Desktop Control Panels
with 12, 24 or 60 LCD Keys and RS232/USB interfaces

CP0304-SU

Desktop Control Panel with 12 programmable, RGB-backlit Sx6432 switches and RS232 and USB interfaces

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Overview

The CP0304 is a desktop control panel with 12 Sx6432 switches controlled via the RS232 or USB interface of the integrated CC0064 controller.
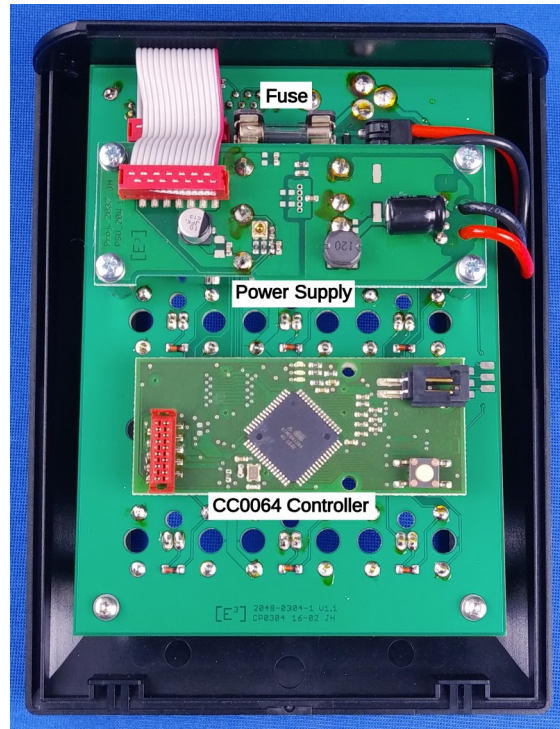
CP0304-SU

Layout

6 columns x 4 rows of Sx6432 in desktop housing with single cutout.

Key Select Tables

Electronics

The CP0304-SU panel is connected to the external host system via RS232 or USB2.0 through the [CC0064 controller board](#).

On PowerUp the CC0064 recognizes either the interface RS232 or USB2.0 that is connected. Only one interface may be connected at the same time.

Fuse

The power input is connected to a 500 mA fuse before being routed to the Power Supply PS0002.

Power Supply

The CP0304 is powered by the PS0002 Power Supply.

V_{in} 18 – 36 V_{DC}

V_{out} 5 V_{DC}

I_{out} 4000 mA

CC0064 Controller

Controller board for 24 SB6432, RS232 and USB2.0 interfaces with heartbeat and key status (press/release) with on-board memory for bitmaps and colors

FOR DETAILS ON THE CC0064 CONTROLLER AND ITS COMMAND SET, PLEASE REFER TO THE CC0064 CONTROLLER MANUAL AVAILABLE AT www.e3-keys.com.

Interfaces and Power Connection

USB2.0

USB connection via USB Type B connector.

RS232

RS232 9-pin female connector. Only RxD, TxD and Ground are used. All of the other connections are shorted.

Baud rate: 115200 baud

Data format: 8-bit, no parity, 1 stop bit

Power Connector

Nominal Input of 24V$_{DC}$ (power range 18-38V$_{DC}$) via 3.5mm center positive power connector

INSTALLATION

To install the CP0304 hardware, plug a standard USB type B cable into the USB port on the back of the unit and plug in the 5V power supply into the unit and a wall outlet.
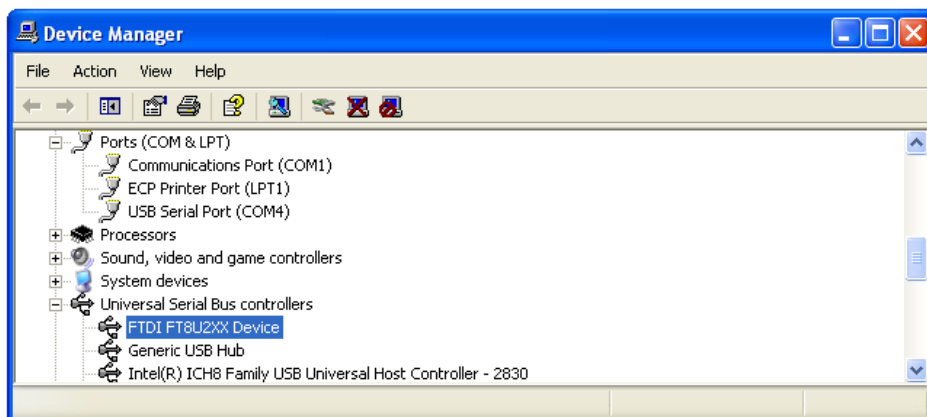
Power On

On Power On all switches will turn dark red and display the [E³] logo on each switch.

USB Port Installtion

The CP0304 uses a FTDI USB-to-serial chipset. When connected to a PC the operating system will recognize the FTDI FT8U2XX Device and install it under an available COM port. Please check your COM port assignments under the Device Manager (see Fig. 3) on your system to verify the correct port assignment.

Note: **The FTDI device (blue highlight) and the COM4 port assignment.**

The COM port assignment needs to be specified in the CP0304 software (see page 9)

Software CP0304.exe

The CP0304 software is a test and development software for the CP0304 custom control panel.
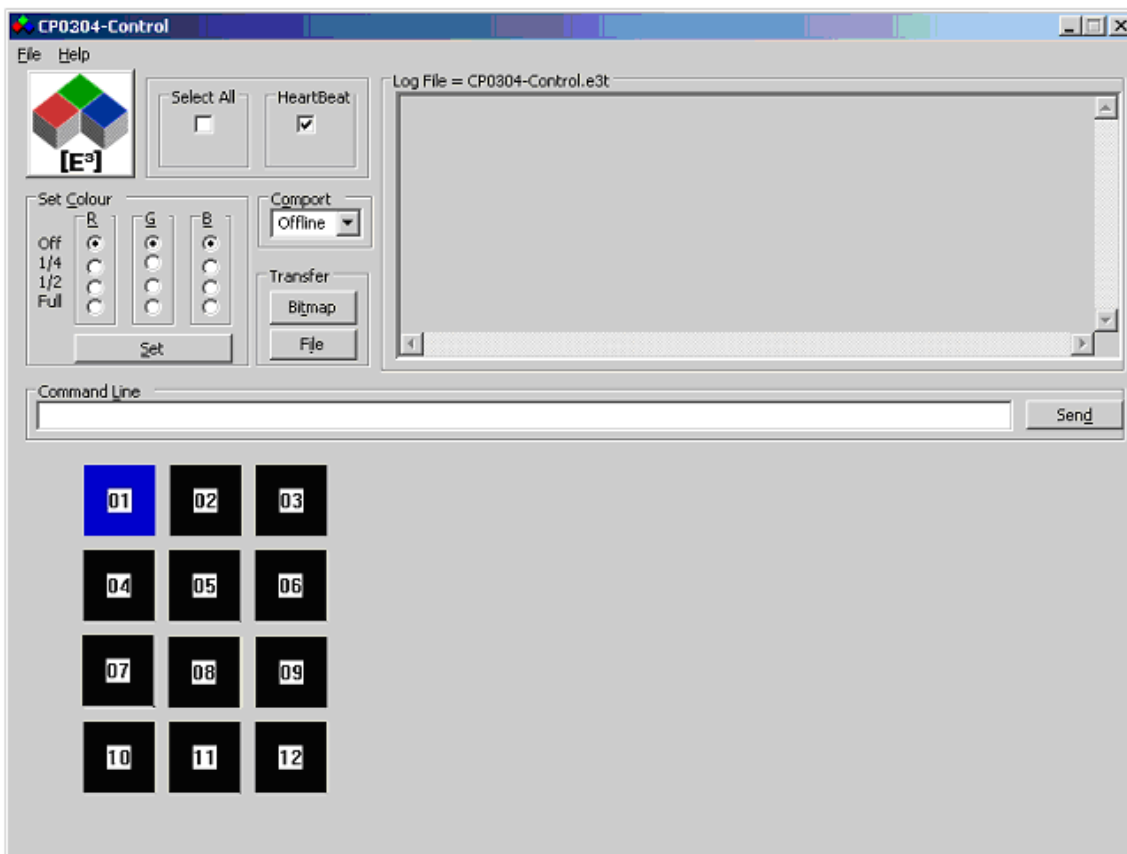
CP0304.exe

To start the program, run or double-click on CP0304 [icon] icon

The CP0304.exe program allows you to communicate with the CP0304 via a USB connection from your PC. You may control a single key or all keys simultaneously, set the background color, transfer bitmaps or files, and send individual commands via the command line. An indicator shows the presence of the data heartbeat.

All data transfer to the keys is recorded in a log file for easy review of the data and command structure. You can easily copy/paste the data into your own application.

NOTE: **The CP0304 must be powered on prior to any data transfer.**

File Menu

New Logfile

The default logfile CP0304.e3t is created on program start in the same directory in which the CP0304.exe program resides and any new data transmissions are appended to this file.

The *New Logfile* command allows you to specify the file name for a new logfile.

Clear Logfile

This command clears the current logfile. All new transmission will be added to the logfile.

Transfer File

You may select Transfer File from the File menu to send data files to the CP0304.

Exit

Ends CP0304 program.

Select Key

Before communicating with the CP0304, you must select the key to which the data is to be sent.

You may Select All keys by clicking the corresponding radio button or select a key by clicking on the Key Select Table (see below).

Config

To communicate with the CP0304 from your PC via the USB connection, you need to specify the COM port. When the CP0304 was installed on your PC the operating system assigned a COM port for the device (see USB Port Installation). Use the Comport drop-down list to select the corresponding COM port.

Once the CP0304 has connected to the COM port, a message will be displayed in the LogFile window. An error message will be displayed If an incorrect or unavailable COM port has been selected.

Select Color

To set the backlighting of the SB6432 switches to any of the **RGB** colors click on the color value for **Red**, **Green** and **Blue**. When you click on Set the corresponding color command (e.g. :**1 0x41 0x1E 0x43**) is sent to the CP0304 and recorded in the logfile. The CP0304 generates a data pause of about ½ second automatically.

This command uses the 0x41 color command, which controls 64 RGB-colors. You may use the 0x42 color command on the command line to access over 1 million **RGB** colors. (see SB6432 Technical Datasheet for more details)

NOTE: *:1* **is translated to HardwareAddress of key 1, while** *0x41 0x1e 0x43* **is the color command, which is sent directly to the corresponding key.**

Transfer

Bitmap

This commands lets you transfer any black & white bitmap generated in the corresponding pixel resolution for the SA switches to the selected keys. The CP0304 program automatically converts the bitmap into the corresponding data format and records the data transmission in the logfile for review and cut/paste to your own application.

The following bitmaps for SB6432 keys are included:

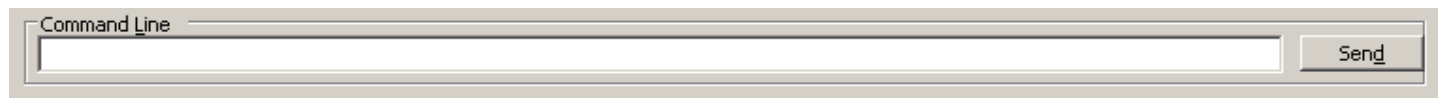|	
[E³] logo & LCD-keys.com.bmp	
[E³] logo.bmp	
[E³] logo2.bmp	
[E³] logo3.bmp	
IOU Tech.bmp	
IOU Tech invers.bmp	
Key Type SA6432.bmp	

You may create your own bitmaps with any bitmap editor. Please note that only black & white bitmaps in the correct resolutions (64 x 32 pixels for SB6432) will be accepted. Sending the wrong bitmap format to the CP0304 will result in an error message.

File

You may also send command files to the CP0304 by clicking on File and selecting the corresponding file.

Command Line

The Command Line allows you to send commands directly to the CP0304. Please see the SB6432 Technical Datasheet for valid commands.

NOTE: **HardwareAddress** *:1* **for Key1,** *:2* **for Key2, etc. must precede the key commands.**

Notices

Copyright Notice

Technical Notice

This datasheet is intended for technically qualified personnel trained in the field of electronics.

The knowledge of electronics and the technically correct implementation of the content of this datasheet are required for problem free installation, implementation and safe operation of the described product. Only qualified personnel have the required know-how to implement the specifications given in this data sheet.

For clarity, not all details regarding the product or its implementation, installation, operation, or maintenance have been included. Should you require additional information or further assistance, please contact your local [E³] distributor or [E³] Engstler Elektronik Entwicklung GmbH at **techsupport@e3-keys.com**. You may also visit our website at **www.e3-keys.com.**

Warranty Disclaimer

ORDERING INFORMATION

Part Number	Description
CP0304	Desktop control panel with 12 SB6432 switches and USB interface
SB6432-B	SA pushbutton keyswitch with 64x24 pixel display Black housing (RAL 9005)

CHANGE HISTORY

Version	Date	Comments
0.1	07/28/08	Initial draft document
0.2	04/09/09	Document update
0.3	06/25/15	Document review
1.0	07/21/15	Release document
1.1	11/11/15	Revised release document
1.2	07/07/20	New Formatting
2.0	06/07/22	Updated Version