TP2
J5
VIN VIN D1 12V
GND STPS1L20MF
Vin
GND

12V
U4 A5972D
VIN LX NC2 L1 TP1 3V3
150uH 10%
SRR1240
CP GND GND GND GND FB R14
CP FB2 9.1KΩ 1%
C8 C9 C10 C11 3V
10uF 16V 100nF 16V 100pF 16V R515nF 16V A2 TP4
R15 C13 D2 C12
13KΩ 1% 10nF 16V STPS1L20MF 47uF 4V GND GND
R16
GND 5.49KΩ 1%

TP3
12V R17 SWC L2 NC D3 D3 R18 180V
10mΩ 1% 220uH 20% US1G-13-f 1Ω 1%
B82477P4
R19
U2C SWE D4 GATE T3 680KΩ 1%
OSCIN 5 OSCIN BAS16H IRF644
Y1 U5 R1
OSCOUT 6 OSCOUT SWC DRC T4 P1
ABM3B 8MHz STM32F103C8T6 TC SWE Ipk MMBTA92 500Ω 10N
C14 C15 TC VCC FB
20pF 16V 20pF 16V GND CII R2
GND MC34063 R21
C18 C19 C20 C16 R20 C17 4.53KΩ 1%
100nF 16V 1nF 16V 10nF 16V 220uF 16V 1KΩ 1% 2.2uF 400V
GND

3V3 3V3
U2A R22 J6
1 VBAT 10KΩ 1% 3V3 3V3
C21 RESET 7 U2D U2B 34 SWDIO SWDIO
100nF 16V RESET BOOT1 20 RESET SWDIO 37 SWCLK SWCLK
9 VDDA VSS 35 BOOT0 44 BOOT1 SWCLK GND
C22 BOOT0 STM32F103C8T6 JTAG
100nF 16V S1 STM32F103C8T6 GND
24 VDD VSS 23 C24
C23 1uF 16V
100nF 16V R23 R24
48 VDD VSS 47 10KΩ 1% 10KΩ 1%
C25 GND
100nF 16V
36 VDD VSSA 8
C26
100nF 16V
GND
STM32F103C8T6

Title Nixie Power
PCB Number 2 of 2 Sheet 1 of 2
Date: 14/05/2020 Revision: 1 Size: A4
Author Manuel Diaz Alonso MDA

J3 HEADERx10

1	BUTTON_1
2	BUTTON_L1
3	
4	BUTTON_2
5	BUTTON_L2
6	
7	BUTTON_3
8	BUTTON_L3
9	
10	TACTIL_SENSOR

GND

A1 — BUZZER — 12V

T1 MMBTA42 — T-B — R2 33KΩ 1% — BUZZER

GND

J4 — 180V
HEADERx3 — AUX_SIGNAL — GND

U2E STM32F103C8T6
- 46 PB9
- 10 PA0 — PB8 45

B_SENSE

C1 100nF 16V
R3 10KΩ 1%

U1 AT42QT1012
- VDD
- OUT SNSK
- TIME SNS
- VSS

3V3

SNSK — R1 10KΩ 1% — TACTIL_SENSOR
C2 (10-50)nF 16V
SNS — R4 1MΩ 1%

GND

U2I STM32F103C8T6

PB7	43 NCRL_6
PB6	42 NCRL_5
PB5	41 NCRL_4
PB4	40 NCRL_3
PB3	39 NCRL_2
PA15	38 NCRL_1
PA10	31 NIXIE_1
PA11	32 NIXIE_2
PA12	33 NIXIE_3

J2 PIN_2X10

1	11	NIXIE_P	17
2	12	NIXIE_PR	18
3	13	NIXIE_PL	19
4	14	NIXIE_0	16
5	15	NIXIE_9	25
6	16	NIXIE_8	26
7	17	NIXIE_7	27
8	18	NIXIE_6	28
9	19	NIXIE_5	29
10	20	NIXIE_4	30

U2J STM32F103C8T6

PA7	
PB0	
PB1	
PA6	
PB12	
PB13	
PB14	
PB15	
PA8	
PA9	

GND

3V3

R5 10KΩ 1% — R6 10KΩ 1% — R7 10KΩ 1%

12V
T2 MMBTA42

R8 470Ω 1% — R9 470Ω 1% — R10 470Ω 1%

U2F STM32F103C8T6

PA2	12
PA3	13 BUTTON_1
PA4	14 BUTTON_2
PA5	15 BUTTON_3

BUTTON_L1
BUTTON_L2
BUTTON_L3

C3 1uF 16V — C4 1uF 16V — C5 1uF 16V

GND

J1 PIN_2X10

12V

1	11	RED
2	12	GREEN
3	13	BLUE
4	14	
5	15	180V
6	16	
7	17	
8	18	
9	19	
10	20	

GND

U2H STM32F103C8T6

2	PC13
4	PC14
3	PC15

3V3

R11 4.7KΩ 1% — R12 4.7KΩ 1% — R13 4.7KΩ 1%

U3 DS3231

1	32KHz	SCL	16
2	VCC	SDA	15
3	INT/SQW	VBAT	14
4	RST	GND	13
5	N.C.	N.C.	12
6	N.C.	N.C.	11
7	N.C.	N.C.	10
8	N.C.	N.C.	9

C6 100nF 16V
GND

3V
C7 100nF 16V
GND

ALARM 11 — I2C-SCL 21 — I2C-SDA 22

U2G STM32F103C8T6

PA1	
PB10	
PB11	

NIXIE_B2

RESET

MDA

Item #	LibRef	Comment	Footprint	Quantity
1	BUZZER	BUZZER	BUZZER	1
2	BAT	3V	HOLDER-2032	1
3	CAP	100nF 16V	0603	10
4	CAP	(10-50)nF 16V	0603	1
5	CAP	1uF 16V	0603	4
6	CAP	10uF 16V	0603	1
7	CAP	100pF 16V	0603	1
8	CAP	15nF 16V	0603	1
9	CAP_pol	47uF 4V	AVX-B-CASE	1
10	CAP	10nF 16V	0603	2
11	CAP	20pF 16V	0603	2
12	CAP_pol	220uF 16V	CAP-SIZE-F	1
13	CAP_pol	2.2uF 400V	CAP-SIZE-F	1
14	CAP	1nF 16V	0603	1
15	DIO	STPS1L20MF	DO-222AA	2
16	DIO	US1G-13-f	SMA	1
17	DIO	BAS16H	SOD-123F	1
18	PIN_2X10	PIN_2X10	PIN_2X10_SKT	2
19	HEADERx10	HEADERx10	HEADERx10	1
20	HEADERx3	HEADERx3	HEADERx3	1
21	Vin	Vin	HEADERx2_POL	1
22	JTAG	JTAG	PIN_1X4_HDR_RA	1
23	IND	150uH 10%	SRR1240	1
24	IND	220uH 20%	DRA127	1
25	POTE	500Ω 10N	3006P	1
26	RES	10KΩ 1%	0603	8
27	RES	33KΩ 1%	0603	1
28	RES	1MΩ 1%	0603	1
29	RES	470Ω 1%	0603	3
30	RES	4.7KΩ 1%	0603	3
31	RES	9.1KΩ 1%	0603	1
32	RES	13KΩ 1%	0603	1
33	RES	5.49KΩ 1%	0603	1
34	RES	10mΩ 1%	0603	1
35	RES	1Ω 1%	0603	1
36	RES	680KΩ 1%	0603	1
37	RES	1KΩ 1%	0603	1
38	RES	4.53KΩ 1%	0603	1
39	BUTTON	RESET	FSMSM	1
40	NPN	MMBTA42	SOT-23	2
41	N-MOS	IRF644	TO263-3S	1
42	PNP	MMBTA92	SOT-23	1
43	TEST-POINT	TEST-POINT	Test_Point	4
44	AT42QT1012	AT42QT1012	SOT-23-6	1
45	STM32F103C8T6	STM32F103C8T6	LQFP48	1
46	DS3231	DS3231	SO16W	1
47	A5972D	A5972D	SOIC-8	1
48	MC34063	MC34063	SOIC-8	1
49	Cristal	ABM3B-8MHz	ABM3B	1