started

The Control Panels (not the CP6**-WEB products) must be programmed with the programming package PB610 Panel Builder 600.

The Control Panels are programmed via the Ethernet interface.

✓ The Control Panel must be in configuration mode to be programmed.

→ To program a Control Panel connect the Control Panel to a PC running PB610 Panel Builder 600 software package.

The software package PB610 Panel Builder 600 is a Windows™ application and must be properly installed. The Windows™ environment is not included in the software package PB610 Panel Builder 600 and must already be installed on the PC.

PB610 Panel Builder 600 uses the PC Ethernet interface to communicate with the target device.

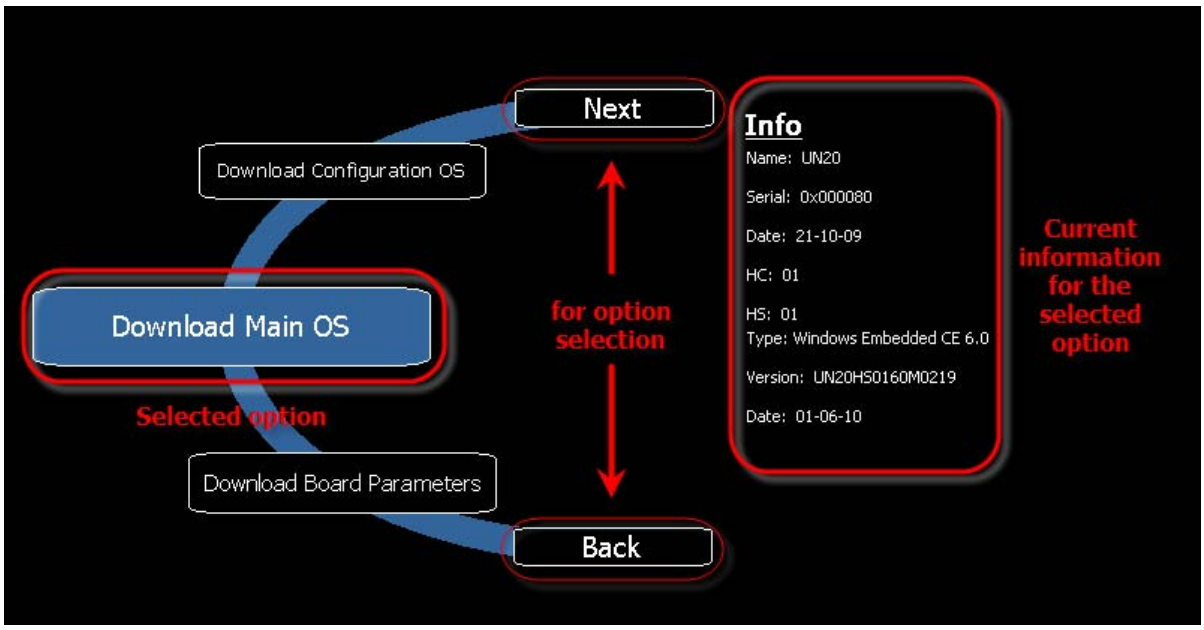
→ Make sure that the proper firewall policy is configured in order to allow PB610 Panel Builder 600 to access the network.

The version of the Panel Builder used must be compatible with the PB610 Panel Builder 600 Runtime version installed on the Control Panel to be programmed. An update of the panel´s runtime can be done by means of the programming software.

Check with technical support for more information on compatibility between firmware and programming software.

# System Settings

The Control Panels have a system settings tool to allow basic and preliminary settings to the unit.




*System settings tool*

The system settings tool is a rotating menu.

→ Use the navigation buttons **Next** and **Back** to scroll between the available options.

➤ On the left side the selected component and function are highlighted.

➤ On the right side, on the “Info” pane, the information about the selected option is shown. For example the version of the Main OS component.

The system settings tool has two operating modes: User Mode and System Mode. The difference between them is the number of available options.

System settings in User Mode is activated from the contextual menu, accessible by clicking and holding any unused area on the touchscreen for a few seconds. Default holding time is 2 sec. This is a runtime parameter that could have been changed.

System settings in System Mode can be activated with the so-called emergency system access procedure. This procedure consists in tapping in the middle of the touchscreen with a finger at a high frequency while the system is powering up. The emergency procedure can only be accessed at power up.

### User Mode

User Mode is the simplest possible interface where a generic user can get access to the basic settings of the panel:

- Calibrate Touch: allows to calibrate the touchscreen interface
- Network: allows to change the options of the panel on-board network card
- Time: allows to change the panel RTC (real time clock) options, including time zone and DST (day-light saving time)
- Display settings: automatic backlight turnoff and brightness adjustment
- BSP settings: allows to check the BSP (Board Support Package) version (example 2.37), check the operating hours timers for the unit and separately for the backlight, enable/disable the buzzer, enable/disable the use of the “low battery” front LED indicator

### System Mode

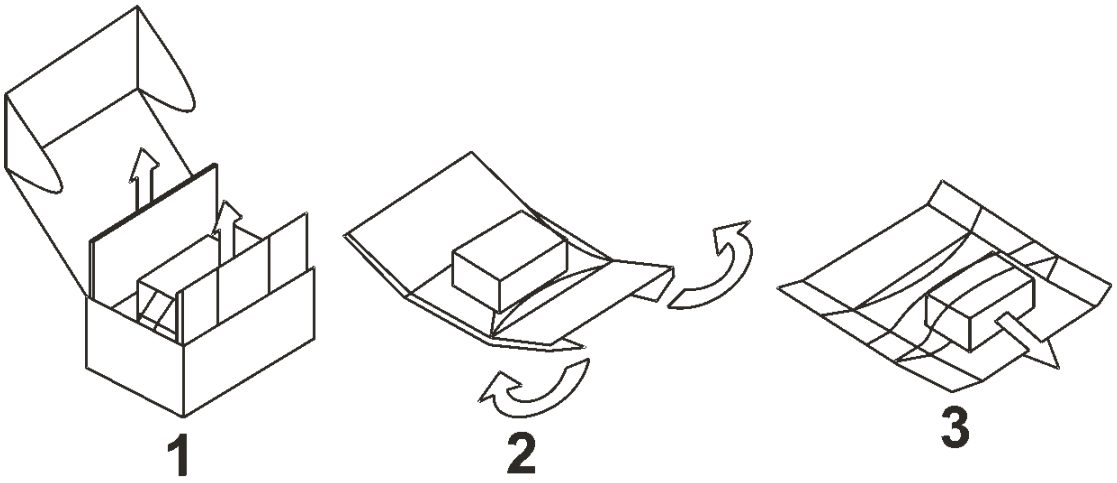
- System Mode is the complete interface of the system settings tool where all options are available. Additionally to the options of the User Mode the following options are available:
- Format Flash: allows to format the internal panel flash disk
- Resize Image Area: allows to resize the flash portion reserved to store the splash screen image displayed by the unit at power up.
- Download Configuration OS: allows to check current version and upgrade the back-up operating system.
- Download Main OS: allows to check current version and upgrade the main operating system.
- Download Splash Image: allows changing the splash screen image displayed by the unit at power up; the image should be provided in a specific format. Update Splash Screen Image directly from Panel Builder software which supports this feature starting from V 1. 50
- Download Bootloader: allows to check current version of the system boot loader and to upgrade it.
- **Only for CP651, CP661, CP665, CP676:**
- Download Main FPGA: allows to check current version and upgrade the main FPGA firmware.
- Download Safe FPGA: allows to check current version and upgrade the back-up (safe) copy of the FPGA Firmware.
- Download System Supervisor: allows to check current version and upgrade the system supervisor firmware responsible for RTC and power supply handling.

# Dedicated LED Indicators

There is one LED in the upper left part of the front below the red stripe.
The meaning of the LED indicator is explained in the following table:

| LED color | Status | Meaning |
|---|---|---|
| Green | On | Normal Operation |
| | Blinking | Communication error or alarm requires acknowledgement |
| Red | On | Hardware fault or battery low |

# Unpacking and Packing Instructions




To repack the unit follow the instructions backwards.

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