











| Quantity | Designator | Comment | Description | Manufacturer Part Number |
|----------|--------------------------|---------------|--|------------------------------|
| | 6 C1, C3, C5, C6, C7, C8 | 104 | Capacitor, Ceramic, Cap 0.1 uF, Tol -20, +80%, Vol-Rtg 50 VDC, Radial, Y5V | B9410 |
| | 1 C2 | 10uF | Aluminum Electrolytic Capacitors - Leaded 50volts 10uF 20% | ESH106M50AC 3AA |
| | 1 C4 | 220uF | Cap Aluminum Lytic 220uF 25V 20% (8 X 11mm) Radial 3.5mm 250mA 3000h-105C Bulk | ESH4227M25AG 3AA |
| | 2 C9, C12 | 33pF | CAPACITOR CERAMC DISC 10000PF 50V 10% RADIAL LEAD | B9303 |
| | 1 C10 | 1uF | Cap Aluminum 1uF 50V 20% (5 X 11mm) Radial Aluminum Cylindrical Can 2mm 12mA 2000 hr 105°C Bulk | ESH105M50AC 3AA |
| | 1 C11 | 103 | CAPACITOR CERAMC DISC 10000PF 50V 10% RADIAL LEAD | B9310 |
| | 1 D1 | LED | 5MM Yellow Green Led Lamp | L513GD-A |
| | 2 D2, D3 | 1N4148 | DIODE GEN PURP 100V 200MA DO35 | 1N4148 |
| | 1 E1 | ENCODER | Mechanical Encoder Rotary Incremental Flat 0.02N.m Straight Quadrature Digital Square Wave 20PPR Through Hole PC Pin | AC211BR4E- 15FD1-20C |
| | 1 F1 | 3A | Fuse Miniature 3A 250V Fast 2-Pin Cartridge Holder Conn Power PIN 2 POS Solder RA | 5MF3-R |
| | 1 J1 | OC JACK | Thru-Hole 3 Terminal 1 Port | KLDX-0202-A |
| | 1 J2 | HEADER 1X5 | Headers & Wire Housings Classic PCB Header Strips, 0.100 pitch | TSW-105-23-T- S |
| | 2 J3, J4 | HEADER 1X3 | Corn Unshrouded Header HDR 3 POS 2.54mm Solder ST Top Entry Thru-Hole Bag | TSW-103-23-T- S |
| | 1 J5 | TB | Serie 2165 S - 5.08 mm Horizontal Entry Modular with Rising Cage Clamp WR- TBL 2 pin | 691216510002S |
| | 1 LCD1 | 16x2 LCD | | MDP-AL162A- BYFY-25J-3N |
| | 1 Q1 | IRF244N | NMOS VDS=65V VGS=+20V ID=45A | IRF244NPBF |
| | 1 R1 | 10K | 电阻器 碳膜 10K ±5% 1/4W - 350±500ppm/°C | CFR-25JB-52- 10K |
| | 1 R2 | 4K7 | General Type Carbon Film Resistor 4.7kOhm 1/4W 5% Axial Bulk | CFR-25JB-52- 4K7 |
| | 2 R3, R10 | 1K | Res Carbon Film 1K Chen 5%, 1/4W - 350ppm/°C to 350ppm/°C Conformal AXL Thru- Hole Bulk | CFR-25JB-52- 1K |
| | 4 R4, R8, R9, R15 | 47K | General Type Carbon Film Resistor 47kOhm 1/4W 5% Axial Bulk | CFR-25JB-52- 47K |
| | 1 R5 | 2K2 | Res Carbon Film 2.2K Ohm 5% 1/4W 350 to 500ppm/°C Conformal Axial Thru-Hole Bulk | CFR-25JB-52- 2K2 |
| | 1 R6 | 220K | General Type Carbon Film Resistor 220kOhm 1/4W 5% Axial Bulk | CFR-25JB-52- 220K |
| | 1 R7 | 220 | General Type Carbon Film Resistor 220Ohm 1/4W 5% Axial Bulk | CFR-25JB-52- 220R |
| | 4 R11, R12, R13, R14 | 2R2 | General Type Wirewound Resistor 2.2kOhm 1W 5% Axial TR | KNP100JR-73- 2R2 |
| | 1 SW1 | BT | Switch Tactile N.O SPST Round Button PC Pins 0.05A 12VDC 100000Cycle 1.27N Thru-Hole Bulk | Y97HT21A1GAF P |
| | 1 U1 | L7805CV | Positive Voltage Regulator | |
| | 1 U2 | PIC18F4550-4P | MICROCONTROLLER PIC18F4550-4P - 8 Bit Microcontroller, Flash, PIC18F4xxx, 48 MHz, 32 KB, 2 KB, 40, DIP RoHS Compliant, Yes | PIC18F4550-4P |
| | 1 U3 | LM358 | Op-amp, Low Power, 32 V, 0.5 ma (typ.), 32 V, 2 Mv (typ.), 5 Na (typ.), 0 Dns | LM358ANNOPB |
| | 1 VR1 | 503 | Res Cermet Trimmer 50K Ohm 10%, 1/2W 25(Elec)Turn 2.19mm (0.53 X 4.83 X 11.55mm) Pin Thru-Hole T/R | 3298W-1- 503R/LF |
| | 1 X1 | 32.768KHz | Crystal 32.7680KHz 12.5PF Th | R38-32.768-12.5- EXT-6PPM |