



**synthesis  
technology**

**MOTM-440 Discrete OTA Lowpass Filter  
Assembly Instructions & Owner's Manual**

Synthesis Technology  
6625 Quail Ridge Dr.  
Fort Worth, TX 76180  
(817) 498-3782  
[www.synthtech.com](http://www.synthtech.com)

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# MOTM-440 PARTS LIST

Please carefully check that all parts are in your kit. If you have a suspected shortage, please call or email. If you get free extra stuff, keep it for next time.

**Capacitor** bag, containing the following 16 parts:

4ea 10mfd, 25V or 50V Electrolytic	C5, C6, C11, C13
4ea 1000pf axial polystyrene	C7, C8, C9, C10
3ea 3M3 50V non-polar Electrolytic	C3, C14, C15
1ea 1000pf yellow box (marked 1N or 102)	C16
4ea 0.1mfd (marked 104) ceramic axial	C1, C2, C4, C12

**Resistor** bag, containing the following 63 parts:

11ea 10K (brown, black, orange)	R10, R12, R13, R20, R26, R32, R38, R42, R43, R44, R45
8ea 220 ohm (red, red, brown)	R21, R22, R27, R28, R33, R34, R39, R40
6ea 15K (brown, green, orange)	R18, R24, R30, R36, R49, R50
4ea 100K 1% (brown, black, black, orange)	R1, R2, R46, R47
4ea 150K (brown, green, yellow)	R17, R23, R29, R35
4ea 1K5 (brown, green, red)	R19, R25, R31, R37
4ea 100K (brown, black, yellow)	R5, R6, R7, R61
3ea 1K (brown, black, red)	R16, R51, R53
3ea 51K1 1% (green, brown, brown, red)	R3, R4, R52
2ea 68K (blue, gray, orange)	R9, R15
2ea 1M (brown, black, green)	R11, R48
2ea 200K (red, black, yellow)	R14, R62
2ea 20K (red, black, orange)	R41, R58
1ea 221K 1% (red, red, brown, orange)	R8
1ea 6K8 (blue, gray, red)	R55
1ea 3K6 (orange, blue, red)	R54
1ea 44K2 1% (yellow, yellow, red, red)	R56
1ea 330K (orange, orange, yellow)	R59
1ea 2K2 (red, red, red)	R60
1ea 100 ohm (brown, black, brown)	R63
1ea 1K 1% +3300PPM tempco	R57 ( <i>MOUNTS ON TOP OF U14</i> )

**IC** bag, containing the following 29 parts:

13ea BC550C NPN transistor	Q1 – Q13
2ea 1N4148 diodes	D1, D2
1ea MXL1013 dual op amp	U1
3ea TL072ACP dual op amp	U2, U3, U4
5ea SSM2220 dual PNP transistor	U5, U6, U8, U10, U12
4ea SSM2210 dual NPN transistor	U7, U9, U11, U13
1ea CA3086 NPN transistor array	U14

- Misc #1 bag, containing the following 5 parts:**
  - 2ea Axial ferrite beads (plain, gray things)L1, L2
  - 1ea MTA-156 power connector JP1
  - 1ea SPDT (ON-ON) toggle switch SW1
  - 1ea 20K Bourns trimpot TP1
  
- Knobs, 7ea, ALCO PKES90B1/4**
  
- Jacks, 8ea Switchcraft 112A**
  
- Pots, 7ea containing the following:**
  - 1ea 100K cermet Spectrol 149 VR1
  - 3ea 100K conductive plastic log Spectrol 148 VR2, VR3, VR4
  - 3ea 100K conductive plastic Bourns 95A1 VR5, VR6, VR7
  
- Front panel**
  
- Mounting bracket**
  
- Wire bag, containing the following 13 wires:**
  - 3ea RG-174 coax, 4 ½ inches
  - 1ea RG-174 coax, 7 inches
  - 3ea 2-wire set, 22ga. 6 inches (orange/white)
  - 2ea 2-wire set, 22ga. 3 inches (red/black)
  - 2ea 3-wire set, 22ga, 4 inches (white/orange/gray)
  - 1ea 3-wire set, 22ga. 7 inches (red/black/white)
  - 1ea Power Cable, 20"
  
- Hardware bag, containing:**
  - 4ea #8-32 x 3/8 black screws (for mounting module to rack)
  - 4ea #6-32 x 1/2 zinc screws (for attaching pc board to bracket)
  - 4ea 1/4 inch aluminum spacers
  - 6ea #6 KEPS nuts (2 for attaching bracket to front panel, 4 for pc board)
  - 6ea small tie-wraps
  
- Organic Solder**
- No-clean Solder**
- PC Board, MOTM-440**