



**synthesis
technology**

**MOTM-310 Micro Voltage-Controlled Oscillator
Assembly Instructions & Owner's Manual**

Synthesis Technology
6625 Quail Ridge Dr.
Fort Worth, TX 76180
(817) 281-7776
www.synthtech.com

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MOTM-310 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 12 parts:

3ea 10mfd, 50V Electrolytic	C1, C2, C11
2ea 100pf (marked 101) ceramic axial	C7, C8
1ea 22pf (marked 220) ceramic axial	C4
1ea 4700pf axial polystyrene	C6
5ea 0.1mfd (marked 104) ceramic axial	C3, C5, C9, C10, C12

Resistor bag, containing the following 36 parts:

6ea 1K5 1% (brown, green, black, brown)	R4, R5, R6, R25, R26, R30
4ea 10K (brown, black, orange)	R8, R12, R13, R29
3ea 1K (brown, black, red)	R11, R14, R27
3ea 100K 1% (brown, black, black, orange)	R2, R10, R31
2ea 47K (yellow, violet, orange)	R3, R33
2ea 1M (brown, black, green)	R9, R15
1ea 301K 1% (orange, black, brown, orange)	R1
1ea 3K9 (orange, white, red)	R7
1ea 100K 0.1% (marked 1003B)	R16
1ea 4.7M 1% (marked 4.7M 1%)	R17
1ea 205K 0.1% (marked 2053 BSCJ)	R18
1ea 51K1 1% (green, brown, brown, red)	R19
1ea 69K8 1% (marked 6982F)	R20
1ea 22K (red, red, orange)	R21
1ea 44K2 1% (marked 4422 FSCJ)	R22
1ea 1K 1% 3W tempco (large, black)	R23 (see instructions!)
1ea 22Ω (red, red, black)	R24
1ea 300Ω (orange, black, brown)	R28
1ea 2M2 (red, red, green)	R32
1ea 4K7 (yellow, violet, red)	R34
1ea 1M 1% (marked 1004F)	R35
1ea 1M8 (brown, gray, green)	R36

IC bag, containing the following 10 parts:

1ea 2N4403 PNP TO-92 transistor	Q1
1ea LS3954A dual matched JFET	Q2
1ea MAT-02EH dual NPN	Q3
1ea TL074A quad op amp	U1
1ea MXL1013 (or LT1013) dual op amp	U2
1ea LM319N comparator	U3
1ea LM78L05 TO-92 voltage regulator	U4
3ea 1N4148 diodes (NOT in the black foam!)	D1-D3

- Misc #1 bag, containing the following 5 parts:**
 - 3ea Axial ferrite beads (plain, gray things)L1, L2, L3
 - 1ea MTA-156 power connector JP1
 - 1ea trimmer, 25-turn 20K Bourns 3296Y TP1
- Knobs, 4ea, ALCO PKES90B1/4**
- Jacks, 4ea Switchcraft 112A**
- Pots, 4ea containing the following:**
 - 3ea 100K cermet Spectrol 149 VR1- VR3
 - 1ea 100K cond. plastic Spectrol 148 VR4
- Front panel**
- Mounting bracket**
- Wire bag, containing the following 5 wires:**
 - 2ea RG-174 coax, 4 ½ inches
 - 2ea 2-wire set, 22ga, 3 ½ inches (red/black)
 - 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)
 - 3ea small tie-wraps
- Organic Solder**
- No-clean Solder**
- PC Board, MOTM-310**