



UNIVERSAL LCD CONTROL MODULE V5.0 (2/2007)

Assembly and operating instructions

Universal LCD control module is used to control all of our LCD-unit supporting products, which includes MAX PRO 3+, SE4000 DSP+, PCI MAX 2007+, AMMAX3 DSP+ and others. This document brings assembly instructions and gives some guidance related to operation of the LCD control module. For product specific instructions please check particular product's user's manual.

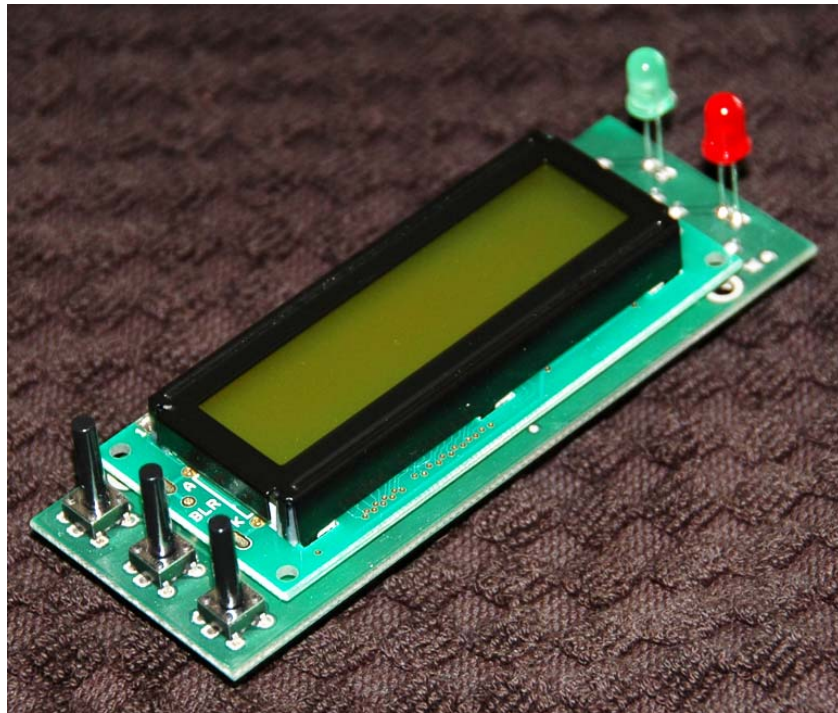


Fig.1: UNIVERSAL LCD control module v5.0, TOP

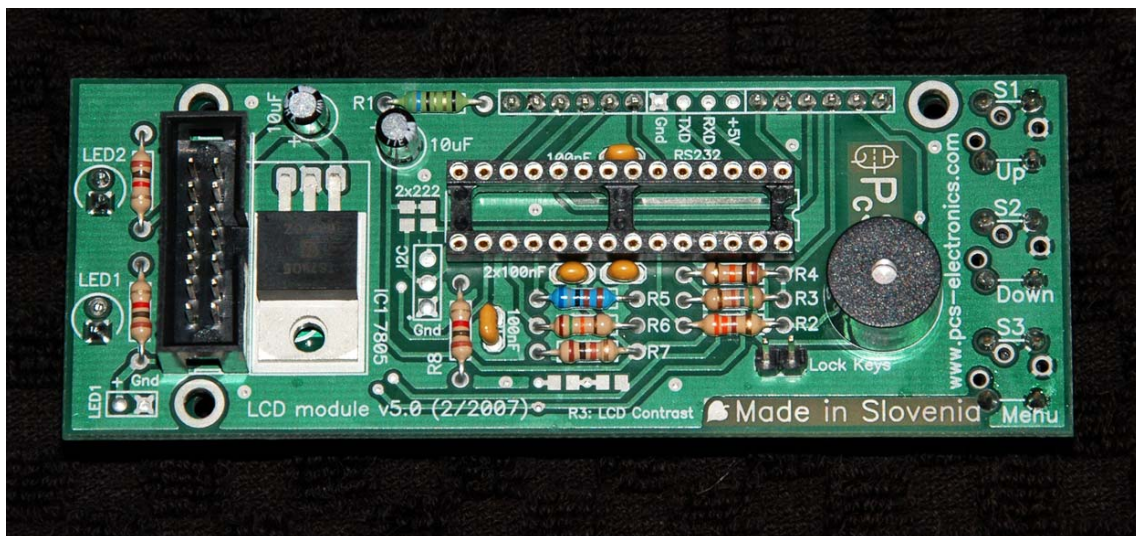


Fig.2: UNIVERSAL LCD control module v5.0, TOP

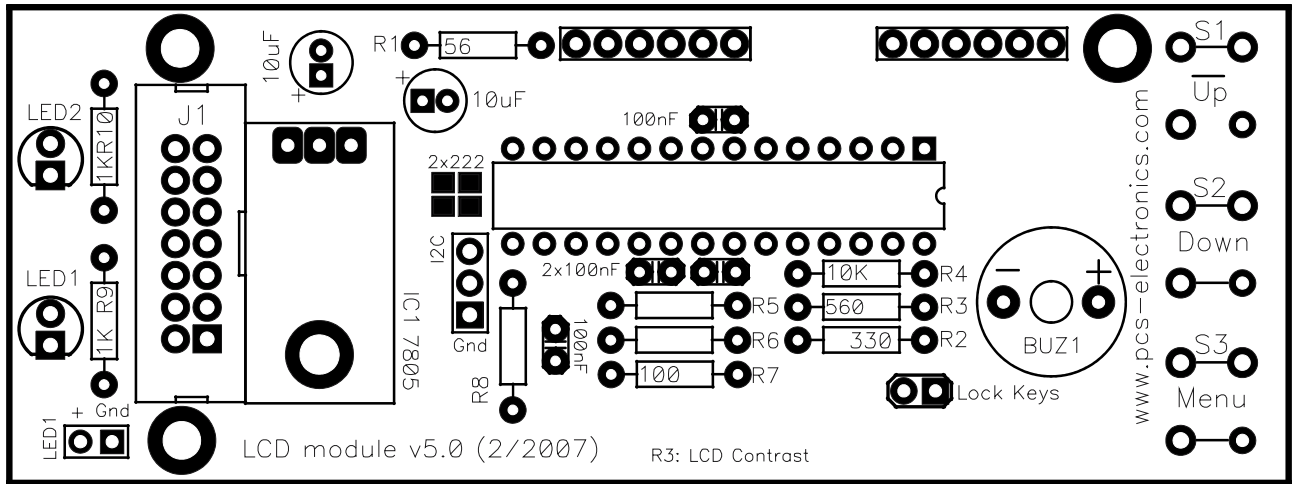


Fig. 3: LCD control module board layout

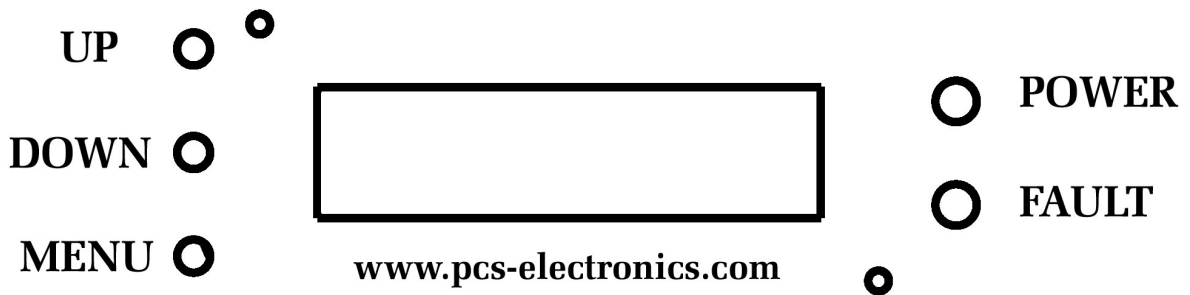


Fig. 4: LCD control module mounting – front enclosure view, two diagonal small holes are the mounting holes, the rest are keys and 2 optional LED diodes for power status (top – on) and fault indicator below.

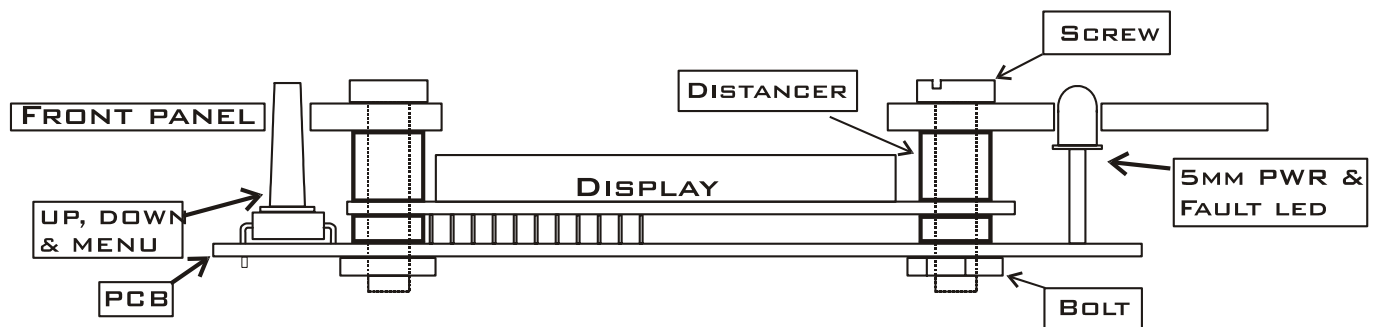


Fig. 5: Mounting the LCD control module to the front panel

BILL OF MATERIALS FOR LCD CONTROL MODULE

QTY	Value	Reference	Type
1	Beeper, small oval speaker	BUZ1	
1	7805 TO220	IC1	
1	AtMega8	IC2	
2	10uF – 47uF		
4	100nF 2.5mm pitch		
2	22pF (marked as 22p or 221)		
1	Connector for 14-lead speedy flat cable	J1	
1	Connector for I2C (optional)	J2	
1	LCD display, see pics for mounting		
3	Push button	S1, S2, S3	
1	56 ohms	R1	Green, Blue, Black, Gold
1	330 ohms	R2	Orange, Orange, Brown, Gold
1	560 ohms	R3	Green, Blue, Brown, Gold
1	10K	R4	Brown, Black, Orange, Gold
1	6K8	R5	Blue, Grey, Black, Brown, Brown
1	15K	R6	Brown, Green, Orange, Gold
1	100 ohms	R7	Brown, Black, Brown, Gold
3	1K	R8, R9, R10	Brown, Black, Red, Gold
1	LED RED 5mm	LED1	
1	LED GREEN 5mm	LED2	
2	Bolts for LCD		Opposite corners
2	Screws for LCD		Opposite corners
2	Distancers for LCD		Opposite corners
1	PCB, 102x38mm		
1	IC socket, DIL 28	For IC2	
1	PIN male square array, 1x18 (combined)		



TIPS AND IDEAS

Please note that while LCD control modules are electrically and physically the same for a number of our products the actual code inside microcontroller differs for each individual product. This is usually easily recognizable by the appearance of the welcome screen presented shortly after power-up of the unit.

While each of these units is tested and should work perfectly out of the box, you may want to observe following tips and suggestions which will help you troubleshoot the unit or enhance its performance. Read more below for additional info.

I2C HEADER / CONNECTOR

If you want to use one of our MAX PRO FM exciters together with stereo encoder (SE4000 DSP+ ...), you probably want to connect them via I2C cable to enable control with one single LCD module. You can now connect one end of the I2C cable directly to the LCD module and the other end to the stereo encoder. The FM exciter board will get the control signals from the usual 14-pin flat cable.

This change makes it easier to route cables in most enclosures. More importantly, a long I2C cable can generate those annoying I2C error messages so keeping this cable short is a good idea.

KEYS

You can now install two types of keys to the LCD control board. We have provided holes for another common type, usually encountered in electronic stores. If you're not happy with the current type of keys, remove them and look for the other type in electronics stores.

If you feel current keys are too short, place a 5mm LED with cutoff pins above it; aperture in the enclosure and the key will hold it in place.

LOCKING KEYS

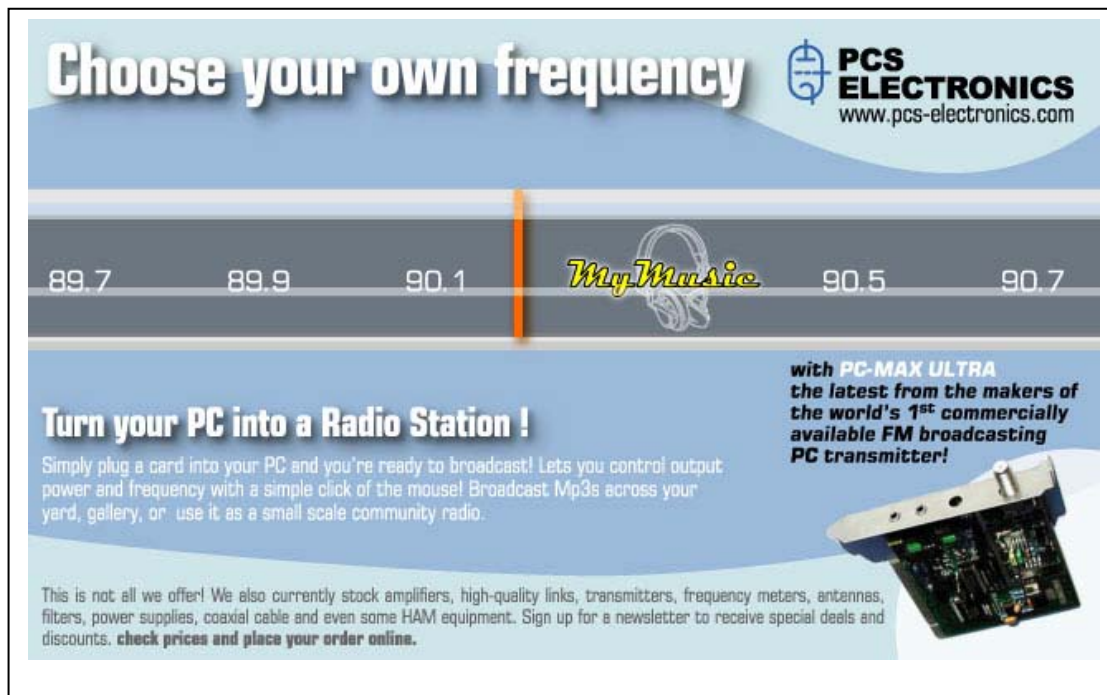
You can now lock the keys (if supported by software) by installing a jumper named "Lock Keys". It is located close to the buzzer (large black oval). When installed, this jumper prevents the user from changing any of the parameters.

LEDS

LED2 (top, green colour) is permanently wired to positive 12V terminal, making it a power indicator. The other led (LED1. red) can be typically used as a FAULT indicator. It is tied to pin1 of the IDC14 connector, but you can cut the trace going from the 1K resistor to pin1 of the IDC14 and supply your own signal to the 2-pin header (gnd and led1 are clearly marked).

Suggestion: If used with MAX PRO 3+, on the MAX PRO 3+ PCB board wire pin 1 from IDC14 (LCD control unit connector on mp3+ pcb) to the error pin (IDC14 for extensions). This way the fault led on LCD control unit will light when there is a SWR/TEMP/PLL problem.

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