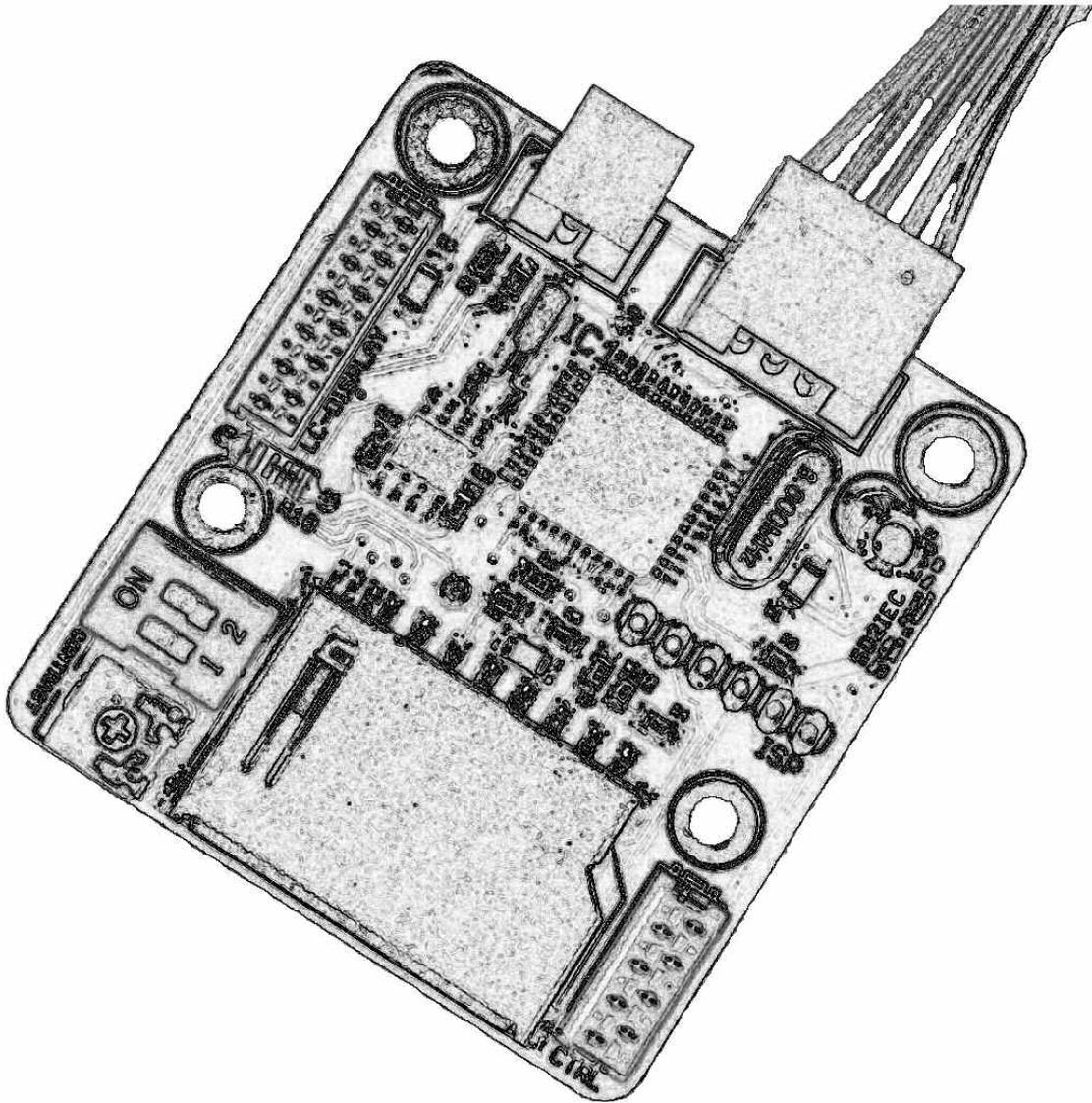


# SD2IEC evo<sup>2</sup>



## Installation Instructions

Revision E3b

16xEight

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Wir danken für das uns mit dem Kauf dieses Produktes entgegengebrachte Vertrauen!  
Unser Ziel ist es nicht nur die Anforderungen unserer Kunden zu erfüllen,  
sondern diese stets auch zu übertreffen.

Wir wünschen Ihnen viel Freude mit dem Produkt und stehen bei etwaigen Problemen,  
Fragen oder Anregungen zu unseren Geräten selbstverständlich gerne zur Verfügung.

Sie erreichen uns per e-Mail unter ***info(at)16xeight.de***  
Oder über das Kontaktformular auf unserer Homepage unter ***www.16xeight.de***

Für den Einbau und die Inbetriebnahme dieses Bausatzes sind Fachkenntnisse der  
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Sollten Ihnen diese fehlen so lassen sie den Einbau bitte von einer Person  
mit entsprechendem Sachverständnis durchführen.

Für etwaige Schäden an Dingen oder Personen infolge unsachgemäßer Handhabung wird  
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Nachdruck oder Vervielfältigung jeglicher art, auch auszugsweise  
nur mit vorheriger schriftlicher Genehmigung gestattet!

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Version 1.1 Rev.E3b

Irrtümer und Änderungen vorbehalten.

Translated by  
**Dean Payne**

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# 1 Installation

## 1.1 Introduction

Read these instructions carefully before starting the installation of the SD2IEC in your computer. Familiarise yourself with the connections and select a suitable location from which to perform the installation.

### Tools needed:

- Phillips Screwdriver
- File
- Small drill and drill bits
- Side cutters
- Small needle-nose pliers
- Soldering iron (approx. 30w) with a fine tip

## 1.2 Overview - Connections and Controls

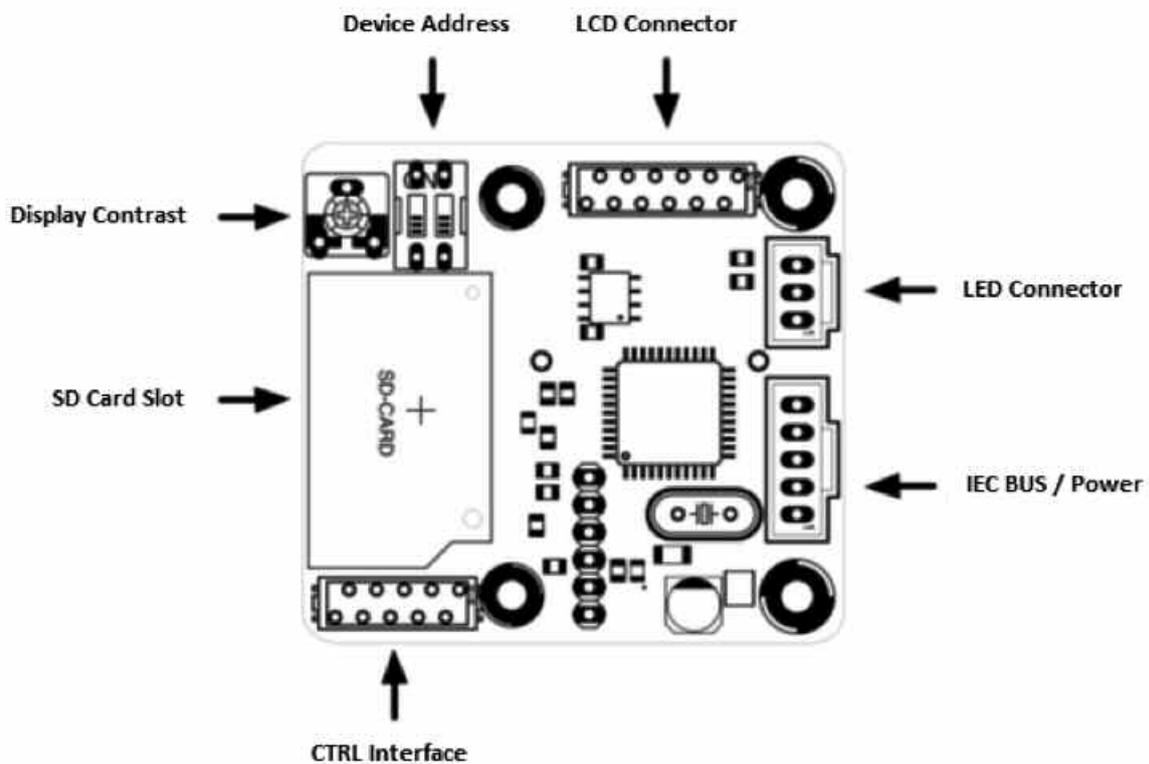


Fig. 1.1

## 1.3 Installation

Switch off your C64 and any attached devices and disconnect it from all cables. Turn the C64 on its top and remove the three case screws at the front edge. Turn the C64 back over and open it carefully by lifting the housing to the front edge under the keyboard. Take care that the locking lugs on the rear side of the case do not break.

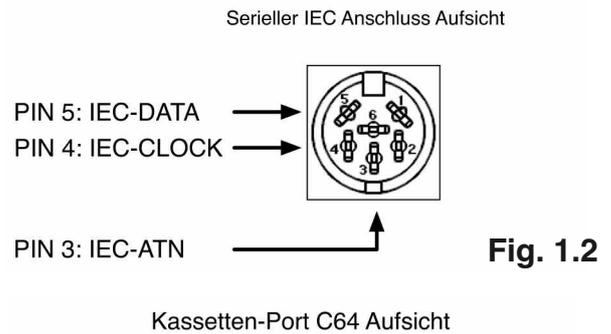
Depending on model version, disconnect the keyboard and power LED from the C64 mother board.

Remove the keyboard and the shielding plate, if necessary, so that after removing the fixing screws, the exposed motherboard can be removed.

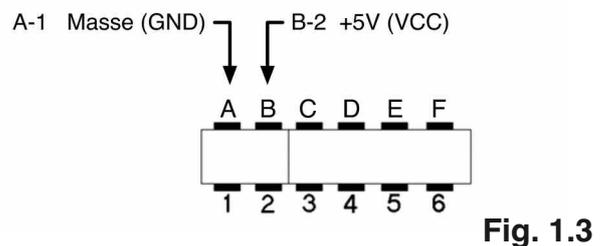
Now, turn the motherboard over and solder the corresponding three lines of the IEC supplied connecting cable to the IEC connector points.

Pin	Wire Colour	Signal
1	Black	Ground (GND)
2	Brown	+5V Supply Voltage (VCC)
3	Red	IEC-ATN
4	Orange	IEC-DATA
5	Yellow	IEC-CLOCK

The assignment of the connectors on the C64 and the SD2IEC are shown in the diagrams and table on the right:



The cassette port can be used to connect the power supply line (VCC) and ground line (GND), as follows:

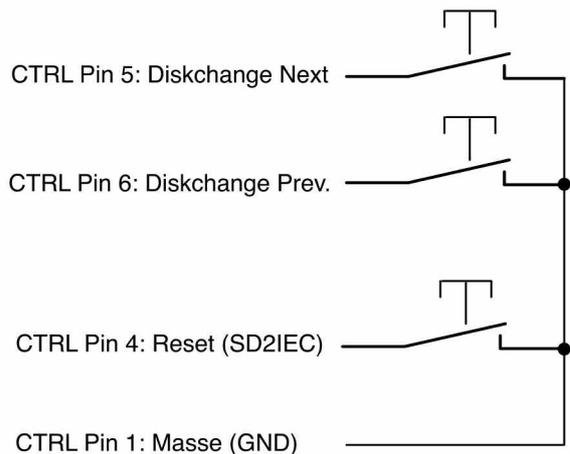


Double check that the correct connections have been made before refitting the motherboard back into the case.

**Caution:**  
**Ensure the connecting cable is positioned carefully to avoid creasing and possible damage.**

The DiskChange and Reset buttons can now be installed, if desired, by using the supplied cable and connecting the corresponding wires to the CTRL interface on the SD2IEC board as shown below.

Make sure that the unused wires are carefully isolated to ensure that no short circuits can arise!



**Fig. 1.4**

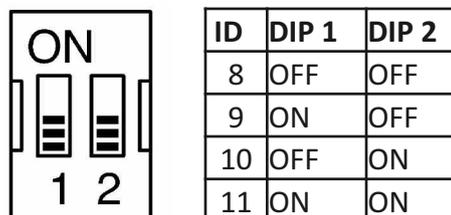
The optional LCD status display may now be installed in a suitable position.

Assembly of the device may be completed. Connect the power cable LED, CTRL interface and optional LCD display to the appropriate connectors on the SD2IEC board.

Select the device address for the SD2IEC using the dip switches located on the SD2IEC circuit board. The following diagram shows the corresponding device number and switch positions.

(This can also later be permanently changed directly from the C64)

**DIP-Switch Positions for Device ID 8-11**



**Fig. 1.5**

When using an LCD status display, contrast adjustment must be made before refitting the case. To do this, connect the C64 to the power supply and turn it on. Now, with a small screwdriver, turn the contrast potentiometer on the SD2IEC circuit board until the display is easy to read.

**You can now reassemble the C64 in reverse order and start commissioning the device.**

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## 2 Commissioning

### 2.1 Functional Test

First, a function test should be carried out to ensure that the SD2IEC has been properly connected to the C64.

Place a FAT formatted SD card into the SD2IEC.

After the C64 has been switched on, at the flashing cursor type **LOAD "\$", 8 <return>**  
The contents of the SD card should be listed on the screen.

If an error message like **?DEVICE NOT PRESENT ERROR** or **?FILE NOT FOUND ERROR** occurs, please read section 2.3 for fault isolation.

### 2.2 Setting the Real Time Clock

The following command can be used in direct mode to set the date and time for the real time clock after initial commissioning or after changing the RTC battery:

```
OPEN 15,8,15, "T-WA <weekday> <month> <year> <hour> <minute> <second> <AM/PM>" + CHR $ (13): CLOSE 15
```

For the weekdays, please use the following notation:  
**SUN. - MON. - TUES - WED. - THUR - FRI. - SAT.**

Example for Monday, 28/10/2013 at 10:30 clock in the morning:

```
OPEN 15,8,15, "T-Wamon. 10/28/13 10:30:00 AM "+ CHR $ (13): CLOSE 15
```

**The commissioning of the SD2IEC is complete.**

## 2.3 TROUBLESHOOTING

In the table below you can find common errors and their causes which will help to eliminate problems.

If the problem is not rectified after following the remedies listed, please get in touch with us.

Symptom	Cause	Remedy
LED does not light up, the connected display remains dark and attempting to load the directory from the SD2IEC results in a ?DEVICE NOT PRESENT ERROR	No supply voltage to SD2IEC.	Check connections from the SD2IEC to the C64, in particular, the lines for VCC and Ground (GND).
The SD2IEC seems to initialize itself, the optional LCD display shows the READY: message, but ? DEVICE NOT PRESENT ERROR appears during the loading test or the C64 hangs completely.	The device address is set incorrectly or the connections on the IEC connector are incorrect.	Check the setting of the device address. Check the connecting cable solder joints at the C64 IEC socket are clean and correctly assigned.
Attempting to load the directory from the SD2IEC results in a ? FILE NOT FOUND ERROR and a flashing LED.	The SD card is incorrectly formatted. In rare cases, the SD card is incompatible.	If possible, format the SD card in FAT32 format without the quick format option or use an SD card formatter tool.  Alternatively, use another SD card.
The SD2IEC works, but the optional LCD display shows nothing.	The contrast is not set correctly or the display connector is not properly inserted.	Adjust the contrast using the potentiometer on the SD2IEC board.  Check that the display connector is correctly positioned
The LED blinks immediately after switching on and the SD2IEC does not work properly.	Faulty connection of the disk change button or the button is permanently suspended.	Check the connection of the DiskChange button and the push-button itself. You can test the DiskChange function of the SD2IEC temporarily by manually touching the stripped ends of the relevant wires together on the CTRL cable.

## 2.4 FIRMWARE UPDATES

To make firmware updating as easy as possible, a boot loader is used. Copy the new version of the firmware to the root directory of an SD card and insert it.

The boot loader will automatically detect the new firmware and writes it into the Flash memory of the controller. This process is indicated by rapid flashing of the LED.

**CAUTION: Only use the firmware images available on our website!**

## ANNEX A

The tables below show the pin assignments of the SD2IEC interface.

### IEC / POWER

Pin	Wire Colour	Signal
1	Black	Ground (GND)
2	Brown	+5V Supply Voltage (VCC)
3	Red	IEC-ATN
4	Orange	IEC-DATA
5	Yellow	IEC-CLOCK

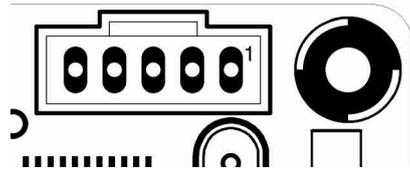


Fig. A.1

### CTRL

Pin	Wire Colour	Signal
1	Brown	Ground (GND)
2	Red	Expansion TxD
3	Orange	Expansion RxD
4	Yellow	SD2IEC Reset
5	Green	Diskchange Next
6	Blue	Diskchange Prev
7	Violet	Device ID0
8	Grey	Device ID1

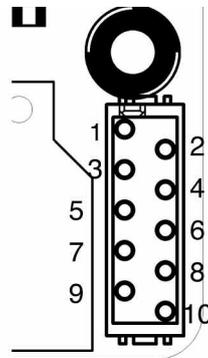


Fig. A.2

### LCD

Pin	Wire Colour	Signal
1	Black	Ground (GND)
2	White	VCC +5V
3	Grey	Contrast Voltage
4	Violet	LCD RS
5	Blue	LCD RW
6	Green	LCD E
7	Yellow	LCD D4
8	Orange	LCD D5
9	Red	LCD D6
10	Brown	LCD D7
11	Black	Backlight Anode
12	White	Backlight Cathode

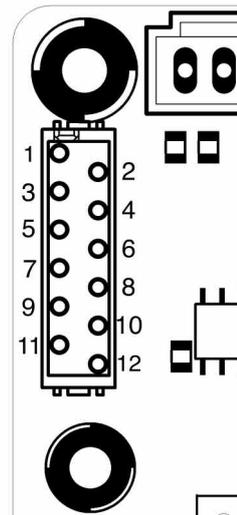


Fig. A.3

### LED

Pin	Wire Colour	Signal
1	Black	LED Busy (+)
2	Brown	Ground (GND)
3	Red	LED Error (+)



Fig. A.4