

Installation and Operating instructions for

# Built-in Control Panel CP6608

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**BECKHOFF**



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# General Notes

## Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards. It is essential that the following notes and explanations are followed when installing and commissioning these components.

## Liability conditions

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

The documentation has been prepared with care. The products described are, however, constantly under development. For this reason, the documentation may not always have been fully checked for consistency with the performance data, standards or other characteristics described. None of the statements in this manual represent a guarantee for as set out in § 443 of the German Civil Code or a statement about the assumed use according to the contract as set out in § 434 para. 1 clause 1 no. 1 of the German Civil Code. In the event that it contains technical or editorial errors, we retain the right to make alterations at any time and without warning. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

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## Description of safety symbols

The following safety symbols are used in this operating manual. They are intended to alert the reader to the associated safety instructions.



**Danger**

This symbol is intended to highlight risks for the life or health of personnel.



**Warning**

This symbol is intended to highlight risks for equipment, materials or the environment.



**Note**

This symbol indicates information that contributes to better understanding.

## Basic safety measures



**Warning**

**Before opening the control panel housing, and whenever the control panel is not being used for control purposes (such as during functional checks after a repair), all parts of the equipment must first be switched off, after which the control panel is to be disconnected from the equipment.**

Disconnect the device by unplugging the connectors on the Control Panel side.

**Items of equipment that have been switched off must be secured against being switched on again.**

Displays used for the control panel's LC-display are operated with a voltage of up to 1000 V, depending on type. For that reason:

**The supply voltage must be disconnected before the housing of the Control Panel is opened.**



**Danger**

Assembly work on the Control Panel during operation may damage the panel:

- if metal objects such as screws or tools fall onto operating circuit boards.
- if connecting cables internal to the control panel are removed or inserted during operation



**Note**

## Operator's obligation to exercise diligence

The operator must ensure that

- the Control Panel is only used for its intended purpose (see [Product Description](#) section);
- the Control Panel is only operated in a sound condition and in working order;
- the instruction manual is in good condition and complete, and always available for reference at the place of installation of the Control Panel;
- the Control Panel is operated, maintained and repaired only by suitably qualified and authorized personnel.
- the personnel is instructed regularly about relevant occupational safety and environmental protection aspects, and is familiar with the operating manual and in particular the safety notes contained herein.
- none of the safety and warning notes attached to the Control Panel are removed, and all notes remain legible.

*National regulations depending on the machine type*

Depending on the type of machine and plant in which the Control Panel is used, national regulations governing the controllers of such machines will apply, and must be observed by the operator. These regulations cover, amongst other things, the intervals between inspections of the controller.

The operator must initiate such inspections in good time.

*Procedure in the event of a fault*

In the event of faults at the Control Panel, the list in the section [Troubleshooting](#) can be used to determine the measures to be taken.

## Operator requirements

*Read the operating instructions*

Anyone who uses the Control Panel must have read these operating instructions.

*Software knowledge*

Every user must be familiar with all the functions of the software installed on the Control Panel to which he has access.

# Product Description

## Appropriate Use

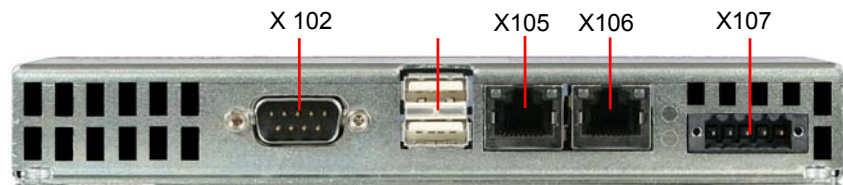
The CP6608 Control Panel is designed for industrial application in machine and plant engineering. A steel plate housing with aluminum front contains a TFT display and a touch screen (optional). The Control Panel is installed in the front of control cabinets.

*Do not use the Control Panel in areas of explosive hazard*

**The Control Panel must not be used where there is a risk of explosion.**

## Connections

Control Panel CP6608 connections



### Pin assignment

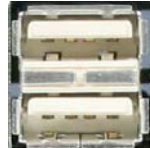
X 102  
Serial interface



D-SUB plug 9-pin (RS 232)

Pin	Signal	Pin	Signal
1	CD	6	DSR
2	RxD	7	RTS
3	TxD	8	CTS
4	DTR	9	RI
5	GND		

X103, X104  
USB out



USB Type-A twin circuit board mounting (FCI 72309-0030B USB Double Receptacle A-Type)

Pin	Signal	Pin	Signal
1	5V	3	D+
2	D-	4	GND

X 105, X 106  
Network



RJ-45 connector (Ethernet 10/ 100 MBit)

Pin	Signal	Pin	Signal
Housing	Screen	5	n.c.
1	TD +	6	RD -
2	TD -	7	n.c.
3	RD +	8	n.c.
4	n.c.		

X107  
Power



Socket 5-pol RM3.50 Sw Screw Clamp BL3.5/180F (WEIDMÜLLER 1615810000)

Pin	Function
1	NC
2	NC
3	⊕
4	-
5	+

24 V DC Power Supply

## Connector description

*Serial interface  
COM1*

### Serial interface

The Control Panel is equipped with a COM1 (**X 102**) serial interface (Type RS232) for the connection of serial peripheral devices.

*USB out*

### USB interfaces

The two USB interfaces (**X 103, X104**) (connector type A) are used for connecting peripheral devices with USB connection. USB2.0 standard is supported.

*Network*

### Network interfaces

The RJ-45 sockets (**X 105, X 106**) enable connection of the Control Panel to a 10/ 100 MBit Ethernet network.

*Power*

### Power supply

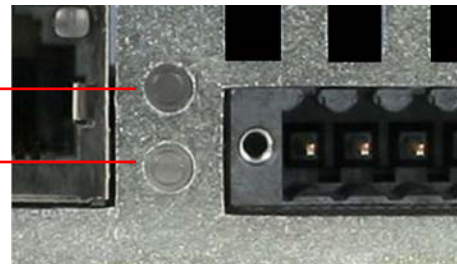
The power supply for the Control Panel is established via the socket (**X 107**).

*Description of the Status-LEDs*

## Status-LEDs

P101

P102



The Status-LEDs are located near the Power Connector.

<b>P101</b>	-	-
<b>P102</b>	24 V in	Power Supply is established

## Ordering Option

Option	
<b>C9900-E197</b>	<b>"Economy"-Einbau-Control-Panel CP6608</b> <b>Version: Building Automation</b> 18 pin connector instead of RS232 serial port with 2 digital inputs for 24 V, 2 digital outputs for 24 V, PT100 sensor input, stereo sound line out and microphone in



# Installation Instructions

Please also refer to chapter [General Notes](#).

## Transport and Unpacking

The specified storage conditions must be observed (see chapter [Technical data](#)).

### Transport

Despite the robust design of the unit, the components are sensitive to strong vibrations and impacts. During transport, your Control Panel should therefore be protected from excessive mechanical stress. Therefore, please use the original packaging.



Danger of damage to the unit!

If the device is transported in cold weather or is exposed to extreme variations in temperature, make sure that moisture (condensation) does not form on or inside the device.

Prior to operation, the unit must be allowed to slowly adjust to room temperature. Should condensation occur, a delay time of approximately 12 hours must be allowed before the unit is switched on.

### Unpacking

Proceed as follows to unpack the unit:

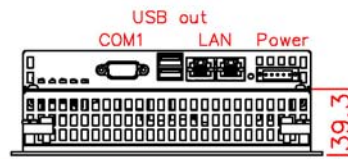
1. Remove packaging.
2. Do not discard the original packaging. Keep it for future relocation.
3. Check the delivery for completeness by comparing it with your order.
4. Please keep the associated paperwork. It contains important information for handling the unit.
5. Check the contents for visible shipping damage.
6. If you notice any shipping damage or inconsistencies between the contents and your order, you should notify Beckhoff Service.

# Assembly

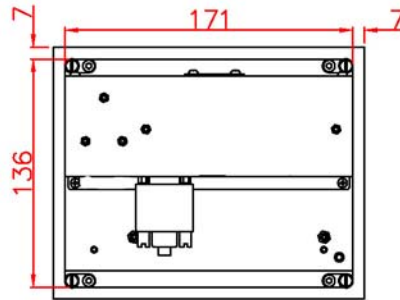
## Assembly dimensions

Control Panel CP6608

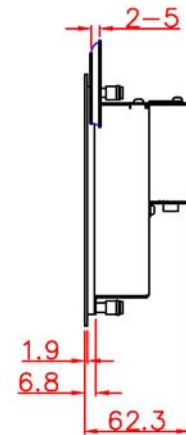
All dimensions are in mm.



bottom view

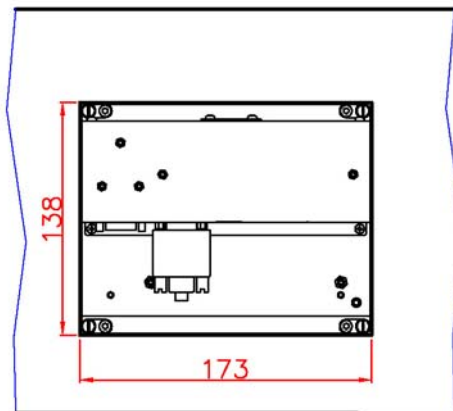


rear view



right view

### Required cutout



rear view  
with  
install measure

### Mounting of the Control Panel

Please refer to the chapter *Assembly dimensions* for Control Panel cutout dimensions.

*Mounting of the Control Panel with 4 clamping levers*



*Release clamping levers,*

Insert the Control Panel into the cutout.

Release the clamping levers with a No. 2.5 Allen key.



*Folding them out*

Turn the clamping levers to the side through 90°



*and retighten them.*

and retighten the screws.



## Fitting the cable

### Wiring

Fit the cables for the power supply of the Control Panel, using the included material for assembling the connectors.

### Cable Cross Sections

*Note cable cross sections, avoid voltage drop!*

For the connection of the power supply, wiring with a cable-cross-section of 1.5 mm<sup>2</sup> must be used.

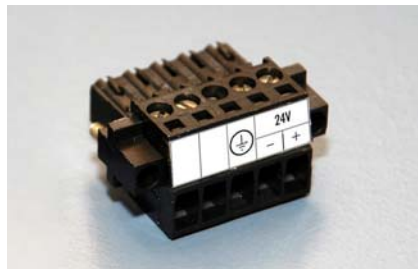
With bigger distances between voltage source and Control Panel, you take the voltage drop as a function of the cable-cross-section as well as voltage fluctuations of your distribution voltage into account, so that is secured that the voltage doesn't fall under 22 V at the power supply.

### Insert Fuse

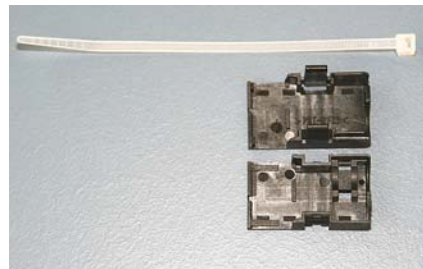
**The power supply must be protected with maximum 16 A.**

### Material for assembling the connector

*Material for assembling the connector*



Plug connector 5-pole



Stain relief housing with lacing cord

### Assembling the connector

*Fitting the connector to the cable*

So the connector is fitted to the cable:

1. Strip insulation from the cable ends (Length of stripped conductor is 8 - 9 mm).
2. Screw together the cable ends in the 5-pole plug connector in accordance with wiring diagram.

*Applying the strain relief*



Thread the lacing cord into that lower part of the stain relief housing.

*Putting in the plug connector*



Put the plug connector into that lower part of the stain relief housing. Tighten the lacing cord and pinch off the plastic strap.

*Fixing the upper part of the stain relief housing*



Fix the upper part of the stain relief housing by snapping it onto the lower part.

## Connecting the Control Panel



**Danger**



**Warning**

The Control Panel must never be connected or disconnected in an area that is subject to explosion hazard! Risk of explosion!

The mains plug of the Control Panel must be disconnected!

Please read the documentation for the external devices prior to connecting them.

During thunderstorms, plug connector must neither be inserted nor removed.

When disconnecting a plug connector, always handle it at the plug. Do not pull the cable!

### Connecting cables

The connections are located at the rear side of the Control Panel and are documented in the [Product Description](#) section.

When connecting cables to the Control Panel, please adhere to the following order:

- Switch the Control Panel off
- Disconnect the Control Panel from the power supply
- Connect all cables at the Control Panel and at the devices to be connected
- Ensure that all screw connections between connectors and sockets are tight!
- Reconnect all devices to the power supply.

# Operating Instructions

Please also refer to chapter [General Notes](#).

## Functional description

### *Switch on*

The Control Panel does not have its own mains power switch. As soon as the power supply is switched on the control panel is activated.

### *Switching off*

Control software, as typically applied in Industrial PCs, enables the assignment of different rights to all users. A user who is not entitled to shut down the software may not switch off the Industrial PC as an attempt to shut it down when the software is running could result in the loss of software data on the memory.

If the Industrial PC is shut down while the software is writing a file to the memory, the file will be destroyed. Control software typically writes something to the memory every few seconds, so that the probability of causing damage by switching off while the software is running is very high.



### **Note**

The touch screen may only be actuated by finger tips or with the touch screen pen. The operator may wear gloves but there must be no hard particles such as metal shavings, glass splinters embedded in the glove.

## Servicing and maintenance

Please also refer to chapter [General Notes](#).

### Cleaning the Control Panel

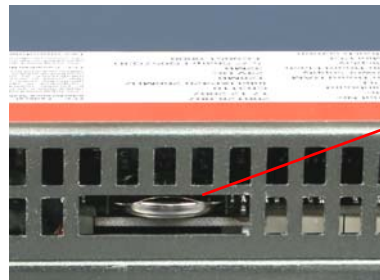
*First switch off the Control Panel*

Switch off the Control Panel and all devices connected to it, so that keys cannot be unintentionally actuated.

The front of the Control Panel can be cleaned with a soft, damp cleaning cloth. Do not use any aggressive cleaning materials, thinners, scouring material or hard objects that could cause scratches.

### Replacing the battery on the motherboard

A used battery on the motherboard has to be replaced according to the rules of the board manufacturer.



The battery is located at the upper side of the Control Panel



**Danger**

Danger of Explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

### Servicing

The Control Panel is maintenance-free.



**Note**

### Replacing the fluorescent lamps in the display

Since fluorescent lamps represent a consumable item in a display, they must be replaced after a few years, depending on the number of operating hours.

The fluorescent lamps of the 5.7 inch display can only be replaced from Beckhoff Service.

## Emergency procedures

In case of fire, the control panel should be extinguished with powder or nitrogen.

## Shutting down

### Disposal

*Dismantle the Control Panel*

The device must be fully dismantled in order to dispose of it. The housing can be sent for metal recycling.

*Observe national electronics scrap regulations*

Electronic parts such as lamps and circuit boards must be disposed of in accordance with national electronics scrap regulations.

# Troubleshooting

Please also refer to chapter [General Notes](#).



**Note**

**Pixel errors in the TFT display are production-caused and represent no complaint-reason!**

## Fault correction

<b>Fault</b>	<b>Cause</b>	<b>Measures</b>
The Control Panel shows no function	No power supply to Control Panel  Cable not connected	Check power supply cable  1. Correctly connect cable 2. Call Beckhoff Service
The Control Panel does not boot fully	Setup settings are incorrect  Other cause	Check the setup settings  Call Beckhoff Service
Computer boots, software starts, but control does not operate correctly	The cause of the error is in the software or in parts of the equipment outside the control panel	Call the manufacturer of the machine or the software
The Control Panel has only partial function, or only functions some of the time, for instance the picture is dark or absent	Faulty fluorescent bulb in the display  Defective components in control panel	Replacement of the fluorescent tube in the display from Beckhoff Service  Call Beckhoff Service.



## Service and Support

Beckhoff and their partners around the world offer comprehensive service and support, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

### Beckhoff's branch offices and representatives

Please contact your Beckhoff branch office or representative for [local support and service](#) on Beckhoff products!

The addresses of Beckhoff's branch offices and representatives round the world can be found on her internet pages:

<http://www.beckhoff.com>

You will also find further [documentation](#) for Beckhoff components there.

### Beckhoff headquarters

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- design, programming and commissioning of complex automation systems
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Fax: +49(0)5246/963-9157  
e-mail: [support@beckhoff.com](mailto:support@beckhoff.com)

### Beckhoff Service

The Beckhoff Service Center supports you in all matters of after-sales service:

- on-site service
- repair service
- spare parts service
- hotline service

Hotline: +49(0)5246/963-460  
Fax: +49(0)5246/963-479  
e-mail: [service@beckhoff.com](mailto:service@beckhoff.com)

*Quote the project number*

If servicing is required, please quote the **project number** of your Industrial PC.

# Appendix

## Technical data

<i>Dimensions</i>	<b>Dimensions (W x H x D):</b> see section <a href="#">Assembly dimensions</a> . <b>Weight:</b> 1.2 kg
<i>Operation in areas that are subject to explosion hazard</i>	<b>The Control Panel must not be used where there is a risk of explosion.</b>
<i>Environmental conditions</i>	<b>The following conditions must be observed during operation:</b> <b>Ambient temperature:</b> 0 to 55°C <b>Atmospheric humidity:</b> Maximum 95%, non-condensing
<i>Shock resistance</i>	<b>Sinusoidal vibration:</b> <b>(EN 60068-2-6)</b> 10 to 58 Hz: 0.035 mm 58 to 500 Hz: 0.5 G (~ 5 m/ s <sup>2</sup> ) <b>Impact:</b> <b>(EN 60068-2-27/ 29)</b> 5 G (~ 50 m/ s <sup>2</sup> ), duration: 30 ms
<i>Protection class</i>	<b>Front side:</b> IP65 <b>Rear side:</b> IP20
<i>Power supply</i>	<b>Supply voltage:</b> 24 V <sub>DC</sub> (22 – 30 V <sub>DC</sub> ) <b>Power consumption:</b> contact Beckhoff Service
<i>EMC compatibility</i>	<b>Resistance to interference:</b> conforms to EN 61000-6-2 <b>Emission of interference:</b> conforms to EN 61000-6-4
<i>Transport and storage</i>	The same values for atmospheric humidity and shock resistance are to be observed during transport and storage as in operation. Suitable packaging of the Control Panel can improve the resistance to impact during transport. The ambient temperature during storage and transport must be between -20°C and +65°C.



Note

**Pixel errors in the TFT display are production-caused and represent no complaint-reason!**

## Approvals

### FCC: Federal Communications Commission Radio Frequency Interference Statement

*FCC Approval for 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 a 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 a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### FCC: Canadian Notice

*FCC Approval for Canada*

This equipment does not exceed the Class A limits for radiated emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.