

**Appendage Touch Ribbon Controller [Bill of Materials for PC board REV. 1.07H]**

**Fixed Resistors (NOTE: 1% tolerances can only substitute for 5% tolerance values)**

| REF.                                                                                              | DESIG. | QTY. | VALUE                                                      | COMMENTS | CATALOG PART NO. |
|---------------------------------------------------------------------------------------------------|--------|------|------------------------------------------------------------|----------|------------------|
| R1-R11                                                                                            | 11     | 100R | 100 OHM 1/4W 1% METAL FILM<br>DIGIKEY 100XBK-ND            |          |                  |
| R12,R13                                                                                           | 2      | 1.5K | 1.50K OHM 1/4W 1% METAL FILM<br>DIGIKEY 1.50KXBK-ND        |          |                  |
| R14-R18                                                                                           | 5      | 1.8K | METAL FILM 1.80K OHM 1/4W 1%<br>DIGIKEY P1.80KCACT-ND      |          |                  |
| R20-R23                                                                                           | 4      | 10K  | 10.0K OHM 1/4W 1% METAL FILM<br>DIGIKEY 10.0KXBK-ND        |          |                  |
| R24-R38<br>R40-R44<br>R47-R51<br>R53-R60<br>R62-R64<br>R66-R68<br>R70-R85<br>R87-R89<br>R103-R105 | 61     | 100K | 100K OHM 1/4W 1% METAL FILM<br>DIGIKEY 100KXBK-ND          |          |                  |
| R61,R65<br>R69                                                                                    | 3      | 120K | METAL FILM 120K OHM 1/4W 1%<br>DIGIKEY P120KCACT-ND        |          |                  |
| R90-R94                                                                                           | 5      | 1.0M | 1.0M OHM 1/4W 5% CARBON FILM<br>DIGIKEY 1.0MQBK-ND         |          |                  |
| R95,R96                                                                                           | 2      | 1.2M | 1.2M OHM 1/4W 5% CARBON FILM<br>DIGIKEY 1.2MQBK-ND         |          |                  |
| R97-R99                                                                                           | 3      | 22K  | 22K OHM 1/4W 5% CARBON FILM<br>DIGIKEY 22KQBK-ND           |          |                  |
| R100,R101<br>R116-R118<br>R126                                                                    | 6      | 330K | METAL FILM 330K OHM 1/4W 1%<br>DIGIKEY P330KCACT-ND        |          |                  |
| R102                                                                                              | 1      | 560K | 560K OHM 1/4W 5% CARBON FILM<br>DIGIKEY 560KQBK-ND         |          |                  |
| R106-R109                                                                                         | 4      | 2.2M | 2.2M OHM 1/4W 5% CARBON FILM<br>DIGIKEY 2.2MQBK-ND         |          |                  |
| R110                                                                                              | 1      | 330R | 330 OHM 1/4W 5% CARBON FILM<br>DIGIKEY 330QBK-ND           |          |                  |
| R111,R112                                                                                         | 2      | 470R | RES MF 1/4W 470 OHM 1% AXIAL<br>DIGIKEY RNF1/4T1470FRCT-ND |          |                  |

|                   |   |      |                                                       |
|-------------------|---|------|-------------------------------------------------------|
| R113,R114         | 2 | 3.0K | METAL FILM 3.00K OHM 1/4W 1%<br>DIGIKEY P3.00KCACT-ND |
| R119,R120,R19     | 3 | 4.7K | METAL FILM 4.70K OHM 1/4W 1%<br>DIGIKEY P4.70KCACT-ND |
| R121-R125<br>R130 | 6 | 5.6K | 5.6K OHM 1/4W 5% CARBON FILM<br>DIGIKEY 5.6KQBK-ND    |
| R127              | 1 | 470K | 470K OHM 1/4W 5% CARBON FILM<br>DIGIKEY 470KQBK-ND    |
| R128,R129         | 2 | 150K | 150K OHM 1/4W 1% METAL FILM<br>DIGIKEY 150KXBK-ND     |
| R131              | 1 | 220R | 220 OHM 1/4W 5% CARBON FILM<br>DIGIKEY 220QBK-ND      |

## Capacitors

| REF. DESIG. | QTY. | VALUE  | COMMENTS                                          | CATALOG PART NO. |
|-------------|------|--------|---------------------------------------------------|------------------|
| C1,C2       | 2    | 47 uF  | 47UF 35V ELECT AUDIO RAD<br>DIGIKEY 604-1064-ND   |                  |
| C3-C37      | 35   | 100 nF | .10UF 63V METAL POLY<br>DIGIKEY 495-1103-ND       |                  |
| C38         | 1    | 1 nF   | CER 1000PF 50V 10%<br>DIGIKEY 478-4492-ND         |                  |
| C39-C41     | 3    | 10 nF  | .01UF 50V 10% CER RADIAL<br>DIGIKEY 399-4206-ND   |                  |
| C42-C44     | 3    | 1 uF   | POLYFILM BOX 1.0UF 63V 5%<br>DIGIKEY 478-3367-ND  |                  |
| C45-C49     | 5    | 220 pF | 220PF 100V 5% CER RADIAL<br>DIGIKEY 399-4163-ND   |                  |
| C50-C52     | 3    | 2 nF   | POLYPROPYLENE .0020UF 50V 1%<br>DIGIKEY P3831-ND  |                  |
| C53         | 1    | 33 nF  | .033UF 250V METAL FILM BOX<br>DIGIKEY 3010PH-ND   |                  |
| C54         | 1    | 330 nF | .33UF 50V CERAMIC MONO 10%<br>DIGIKEY P4959-ND    |                  |
| C55-C56     | 2    | 4.7 nF | 4700PF 50V CERAMIC X7R 10%<br>DIGIKEY BC1093CT-ND |                  |
| C57-C60     | 4    | 47 nF  | .047UF 50V CERAMIC X7R 10%<br>DIGIKEY BC1099CT-ND |                  |

## Semiconductors

| REF.    | DESIG. | QTY. | VALUE   | COMMENTS                        | CATALOG PART NO.                     |
|---------|--------|------|---------|---------------------------------|--------------------------------------|
| U1      |        | 1    | CD4017  | DECADE COUNTER                  | DIGIKEY 296-2037-5-ND                |
| U2,U3   |        | 2    | CD40106 | HEX SCHMITT TRIGGER             | DIGIKEY 296-3503-5-ND                |
| U4      |        | 1    | CD4081  | 2-IN AND GATE QUAD              | DIGIKEY 296-2066-5-ND                |
| U5      |        | 1    | CD4013  | DUAL D-TYPE FLIP-FLOP           | DIGIKEY 296-2033-5-ND                |
| U6      |        | 1    | TS556   | TIMER DUAL LOW POWER            | DIGIKEY 497-7680-5-ND                |
| U7-U11  |        | 5    | LF398   | MONO SAMPLE & HOLD              | DIGIKEY LF398N-ND                    |
| U12     |        | 1    | LM358   | OPAMP DUAL 8-DIP                | DIGIKEY LM358ANFS-ND                 |
| U13-U20 |        | 8    | TL074   | QUAD JFET-INPUT OPAMP           | DIGIKEY 296-1777-5-ND                |
| U21     |        | 1    | CD4053  | MUX/DEMUX TRI ANA 2CH           | DIGIKEY CD4053BCN-ND                 |
| U22     |        | 1    | 78L10   | REG 0.1A 10V                    | DIGIKEY 296-1996-ND                  |
| U23     |        | 1    | LM334Z  | CURRENT SOURCE ADJ TO-92        | DIGIKEY LM334ZNS-ND                  |
| D1-15   |        | 15   | 1N4148  | DIODE SGL JUNC 100V 4.0NS D0-35 | DIGIKEY 1N4148FS-ND                  |
| D16     |        | 1    | 1N457   | DIODE SS 70V 200MA DO35         | DIGIKEY 1N457CT-ND                   |
| D17-D20 |        | 4    | BAT85   | DIODE SCHOTTKY 30V 200MA DO34   | DIGIKEY 568-1617-1-ND                |
| Q1-Q5   |        | 5    | 2N3904  | TRANSISTOR NPN GP 200MA TO-92   | DIGIKEY 2N3904FS-ND                  |
| Q6      |        | 1    | MPF102  | JFET AMP N-CH RF SS TO-92       | DIGIKEY MPF102-ND<br>FUTURLEC MPF102 |

## Multi-Turn Trimmer Potentiometers

| REF. DESIG. | QTY. | VALUE | COMMENTS                        | CATALOG PART NO.       |
|-------------|------|-------|---------------------------------|------------------------|
| VR1-VR10    | 10   | 100K  | 25 TURN, TOP ADJ                | DIGIKEY 490-2876-ND    |
| VR11        | 1    | 200K  | POT 200K OHM 1/4" SQ CERM SL MT | DIGIKEY 3266W-204LF-ND |
| VR12        | 1    | 10K   | POT CERM 10K OHM 25TRN TOP      | DIGIKEY 490-2875-ND    |

## Connector Hardware

| REF. DESIG. | QTY. | VALUE            | COMMENTS                         | CATALOG PART NO.                       |
|-------------|------|------------------|----------------------------------|----------------------------------------|
| J1,J9       | 2    | MOLEX 22-23-2041 | CONN HEADER 4POS .100 VERT TIN   | DIGIKEY WM4202-ND<br>FUTURLEC POLHDR4  |
| J2          | 1    |                  | 16 PIN .100" MALE DOUBLE HEADERS | FUTURLEC HEADD16                       |
| J3          | 1    | TYCO 644752-4    | CONN HEADER VERT 4POS .156 TIN   | DIGIKEY A24166-ND                      |
| J4          | 1    | TYCO 640456-6    | CONN HEADER VERT 6POS .100 TIN   | DIGIKEY A1923-ND<br>FUTURLEC POLHDR6   |
| J5          | 1    |                  | 20 PIN SHROUDED MALE HEADERS     | FUTURLEC IDCMH20<br>DIGIKEY A33055-ND  |
| J6          | 1    | MOLEX 22-23-2051 | CONN HEADER 5POS .100 VERT TIN   | DIGIKEY WM4203-ND<br>FUTURLEC POLHDR5  |
| J7,J8,J10   | 3    | MOLEX 22-23-2121 | CONN HEADER 12POS .100 VERT TIN  | DIGIKEY WM4210-ND<br>FUTURLEC POLHDR12 |

## Crimp Terminals & Misc. Hardware

| REF.    | DESIG. | QTY. | VALUE         | COMMENTS                          | CATALOG PART NO.   |
|---------|--------|------|---------------|-----------------------------------|--------------------|
| NA      |        | 53   |               | CRIMP TERM.                       | DIGIKEY WM1114-ND  |
|         |        |      |               | QTY [6] PK of 10 FUTURLEC PLHDPIN |                    |
| TP1-TP9 |        | 9    | 5010          | TEST POINT PC MULTI PURPOSE RED   | DIGIKEY 5010K-ND   |
| TB1     |        | 1    | TYCO 796949-3 | TERMINAL BLOCK 3 POS.             | MOUSER 571-7969493 |

## Sockets

| REF.             | DESIG. | QTY. | VALUE | COMMENTS                             | DIGIKEY PART NO.  |
|------------------|--------|------|-------|--------------------------------------|-------------------|
| X7-X12           |        | 6    |       | SOCKET IC<br>OPEN FRAME<br>8POS .3"  | DIGIKEY 3M5461-ND |
| X2-X6<br>X13-X20 |        | 13   |       | SOCKET IC<br>OPEN FRAME<br>14POS .3" | DIGIKEY 3M5462-ND |
| X1,X21           |        | 2    |       | SOCKET IC<br>OPEN FRAME<br>16POS .3" | DIGIKEY 3M5463-ND |