TEC-1G Parts List

Version 1.5

Qty	Reference	Value	Description	Notes
1	PCB	TEC-1G		
7	R1, R5, R9, R13, R14, R18, R33	330R	1/4 watt metal film 1% Resistor 330R	
3	R2, R15, R31	2k2	1/4 watt metal film 1% Resistor 2k2	
14	R10-R12, R26-R30, R32	10k	1/4 watt metal film 1% Resistor 10k	
8	R16, R19-25	1k	1/4 watt metal film 1% Resistor 1k	
1	R17	100R	1/4 watt metal film 1% Resistor 100R	
1	R34	0R	1/4 watt metal film 1% Resistor 0R OR wire link	
2	RN1, RN3	10k	SIP9 8 resistor network 10k	
1	RN2	4k7	SIP9 8 resistor network 4k7	
3	RN4, RN5, RN7	330R	SIP9 8 resistor network 330R	RN5 and RN7 only required if mounting Fulisik LEDs
1	RN6	330R	SIP5 4 resistor network 330R	RN6 only required if mounting Fulisik LEDs for Gateron MX LP key switches
1	VR1	500k	Potentiometer, cermet 500k	
1	VR1/SW13	500k	SPST switching potentiometer, horizontal	Optional switched horizontal mount pot for Radio GaGa
1	VR2	10k	Potentiometer, cermet, 10k	
1	C1	1000uF Electro	Polarised radial electrolytic capacitor, pitch 5.0mm	
3	C2, C3, C6	100n	Unpolarised decoupling capacitors, pitch 5.0mm	
1	C4	100p	Unpolarised ceramic capacitor, pitch 5.0mm	
1	C5	10n	Unpolarised decoupling capacitors, pitch 5.0mm	Only use 10n if using DS1233 power/reset management IC
1	C5	10uF Electro	Polarised radial electrolytic capacitor, pitch 5.0mm	Only use 10u if NOT using DS1233 power/reset management IC
9	DC1-DC9	100n	Unpolarised decoupling capacitors, pitch 5.0mm	
1	C7	1uF Electro	Polarised radial electrolytic capacitor, pitch 2.5mm	
1	BAR1	8/10 segment BAR graph	LED Bar Graph 8 or 10 segment block	Note: Standard 8 Bar LEDs are NOT wired as required. Check schematic for Pinouts.
6	DIG1-DIG6	FND560	7 Segment LED, FND560 compatible	Common Cathode
1	D0	1N4001-7	100V 1A General Purpose Rectifier Diode, DO-41	Can be any from 1N4001 to 1N4007
7	D1-D7	1N4148	100V 0.15A standard switching diode, DO-35	
1	L5	5mm LED	Speaker indicator, 5mm white LED	DO NOT mount Speaker indicator LED if using 10 segment Status LED bar
1	L1	5mm LED	Power indicator, 5mm blue LED	
1	L2	5mm LED	Halt indicator, 5mm red LED	DO NOT mount Halt indicator LED if using 10 segment Status LED bar
2	L3, L4	5mm RGB LED	"Disco LEDs", 5mm RGB LED (Round or Rectangular)	Use either round or rectangular RGB leds. Common Cathode
1	PM1	DS1233	Power Monitor & Reset, TO-92	This is optional but recommended.
8	Q1-Q8	BC547	0.1A Ic, 45V Vce, Small Signal NPN Transistor, TO-92	
8	Q9-Q16	BC557	0.1A Ic, 45V Vce, PNP Small Signal Transistor, TO-92	
1	SD1	1N5817	20V 1A Schottky Barrier Rectifier Diode	
1	X1	4MHz XTAL	4 Mhz Crystal Oscillator Package (8 or 14 DIP)	
1	REG1	L7805	Positive 1.5A 35V Linear Regulator	Output 5V, TO-220
1	LCD1	HD44780 20x4 Char LCD	20x4 Character LCD, HD44780 compatible	
1	U1	CD4049	Hex inverter	
1	U2	Z80A	Z80 CPU >= 4MHz	
3	U3, U10, U12	74HCT138	3 to 8 Decoder, active low	
1	U4	74HCT688	8-input comparator	
1	U5	74HCT86	Quad 2-input XOR	
2	U6, U14	74HCT00	Quad 2-input NAND	
1	U7	27c512/28c256/27c256	UV/E EPROM 256Kb (32k), or UV 512Kb (64k), DIP-28	
1	U8	MC62256	256kB (32k x 8) static RAM, DIP-28 wide or skinny	
	U9	Various	Memory expansion socket	
1	U11	74HCT30	8-input NAND	
3	U13, U16, U17	74HCT273	8-bit D-Type flip-flop with reset	
1	U15	MM74C923	20-key encoder	
1	U18	74HCT373	8-bit latch, tri-state	
1	U19	74HCT245	Octal bus tranceivers, tri-state	
1	U20	MAX4544	SPDT Analog switch	Analog switch only required if using Radio Ga Ga switched potentiometer
1	FTDI Module	FTDI Module	USB to UART USB 2.0 UART Interface Module	
1			8 pin or 14 pin DIP crystal socket	
1			8 pin DIP socket	
4			14 pin DIP socket	
4			16 pin DIP socket	
7			20 pin DIP socket	
2			28 pin skinny DIP socket	
2			28 pin DIP socket	
1			28 pin ZIF socket	
1			40 pin DIP socket	
1	BJ1	Power Jack	DC Barrel Jack with an internal switch	
1	HS1	Heatsink	TO-220 Heatsink	
1	J1	Z80Bus_Socket	IDC 40pin Female Socket, vertical	
1	J2	Z80Bus_Socket	IDC 40pin Female Socket, horizontal	
1	J3	TEC Expander	Female connector, 02x10, horizontal	
1	J4	Matrix Keyboard	IDC Male Header, 02x10, vertical	
2	J5	FTDI_Module	Female connector, 01x06, vertical	
1	J6	IOBus	Female connector, 01x10, vertical	
1	J7	MEMBus	Female connector, 01x15, vertical	
1	J8	G.Inp	Female connector, 01x04, vertical	
1	J9	Joystick	9-pin male D-SUB connector	
1	J10	TEC GPIO	Female connector, 02x08, vertical	
1	USB1	USB_B_OST_USB-B1HSxx	USB Type B connector	*See important notes on USB1 below
1	J14	GPIO Power	Pin Header, 01x02, vertical	
2	J15	Test Points	2x Male Jumper pins	
1	JP1	Jumper, 3 pin	Shunted, Default "KB" (KB/HALT)	
1	JP2	Jumper, 2 pin	Speaker jumper, Pin Header, 01x02, vertical	Only use speaker jumper pins if severing "Groundwalker" board link
7	JP3 - JP9	Jumper, 3 pin	3 Pin Header (EPROM/Expansion size select)	
11	JP1-JP9, SW5	2 pin jumper shunts	To bridge the option selected	
1	LCD1	LCD Header	Female connector, 01x16, vertical	

1	SP1	Speaker	8 ohm mini speaker	
1	SW1	Power	DPDT Right Angled Slide Switch	
1	SW2	Speed	SPDT Slide Switch	Only use SW2 if NOT using Radio Ga Ga analog switch and switched potentiometer
2	SW3, SW4	ROM Hi/Lo	SPDT Micro Slide Switch or Shunted 3 Pin Jumpers	
2	SW5	Expansion ROM 27c256/Other	2x 3 Pin Headers or Micro DPDT Slide Switch	
1	DIP1	CONFIG	3x DIP Switch SPST switch	
Tactile switch key pad option				
22	MX0 - MX21	Key Switches	12mm tactile key switches	
22		Key Caps	12mm tactile key caps	
Gateron MX LP mechanical switch key pad option				
22	MX0 - MX21	Key Switches	Gateron MX low profile key switches	
22	MX0 - MX21	Key Caps	Any key caps with Cherry MX compatible stems	
17		Key Switch LEDs	Fulisik LEDs - White	Fulisik LEDs option only for Gateron MX LP mechanical key switches
2			Fulisik LEDs - Yellow	
1			Fulisik LEDs - Green	
1			Fulisik LEDs - Blue	
1			Fulisik LEDs - Red	
1	SW6	Fulisik Switch	Shunted, Default "ON" (Fulisik LEDs)	

NOTE

Items highlighted in yellow are optional components.

Whilst IC sockets are optional they are recommended. It is highly recommended that at least sockets are installed for the Z80 CPU, ROM, RAM, and Expansion sockets.

***IMPORTANT NOTES ON USB1 - CAUTION!**

The TEC-1G is more demanding on power than previous models, mostly due to its increased complexity and chip count.

A larger LCD with backlight, higher LED count on board, eg. if using Fulisik LEDs, and the optional GLCD with backlight also contribute to the increased power demand.

1. If using USB1 for power, you must install the DC Barrel Jack, or short two of the three pads on the board with a link under where the power jack would mount. i.e. the two non-earthed connection points for the DC power jack.

2. Testing during the beta phase has found that most USB Chargers do not deliver enough current to satisfy the TEC-1G!
If using a USB-B socket for power, you must ensure that the USB power supply you are using can comfortably deliver 1.5A.
Also note that most USB Chargers by default will limit there current delivery well below there rated current capacity!
The first signs of power delivery issues particularly with USB power will be corruption and instability on the 20x4 LCD display.