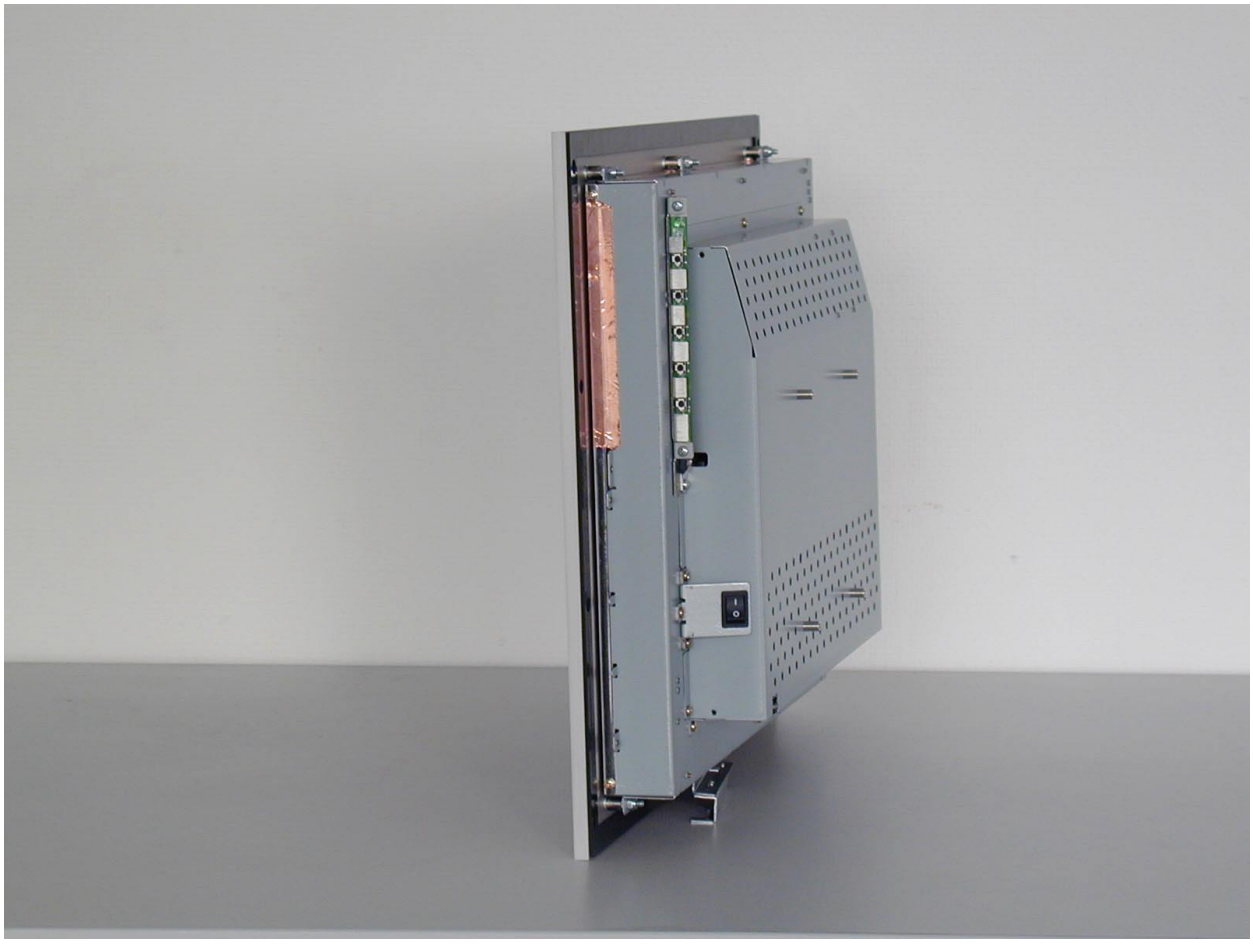
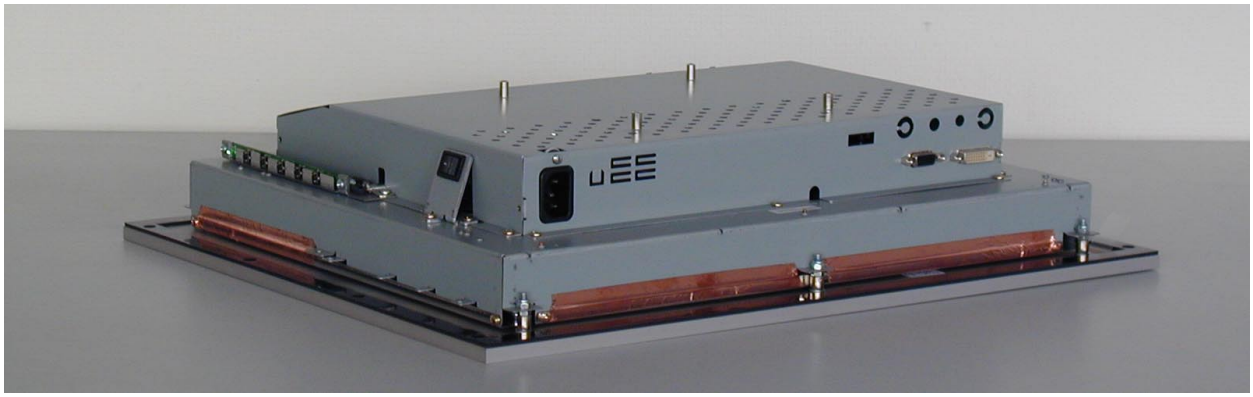
Beckhoff Control Panel CP6003-1001, CP6003-1002

Operating Instructions

Version: 1.3
Last change: 27.03.2001

BECKHOFF





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Safety instructions

Please read through the following instructions carefully. Keep these operating instructions for later use.

If the Control Panel is fitted with the optional Touch Screen it must be switched off in order to clean the LCD screen.

The operator's duties

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.

Test regulations

The operator must initiate such inspections in good time.

Only competent personnel may open the housing of the control panel

The operator must ensure that only competent electricians open the control panel housing.

Software knowledge

Every user must be familiar with any of the functions of the software installed on the PC that he can reach.

Make operating instructions accessible

The contents of these operating instructions must be known to the user of the control panel and to every assembly worker who fits, removes or opens the device.

Procedure in the event of a fault

In the event of faults at the control panel, the list in the section on "Faults" can be used to determine the measures to be taken.

The BECKHOFF Service number:

for Germany:	05246/963-460
International:	+49-5246/963-460
for North America:	+1-952-890-0000

The user's duties

Read the operating instructions

Anyone who uses the control panel must have read these operating instructions.

Software knowledge

Every user must be familiar with any of the functions of the software installed on the PC that he can reach.

Appropriate Use

The CP6003 Control Panel is designed for industrial application in machine and plant engineering. An LCD display and a Touch Screen (optional) are mounted in a metal housing.

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.
The following technical data must be observed during operation:

Environmental conditions

Ambient temperature: 0 to 55 °C
Atmospheric humidity: Maximum 90%, non-condensing

Shock resistance

Shock resistance: Vibrations 5 G at 10..55 Hz
Vibrations 1 G at 55..500 Hz
Impact resistance 30 G

Protection type: Front: IP65
Rear: IP20

Power supply

Supply voltage: 100-240 V alternating voltage,
50-60 Hz single phase

A tested 3-core cable with a minimum cross-section of 0.75 mm² is to be used to connect the device.

Power consumption

Power consumption:
ON mode: 65 W typical
OFF mode: 5 W maximum

Electromagnetic compatibility

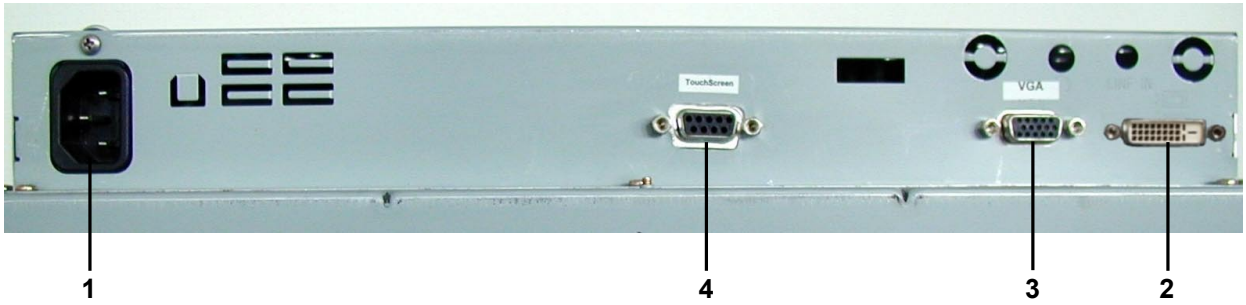
Emission of interference: according to EN 50081-2
Resistance to interference: according to EN 50082-2
FCC Class A

Transport and storage

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.

Connections

The connections are located at the rear of the Control Panel (see photograph below).



1. Power supply 100-240 V AC

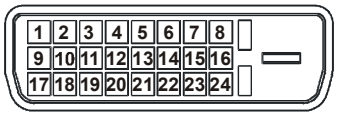
Power supply

Connect an external power supply unit (100-240V AC 50-60Hz) to this appliance socket.

2. Digital video connection

Digital video connection

If your PC has a graphic card with a 24-pin DVI connector, you should connect it with a Digital 24-pin DVI signal cable.

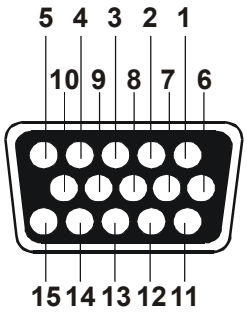


Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2-	13	T.M.D.S. Data 3+
2	T.M.D.S. Data 2+	14	+5V Power
3	T.M.D.S. Data 2/4 Shield	15	Ground (for +5V)
4	T.M.D.S. Data 4-	16	Hot Plug Detect
5	T.M.D.S. Data 4+	17	T.M.D.S. Data 0-
6	DDC Clock	18	T.M.D.S. Data 0+
7	DDC Data	19	T.M.D.S. Data 0/5 Shield
8	No Connect	20	T.M.D.S. Data 5-
9	T.M.D.S. Data 1-	21	T.M.D.S. Data 5+
10	T.M.D.S. Data 1+	22	T.M.D.S. Clock Shield
11	T.M.D.S. Data 1/3 Shield	23	T.M.D.S. Clock+
12	T.M.D.S. Data 3-	24	T.M.D.S. Clock-

3. Analog video connection

Analog video connections

The Control Panel has one 15-pin sub-D VGA signal input. You can plug the VGA cable into this video connection.



Pin	Signal Assignment	Pin	Signal Assignment
1	Video signal red	9	Code (no pin)
2	Video signal green	10	Ground synchronisation
3	Video signal blue	11	Display ID Bit 0
4	Display ID Bit 2	12	Display ID Bit 1
5	Ground	13	Horizontal synchronisation
6	Ground red	14	Vertical synchronisation
7	Ground green	15	Display ID Bit 3
8	Ground blue		

Note

If both analog and digital input ports are connected at the same time, the signal input can be selected with the OSD menu.

4. Touch Screen Connection (version CP6003-1002)

Software installation

Installing of the Touch Screen Software "MonitorMice" for Windows NT 4.0:

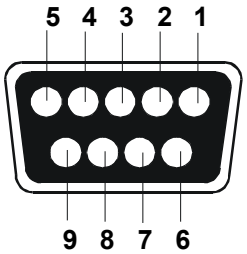
Hardware installation

1. Shutdown Windows NT and turn off your computer.
2. Connect the 9-pin SUB-D socket of the Control Panel to a serial interface on your PC.
3. Start your computer.
4. After Windows loads, insert the driver disk for Elotouch Touchscreen in the floppy drive, click the Start button, and then click Run.
5. Click the Browse button to locate the setup.exe program in the directory containing the driver install files. Click Open, then OK to run setup.exe.
6. Follow the directions on the screen to complete the Setup program.

Calibration

7. Restart your computer when prompted. The touchscreen calibration program will automatically run when Windows starts up. Touch each of the three targets as they appear on the screen. Click Yes when the cursor lines up correctly with your finger.

If you want to calibrate the touchscreen once again, you have to choose Start/Settings/Control Panel and double-click the Elo Touchscreen object.



Pin	Host Signal	Source
1	DCD	Controller
2	RXD	Controller
3	TXD	Host
4	DTR	Host
5	GND	Common
6	DSR	Controller
7	RTS	Host
8	CTS	Controller
9	RI	N/C

Operating the Control Panel

Switching on and off

Switching on and off

You switch the Control Panel on and off by pressing the rocker switch (see photograph below) at the rear of the housing.

Rocker switch

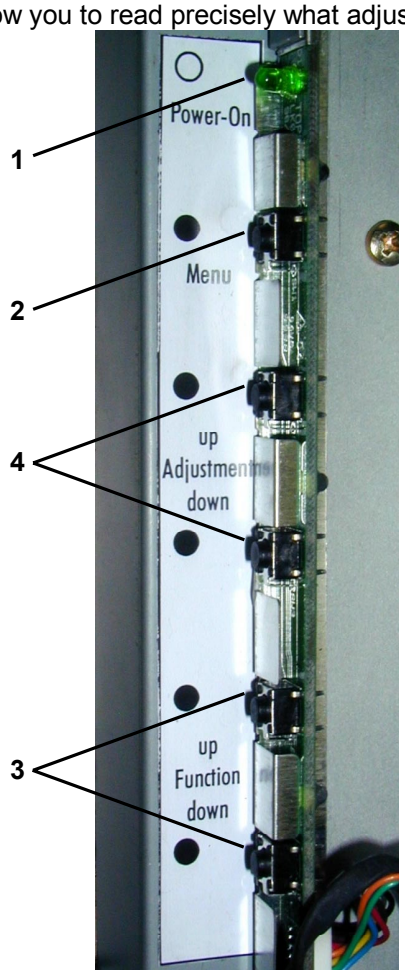
The Control Panel and its controller (OSD menu)

Operating elements (see photograph below) for control of the screen display are located at the rear of the Control Panel.

OSD

OSD

The OSD (**O**n **S**creen **D**isplay) assists the adjustment of the various image values such as width and height, brightness, contrast and so on. It is displayed on the screed by pressing the adjustment buttons on the Control Panel, which allow you to read precisely what adjustments you are making.



1. Operating display

The LED lights when the Control Panel is switched on. It flashes when the Control Panel's power saving function is active.

2. Menu button

The OSD menu appears if the "Menu" key is pressed. If you press the key again, the OSD menu will close.

3. Buttons for functional control

With the two "Function up" and " Function down" buttons you can scroll through the menu options and select one of the control functions.

4. Adjustment buttons

With the two "Adjustment up" and "Adjustment down" buttons you can adjust the selected control function appropriately for your working environment. Pressing the "Adjustment up" button will increase the value of the selected control function, while pressing the "Adjustment down" button will lower the value.

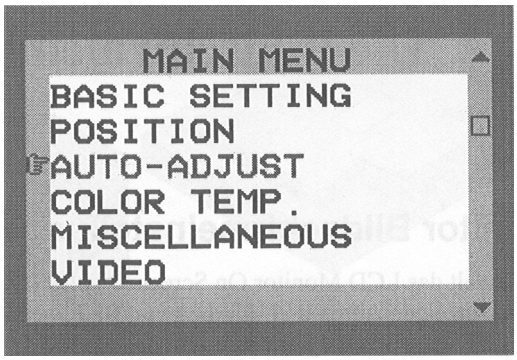
The main OSD menu

You can call up the OSD at any time when the PC is switched on. If the PC is in power saving mode, or is switched off, the OSD can not be called up.

The OSD allows screen adjustments to be made quickly and easily.

In order to call up the main OSD menu, just press the "Menu" button. The following screen will be displayed:

Main OSD menu



The control functions are divided into seven categories that are displayed in the main menu. Scroll through the menu options by repeatedly pressing the "Function up" and " Function down" buttons. By pressing the "Adjustment up" and "Adjustment down" keys you reach the sub-menus in each function group. Each menu item is described below.

Main Menu	
BASIC SETTING	For the adjustment of contrast, brightness, video level, gamma, etc.
POSITION	For the adjustment of display size, position, frequency, phase, etc.
AUTO-ADJUST	For automatic adjustment of image quality and alignment. It is advisable to use this function under Windows or a similar environment. (This function has no effect on interlaced video modes)
COLOR TEMP.	For adjustment of the displayed colours
MISCELLANEOUS	For adjustment of the audio volume level (no function), OSD positions and for obtaining information about the display types
VIDEO	For S-Video or CVBS input mode selection (optional)
LANGUAGE	To select different language
INPUT PORT	To select input signal sources between Port1 (VGA) and PORT2 (DVI)
RESET	For returning to the factory-set standard values for the display parameters
EXIT	Closes the OSD menu

Basic Setting	
CONTRAST	For adjustment of the display's contrast level
BRIGHTNESS	For adjustment of the display's brightness level
VIDEO LEVEL	For selection of the appropriate voltage level for the input signal
GAMMA	For the selection of an appropriate colour representation
FRAME	For the selection of different border colours from the 64 available, for when the display is not in full-screen mode
TO MAIN MENU	Returns to the main menu

Position	
CLOCK	For adjustment of the number of pixels in the display
PHASE	For adjustment of the display focus and sharpness
DEFAULT SIZE	For increasing the display to full screen
NATIVE SIZE	For adjustment of the original size of the display
H-POSITION	For adjustment of the horizontal display position
V-POSITION	For adjustment of the vertical display position
H-SIZE	For adjustment of the image width (horizontal)
V-SIZE	For adjustment of the image height (vertical)
GRAPH/TEXT	For selection of the graphical or text extended modes. Only possible with the resolutions 720 x 400 and 640 x 480.
TO MAIN MENU	Returns to the main menu

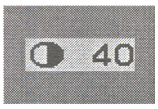
Color Temp. Menu	
9300	For selection of the colour temperature to CIE value 9300°
6500	For selection of the colour temperature to CIE value 6.500°
USER	If this option is selected, the "User Color" field is displayed in which the red, green and blue values can be individually adjusted
TO MAIN MENU	Returns to the main menu

Miscellaneous Menu	
AUDIO VOLUME	For control of the audio volume (no function)
OSD H-POSITION	For adjustment of the horizontal position of the OSD menu
OSD V-POSITION	For adjustment of the vertical position of the OSD menu
DISPLAY MODE	When this function is selected the resolution and the repetition frequency of the present screen display are displayed
F/W VERSION	Selecting this function displays the monitor's firmware version
TO MAIN MENU	Returns to the main menu

Reset Menu	
BASIC SETTING	For setting the standard values for the function parameters in the Basic Setting menu
POSITION	For setting the standard values for the function parameters in the Position menu
COLOR TEMP	For setting the standard values for the function parameters in the Color Temp menu
MISCELLANEOUS	For setting the standard values for the function parameters in the Miscellaneous menu
ALL FUNCTIONS	For returning all the function parameters to their standard values
TO MAIN MENU	Returns to the main menu

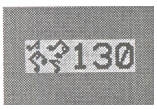
Functions for quick adjustment

When the main OSD is not displayed (see OSD , page 8) the following quick-adjustment functions are available:



Press the "Function up" key to call up the small contrast symbol. The contrast level is increased with the "Adjustment up" button and lowered with the "Adjustment down" button.

Press the "Function down" key to call up the small brightness symbol. The brightness level is increased with the "Adjustment up" button and lowered with the "Adjustment down" button.



Press the "Adjustment up" key to call up the small volume symbol. The volume level is increased with the "Adjustment up" button and lowered with the "Adjustment down" button (in this Control Panel version without function).

Press the "Adjustment down" key to enable the small port icon. Press it again to switch to the DVI connection and close the icon.

Emergency procedures

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

Servicing and maintenance

Cleaning

First switch off the Control Panel

In order to clean it the Control Panel must first be switched off (see the section on "Safety instructions"). Do not use any aggressive cleaning materials, thinners, scouring material or hard objects that could cause scratches. Spray some mild glass-cleaning agent onto a soft cloth and use it to wipe the screen.

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 circuit boards must be disposed of in accordance with national electronics scrap regulations.

Faults

Quote the project number If servicing is required, please quote the **project number** of your Control Panel.

Service numbers The BECKHOFF Service number:

for Germany: 05246/963-460
International: +49-5246/963-460

for North America: +1-952-890-0000

Fault	Cause	Procedure
No Control Panel function, operation display LED does not light	Mains cable not connected	Connect mains cable.
	Control Panel not switched on	Switch on by pressing the rocker switch (Power on/off).
	Power supply at the socket missing or incorrect	Measure supply voltage, check plug wiring, if necessary check fuse or use another socket with the correct voltage.
	Other cause	Call Beckhoff Service.
The following message is displayed: *NO SIGNAL COMING...* **CHECK SIGNAL CABLE** **MONITOR WILL ENTER** **POWER SAVING!!!!**	No signal being received	Connect one end of the signal cable to the VGA connection at the PC and the other end to the VGA connection on the Control Panel; alternative see chapter "2. Digital video connection"
	Other causes	Call Beckhoff Service.
The following message is displayed: *SIGNAL OVER RANGE!* **PRESS FUN/ADJ KEY** **FUN→ H-POSITION** **ADJ→ V-POSITION**	Signal is outside the frequency range supported by the monitor	Use the function and adjustment keys to slew the displayed picture. You will then see the display, and can change the frequency range.
	Other causes	Call Beckhoff Service.
Blurred or unstable picture	The Control Panel's screen is not optimally adjusted	Use the display controller to adjust the contrast, brightness, display position, focus, colour temperature etc..
	Other causes	Call Beckhoff Service.
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	Call Beckhoff Service.
	Other components in the Control Panel are defective	Call Beckhoff Service.

Fault	Cause	Procedure
No Touch Screen function	Touch screen is not connected correctly	Connect the 9-pin SUB-D socket of the Control Panel with the serial interface of the PC which you selected in the setup of the Elotouch software
	Other causes	Call Beckhoff Service
Touch Screen doesn't work correctly	Touch Screen is not calibrated	Calibrate Touch Screen (see Page 7).
	Other causes	Call Beckhoff Service

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.

Technical Drawing