



## Bill of Materials

Part	Value	Description
D1-D22, D24-D27, D29-D33	LED	3mm T-1 LED
D23	IN4148	
D28, D34	BAV21	
K1-K55	G2R-2-12VDC	DPDT relay
J1-J6	Header	0.1" pitch header, right angle recommended
C1,C2, C4-C8, C10, C11, C14, C15	470uF 16V	5mm diameter, 2.5mm pitch electrolytic
C3	33pF 16V	2.5mm pitch ceramic
C9	100pF 16V	2.5mm pitch ceramic
C12	680pF 16V	2.5mm pitch ceramic
C13	100uF 16V	5mm diameter, 2.5mm pitch electrolytic
C17-C20	0.1uF 16V	2.5mm pitch ceramic
L1	100uH 1A	Axial inductor 15mm pin pitch, 4mm diameter
Q1, Q3	IRF630	Power MOSFET
Q2	2N3906	PNP transistor
R1, R2, R8, R9, R13, R30-R32, R52, R53	10 ohm 1/4W	Storage relay inrush limiting resistor
R3, R10, R12, R14-R16, R21- R29, R34, R35, R39-R42, R46- R51, R54, R57, R58, R61	10K 1/4W	LED current limiting resistor
R4	2.2Meg 1/4W	
R5, R6, R17- R20, R36-R38, R59, R60	330 ohm 1/4W	Storage relay holding resistor
R62-R65	33K 1/4W	Nixie anode resistor
R7	2.2K 1/4W	
R43, R44	0.5 1/4W	Nixie power supply current limiting resistor
R45	1K 1/4W	
R55	470K 1/4W	
R56	3.8K 1/4W	Nixie power supply feedback control resistor
SW1,SW2	SPDT switch	3 pin 4.7mm pitch
U1	CD4521	Clock IC
U2, U3	CD4017	Decade counter/divider IC
U4	MC34063AP	Nixie power supply controller
Y1	4.194MHz	Crystal for CD4521 timebase

Mount holes are 4mm (#8 screw) diameter.

### **“POWER IN” Input Ports**

Name	Size	Description
+12V	1	Power supply 12VDC
GND	1	Power supply ground

### **“EXT IN” Input Ports**

Name	Size	Description
~CLK	1	Active low external 1Hz reference (optional in lieu of timebase ICs)
GND	1	Signal ground

### **Output Ports**

Name	Size	Description
1 MIN	11	0-9 digit output (active low) + anode
10 MIN	7	0-5 digit output (active low) + anode
1 HOUR	11	0-9 digit output (active low) + anode
10 HOUR	3	0-1 digit output (active low) + anode