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## Building the UI V1.8 Board

### OVI40 UI V1.7 Documents

**UI V1.7 documents are provided for information only.** Please primarily use the V1.8 documents for building the UI V1.8 board.

- [OVI40 UI V1.7 schematics](#)
- [UI V1.7 component placement - bottom layer](#)
- [UI V1.7 component placement - top layer](#)

Please note that the component placement docs are searchable pdf documents. During soldering they can be used to quickly find a component's location by entering the component reference (e.g. „R20“) in pdf search. No need to be concerned to use the V1.7 component placement doc for assembling a V1.8 UI board - V1.7 and V1.8 are quite similar in this respect.

### OVI40 UI V1.8 Documents

- [OVI40 UI V1.8 schematics](#)
- [OVI40 UI V1.8 BOM](#)
- [BOM created by Francois F4HTX with additional info](#)


### OVI40 UI V1.8 Kit Contents

The kit contains UI V1.8 PCB, components in bags and packing list. The display is delivered as assembled and tested unit.




 Components in bags (Foto: DL8EBD)



 UI V1.8 PCB (Foto: DL8EBD)



 Display board (Foto: DL8EBD)

### Assembly and Soldering

The graphics below - UI V1.7 with 3.2,, Display - give an impression on how the finished V1.8 UI board will look like:



**Please read Errata carefully**

Make sure to read the [Errata](#) carefully **before starting assembly.**

=== IC Device Markings ===

The smaller ICs can be identified by device mark. The following device marks are used:

Typ	Device Mark	Schematic	Purpose
LP5907_Q1	LLVB	IC3	LDO 3.3 V
BAV70	A4	D5, D6	Diode
BC857B	3F	T3	Transistor
BAS85	Ring = Cathode	D7 - D9	Diode

**MCU STM32 "Pin 1" marking**

Please understand the correct orientation of STM32 MCU Pin 1. There are two markings on the IC. Please not the text printed on MCU to find the correct Pin 1: When reading the text Pin 1 is on bottom left corner.



Orientation of TXCO & MCU (photo DF9EH)

=== STM32F76X\_ZIT vs. STM32H743ZIT6 ===

The kit is shipped with STM32F76X\_ZIT („F7“). The just released STM32H743ZIT6 („H7“) may be used instead. It is suggested to use the F7 for now. Reason: it is planned to support the H7 in the UHSDR, but no boot loader oder firmware is released for the H7 at the moment.

Comparison of MCUs:

	mcHF:	OVI40:	OVI40 - future:
	STM32F407VET6	STM32F767ZIT6	STM32H743ZIT6
Flash[kB]	500	2048	2048
RAM [kB]	192	512	1024
Clock[MHz]	168	216	400
FPU	single	double	double
Pins	100	144	144
DMIPS	210	462	856

**EEPROM IC7 orientation**



EEPROM IC7 position (photo DF9EH)

This is where the dot is printed. Also the edge of the case is slanted near the 1-4 pins. See [here](#)

**Do not solder in R101** for the EEPROM delivered with the kit (AT24CM02).

**Prevent short cut with back up battery holder**

One of the connection pins of the battery holder might touch ground connection of a rotary encoder.

Make sure to cut this pin flush with PCB surface **before soldering** - see photo:



Potential Shortcut (photo DF9EH)

### **Polarised capacitors**

Please observe mounting orientation of tantal and electrolytic capacitors. Markings on the capacitors are explained [http://elektroniktutor.de/bauteilkunde/c\\_smdcod.html](http://elektroniktutor.de/bauteilkunde/c_smdcod.html) | here

### **Mounting locations of switches S7 and S8**

Two different mounting locations are provided on the UI PCB for S7 and S8:

- „mCHF style“: S7 and S8 not line with switches under LCD - they are mounted slightly higher
- „OVI40 style“: S7 and S8 are mounted in line with the function keys under the LCD

„In line“ is the preferred mounting location for S7 and S8.

## Modifications

### Temporary Modification: Resistor in parallel to C94

Symptom: In stand-by the current drawn from back-up battery is excessively high. Work-around: Put resistor in parallel to C94. Start with a value of 56k - this seems to work in most cases. If board does not start increase value slightly.

### Change brightness of LEDs

Helle LEDs: Mit den Bausatz-Vorwiderständen leuchten die LEDs sehr hell. DF9EH hat die Werte reduziert:

- R36 auf 22,6k (D1 grün)
- R37 auf 6,8k (D2 rot)
- R116 auf 6,8k (D3 blau)

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