

tynemouth software

TYNEMOUTH SOFTWARE MINSTREL ZX80 CLONE ISSUE 2 PARTS LIST

CAPACITORS – AXIAL CERAMIC RATED 16V OR HIGHER

4 x 47pF (*usually marked 47 or 470*)
1 x 10nF (*usually marked 10n or 103*)
2 x 47nF (*usually marked 47n or 473*)
13 x 100nF (*usually marked 100n or 104*)
1 x 1uF (*usually marked 1u or 105*)
1 x 22µF (*axial electrolytic rated 25V*)

RESISTORS – ALL ¼W 5% OR BETTER (4 BAND RESISTOR COLOUR CODES SHOWN)

1 x 75Ω (*purple green black gold*)
1 x 180Ω (*brown grey brown gold*)
1 x 330Ω (*orange orange brown gold*)
2 x 470Ω (*yellow purple brown gold*)
1 x 680Ω (*blue grey brown gold*)
17 x 1KΩ (*brown black red gold*)
2 x 2.2KΩ (*red red red gold*)
1 x 2.7KΩ (*red purple red gold*)
1 x 3.3KΩ (*orange orange red gold - optional for some SCART TV sets - see later*)
1 x 4.7KΩ (*yellow purple red gold*)
6 x 47KΩ (*yellow purple orange gold*)
1 x 220KΩ (*red red yellow gold*)
1 x 1MΩ (*brown black green gold*)

SEMICONDUCTORS (NEW TEXAS INSTRUMENTS 74LS CHIPS RECOMMENDED)

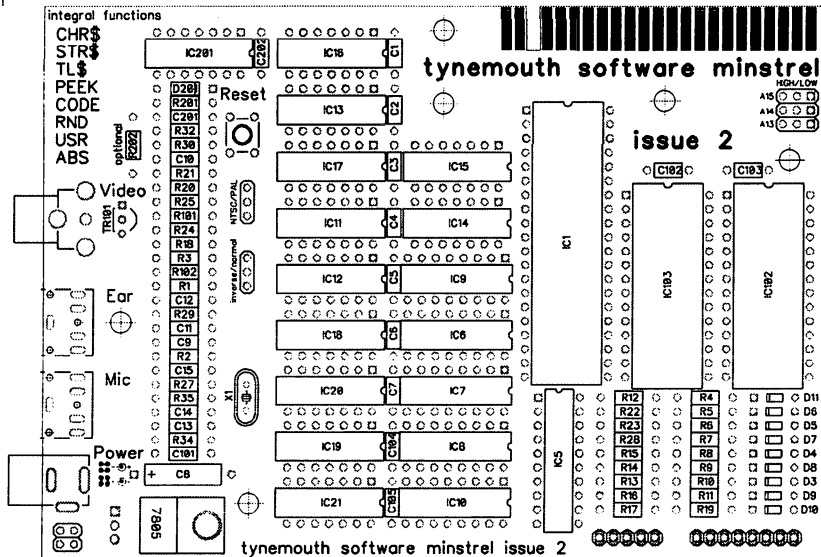
10 x 1N4148 diode
1 x BC548B (*or similar NPN transistor*)
2 x 74LS00
1 x 74LS04
2 x 74LS05
1 x 74LS08
1 x 74LS10
1 x 74LS32
2 x 74LS74
1 x 74LS86
1 x 74LS93
3 x 74LS157
1 x 74LS165
1 x 74LS365
1 x 74LS373
1 x Z80 CPU / NEC D780 / Zilog Z84C0006PEG / Z84C0008PEG / Z84C0010PEG (*4MHz or higher rated*)
1 x 7805 or 7805 switching replacement (*rated 250mA minimum for board only, more if using expansion port*)
1 x 27C64 – 27C512 EPROM
1 x 62256 32K SRAM (*e.g. Alliance AS6C62256 or Cypress CY62256*)
1 x 6.5 MHz Crystal

CONNECTORS / SWITCHES

1 x 5 way, 1 x 8 way 0.1" FFC connector (for ZX81 membrane) (*e.g. TE Connectivity 5-520315-5, 5-520315-8*)
2 x Stereo 3.5mm Jack (*e.g. CUI SJ1-3525N – Digi-Key SJ1-3525N*)
1 x Phono jack (*e.g. CUI RCJ-011 – Digi-Key CP-1400-ND*)
1 x 2.1 mm DC Jack
1 x miniature tactile switch 6x6mm (*e.g. Diptronics DTS-61N*)
2 x 2 way and 5 x 3 way headers with jumper (*optional or wire links*)
2 x 28pin, 1 x 40pin IC sockets (*turned pin recommended*)
12 x 14pin, 5 x 16pin, 1 x 20pin IC sockets (*optional, turned pin recommended*)

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BOARD LAYOUT WITH PART NUMBERS



ADDITIONAL PARTS OVER ZX80 SCHEMATIC

1xx numbers are part substitutions for modern ROM and RAM chips to replace the original 2532 and 2114 chips which are no longer in production. TR101 forms a simple composite video output buffer. R102 (680Q) is inserted between IC6 pin 7 and the $\overline{\text{ROM_CS}}$ line. This is connected to pin 23B on the edge connector (which is unused on the ZX80) and allows the ROM to be disabled remotely (which matches the ZX81).

MODIFICATIONS TO VIDEO OUTPUT CIRCUITRY

2xx numbers form a pulse stretching circuit to give proper a back porch to help black level on modern TV sets. R202 is an optional 3K3 resistor that reduces the video signal level, which can help with some TV SCART inputs.

