



## Development System

Rapid prototyping system with RS232 and USB interfaces

# DS0002-SU *DevBoard*

*Development System  
with RS232 and USB  
interfaces*

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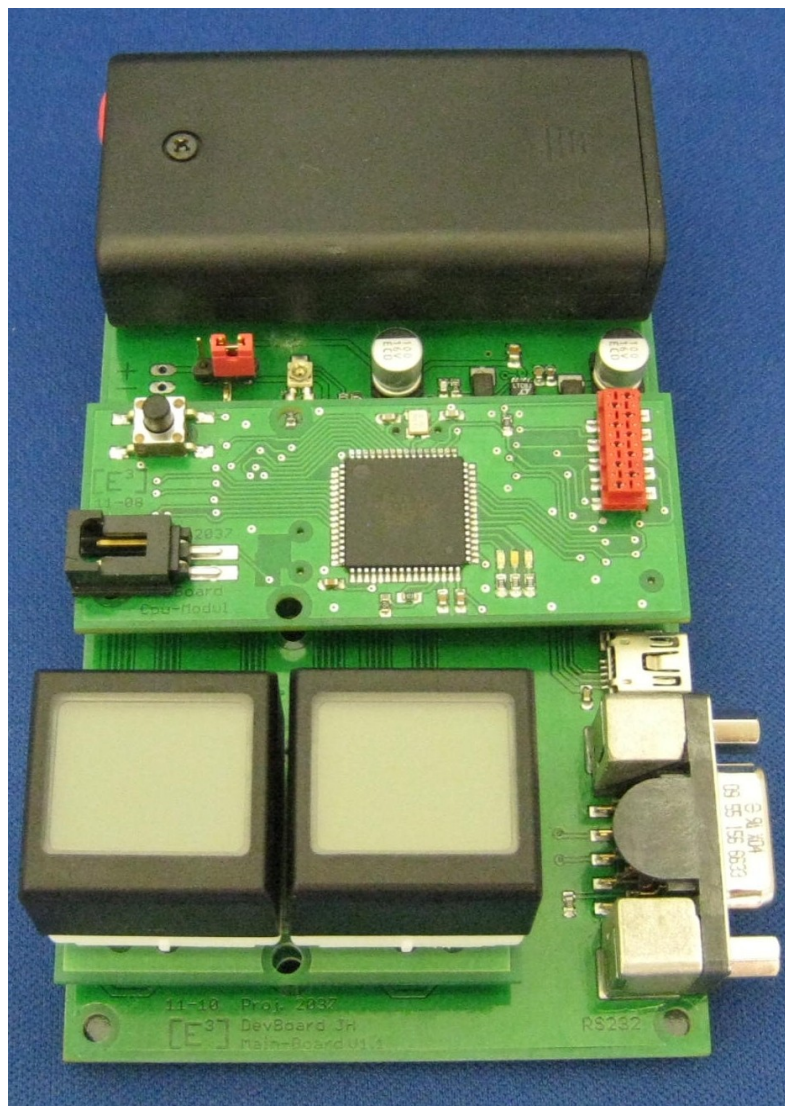
# GENERAL DESCRIPTION

The DS0002 DevBoard is a development system for rapid prototyping and proof-of-concept verification. The standard DevBoard configuration consists of a Main Board, Key Matrix for two Sxnnnn switches and CC0064 controller.

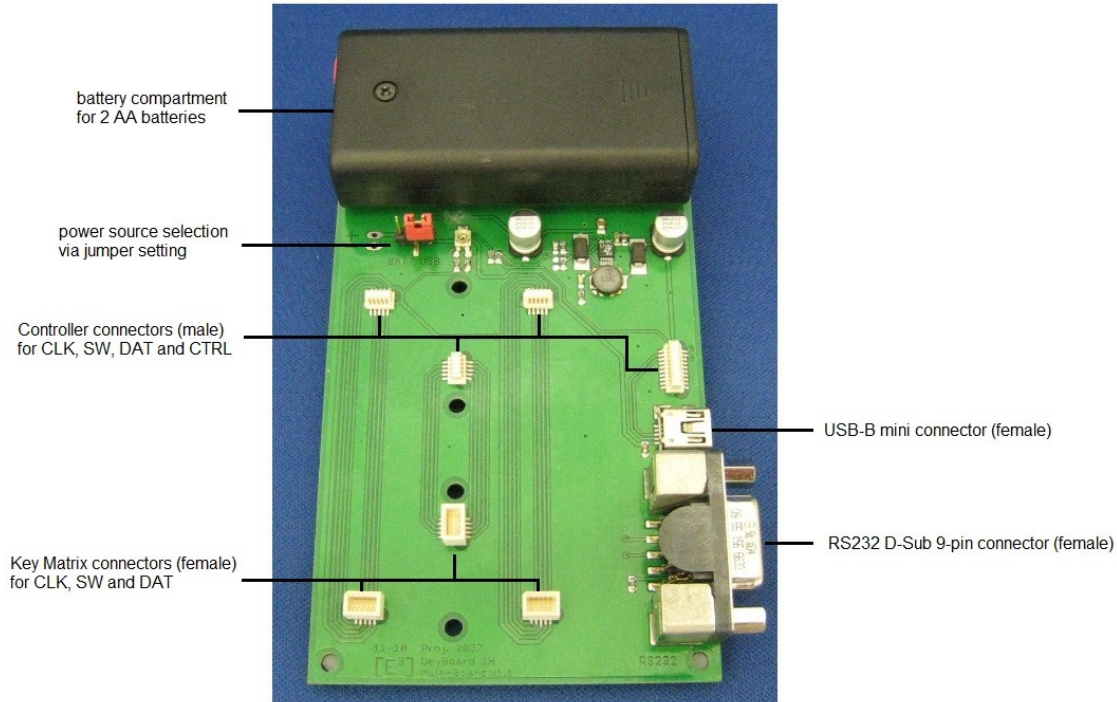
The Main Board provides 5V power from 2 AA batteries or via the USB port (jumper selectable) and RS232 or USB2.0 interface via D-Sub 9-pin or USB-B Mini connectors.

The Key Matrix connectors accept either a KM0201 with two Sxnnnn switches or a KM0008 cable module for eight Sxnnnn switches connected via ribbon cables.

The CC0064 controller is a standard panel controller for up to 64 Sxnnnn switches with RS232 and USB2.0 interfaces.



# MAIN BOARD



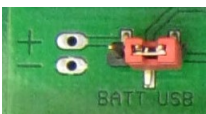
## Battery Compartment

The DevBoard's battery compartment accepts two AA batteries to provide power for the controller and 2 Sxnnn switches. The ON/OFF switch is located on the bottom side of the Main Board.



## Power Source Jumper

The DevBoard allows you to select between the battery compartment, direct power input (via marked power terminals) or USB port as power sources. The Power Source Jumper setting will determine which power source is used.



Acceptable input voltage for USB port is 5 V, for battery/direct power input 2.0V - 5.5V.



# Controller Connectors

The Main Board accepts a standard CC0064 controller via shrouded pin headers with connections for CLK clock signals, SW switch contacts, DAT data lines and CTRL communication controls for the interfaces.

The connectors for CLK, SW and DAT are mirrored (female) on the Main Board to accept Key Matrix boards. This allows the CC0064 controller to accept the same KM0201 key matrix resulting in a smaller footprint with the same functionality. This configuration requires 5V external power source.

Please find the pin-outs for each pin header in the tables below:

## CLK

Function	Pin	Pin	Function
GND	1	2	Clock7
Clock6	3	4	Clock5
Clock4	5	6	Clock3
Clock2	7	8	Clock1
Clock0	9	10	5V

## SW

Function	Pin	Pin	Function
GND	1	2	Switch7
Switch6	3	4	Switch5
Switch4	5	6	Switch3
Switch2	7	8	Switch1
Switch0	9	10	5V

## DAT

Function	Pin	Pin	Function
GND	1	2	Data7
Data6	3	4	Data5
Data4	5	6	Data3
Data2	7	8	Data1
Data0	9	10	5V

# CTRL

Function	Pin	Pin	Function
GND	1	2	RS232 - Tx
USB - DM	3	4	RS232 - Rx
USB - DP	5	6	V11 - Tx
PSU - PWM	7	8	V11 - Rx
SPI - MISO	9	10	NC
SPI - MOSI	11	12	NC
SPI - SCK	13	14	NC
SPI - SS	15	16	NC
TWI - SDA	17	18	NC
TWI - SCL	19	20	5V

# USB

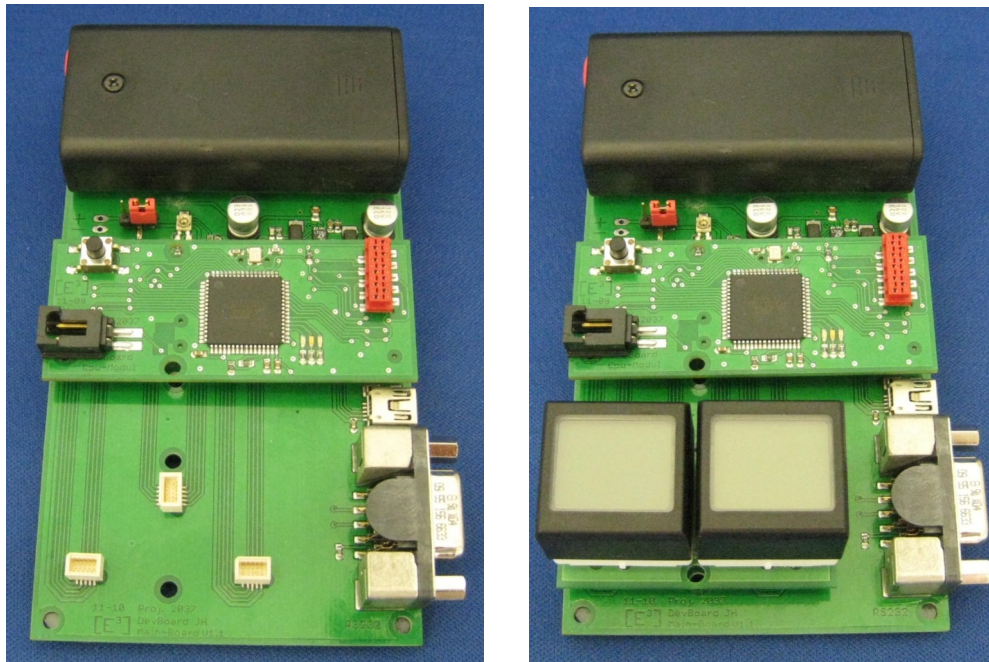
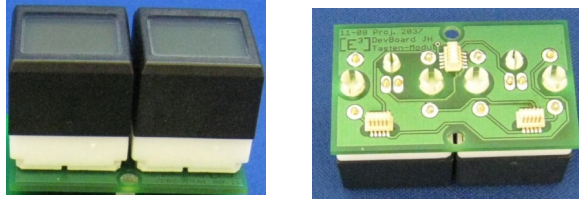
Pin	Function
1	VCC
2	D-
3	D+
4	
5	GND

# RS232

Pin	Function
1	
2	Rx
3	Tx
4	
5	GND
6	
7	
8	
9	

# KEY MATRIX

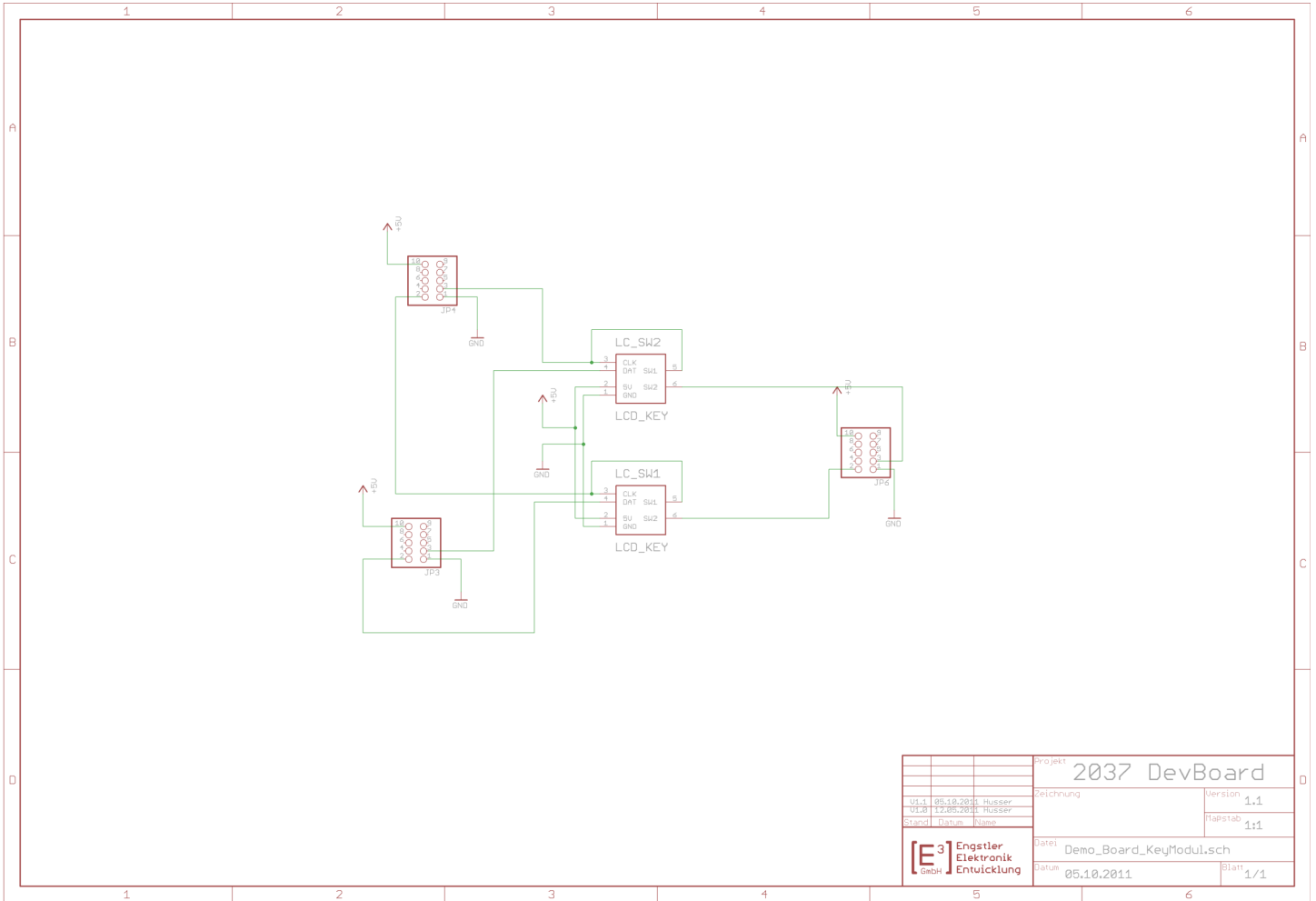
The DevBoard standard configuration has a KM0201 key matrix with two Sxnnnn switches.



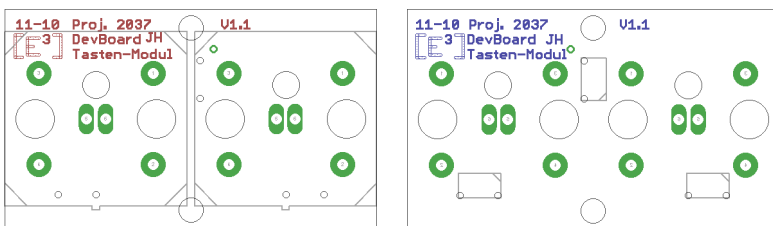
Alternatively, the DevBoard Main Board also accepts a KM0008 key matrix with connections for eight Sxnnnn switches via ribbon cables for panel-mount application.



# Schematics

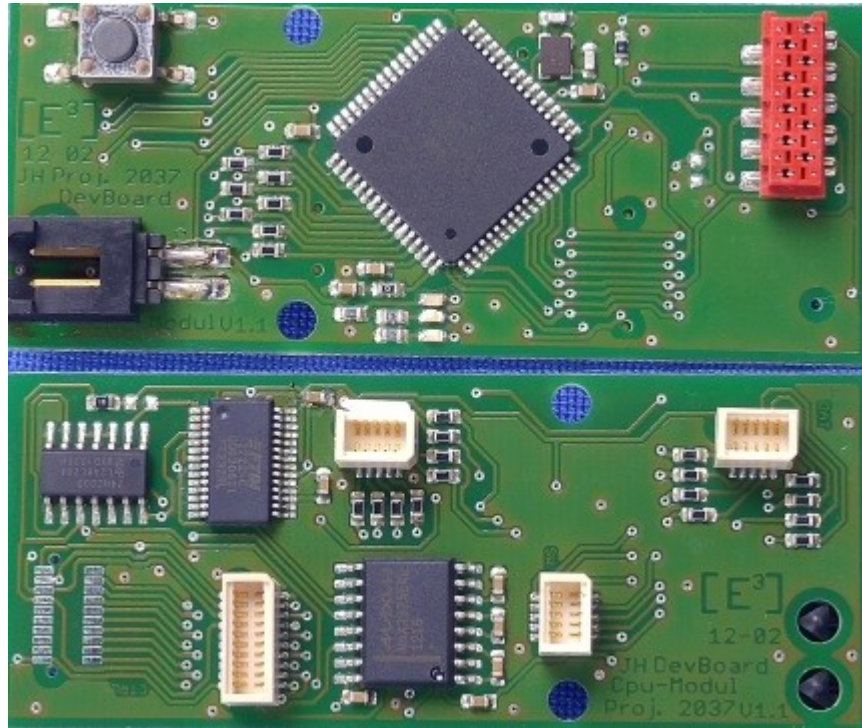


# PCB Layout



# CONTROLLER BOARD

The DevBoard is controlled via a standard CC0064 controller capable of controlling up to 64 Sxnnnn switches.



For a detailed description of the CC0064 controller and the corresponding Command Set, please download the [CC0064 User Manual](#).



# NOTICES

## Copyright Notice

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## 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 [E<sup>3</sup>] distributor or [E<sup>3</sup>] Engstler Elektronik Entwicklung GmbH at [techsupport@e3-keys.com](mailto:techsupport@e3-keys.com). You may also visit our website at [www.e3-keys.com](http://www.e3-keys.com).

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# ORDERING INFORMATION

Part Number	Description
<b>DS0002</b>	DevBoard development system (standard configuration)
<b>CC0064-SU</b>	CP controller board with RS232, V11 and USB2.0 interfaces for up to 64 Sxnnnn switches
<b>MB0001</b>	Power and interface board for DevBoard configuration
<b>KM0201</b>	Key matrix for 2 Sxnnnn switches (standard DevBoard configuration)
<b>KA0008</b>	Key Accessory matrix for 8 Sxnnnn switches connected via ribbon cables
<b>SB6432</b>	Programmable LCD keyswitch with 64x32 pixel resolution and RGB backlighting

# CHANGE HISTORY

Version	Date	Comments
0.1	03/28/13	Initial draft document
1.0	09/09/14	Minor document edits
1.1	07/14/20	New Formatting
1.2	01/18/22	Schematics added; KA0008 description updated
2.0	06/16/22	Updated release document

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