www.Kama-Labs.com

## ASSEMBLY MANUAL FOR YULIA v3 IV-11 VFD CLOCK

If you will have any questions, contact with me here: info@kama-labs.com

# GOOD LUCK!

#### 1) You have a PCB with ICs. MCU preprogrammed already:



#### 2) Place all resistors vertical:





#### 4) Place res.arrays. Common pin to square pad.



#### 5) Place all electrolytic capacitors. Be careful with polarity!





#### 6) Place ceramic capacitor. Polarity is not matter.



7) Place all transistors and IC5 according marking on PCB:





#### 8) Place temperature sensor IC7 on **bottom** side of PCB:





#### 9) Place inductor:



#### 10) Place photoresistor.



#### 11) Install buzzer:





12) Place battery holder and insert battery when clock will be fully assembled:



### 13) Place sockets for IC. Insert MC34063 chip at the end of assembling process:



#### 14) Install Infrared receiver:







16) Install power plug:



#### 17) After all, your board should looks like on photo:





### 18) Prepare and install all IV-11 tubes. You can see that pins of tubes cuts spiral already. The longest pin – the first pin:







#### 19) Place 2x IV-1 tubes. Pins of tubes cut spiral already too:







20) Now check the resistance between GND and +3.3V pins of XS2 again. It is should more thank 1 kOhm.

21) Then plug 5V DC adapter. The microcontroller starts work and you will hear short melody.
If it not happens, check the 3.3V on XS2 between GND and +3.3 pins.



#### 22) After all clock should work.



# CONGRATULATIONS!

### **SPECIFICATION**

Please note, that elements in kit can be a little different. If you doubt value of element, check it with multimeter. IF VALUE OF ELEMENT IN SPECIFICATION AND ON PCB IS DEFFERENT, PLEASE USE VALUES FROM SPECIFICATION OR SCHEME.

Label	Qty	Value	Photo
B1		CR1220	Image: Algorithm of the second system         Image: Algorithm of the second system <th< td=""></th<>
BZR1		Buzzer	
C1, C11	2	100u/10v	100 dF 1001 10 V 10V
C2, C3, C4, C8, C10	5	0.22u	224
C5, C12	2	10u/25v	

C6		470u/10v	470UF
C7		220u/35v	220 HF 120 35 V 3
C9		240p	
C13		1nF	
D1, D3, D4, D5, D6, D7	6	Led RGB 5050	
D2		1N4001	

D8		1N5819	
D9, D10, D11, D12	4	LED Auto	
IC1, IC2	2	HV518	1196 HV 518PJ 4 19 5 3 3 CB
IC3		MC34063AP1	34063API NCCRTNS 139D
IC4		DS32kHz	

IC5	LP2950ACZ3.3	2950A. CZ3.3
IC6	STM32F100C6T	
IC7	DS18B20-PAR	PALLAS 18620 122604 1-3384
IC8	LM4871MX	

IR1		IR-sensor	
L1		220uH	
LAMP1- LAMP7	7*	NOT USES	
PH1		Photoresistor	
R1, R6	2	270/330	
R2, R5, R12, R14, R17, R23	6	1.2k	
R3		4.3k	
R4, R35	2	6.2k	ELEKZ D

R7		20k	SOK SOK
R8		75k	75KK
R9, R16	2	3.3k	CONSE
R10		180	
R11		<del>300k</del> 9.1k	SKUD
13		0.33	
R15, R20, R22, R25, R26	5	9.1k	SKIDS
R18, R19, R21, R24	4	220	
R27		47	478
R28, R29, R30, R31, R32, R33, R34	7	NOT USES	

S1-S3	3	NOT USES	
T1, T2, T3, T4, T5, T6	6	IV-11	
Τ7, Τ8	2	IV-1	

VT1, VT2, VT3, VT4, VT5, VT6	6	BC337-25	F 508 BC337 -25
XS1		Разъём питания	
CR1220 Holder			
РСВ			
Plastic case			

5V Power adapter		
USB-UART converter		
Remote control		

