

Miniwave Expander Assembly Instructions

Rev 1

Power

Power is supplied to the PCB by a standard MOTM / Blacet AMP .156 MTA connector at 15V. The on board regulator brings the voltage to +5V necessary to run the PROM switching circuitry.

Sockets

I would recommend the use of sockets for the 9 EPROM locations to allow removal of the EPROMS. The board has been designed with the EPROMS fairly close together, so some ZIF sockets may not fit. The Aries Lo-Pro ZIF, and the Aries Lock/Eject DIP Socket (same as the Miniwave "B" socket) will fit with no problems.

The socket for J1 which receives the DIP28 plug to connect to the main Miniwave board **must** be of the screw machined variety such as the Mill-Max 110 series. The DIP28 plug will not reliably stay connected to a leaf socket.

This also means that the "A" socket on the Miniwave needs to be dealt with as it is a leaf socket and the DIP28 plug needs to plug into that socket. What seems to be the best approach is to plug a Mill-Max 110 series socket into the Miniwave "A" socket, and then plug the DIP28 plug into the Mill-Max socket.

Modification To The Miniwave

In order for the switching to work with 10 EPROMS, it is necessary to remove the A / B bank switch on the Miniwave by de-soldering S1-1, S1-2, and S1-3. Then run a jumper from S1-1 to S1-3. This will allow the remaining EPROM in the "B" socket to be selected by the expander board switch as EPROM 0. Remove resistors R26 and R27 from the Miniwave, they are no longer needed.

Switching Circuit

- Solder .1uF ceramic bypass capacitors C5-C15.
- Solder in 100K resistors R0-R9.
- Install a MTA .100 10 pin header at J3 for the rotary switch, or CV daughter board to connect to. The switch could be wired directly to the board if desired. Connect the common lug on the switch to the ground pad on the expander.

Power Section

- Solder a MTA .156 header at J2.
- Solder a ferrite bead at L1.
- Solder the 10uF electrolytic capacitor at C1. Observe the polarity. The parts list shows it to be 100V, but it can be anywhere from 25V TO 100V. The lead spacing on the listed capacitor fits well into the pads on the board.
- Solder the 4.7uF electrolytic capacitors at C2 and C4. Observe the polarity. The parts list shows them to be 100V, but it can be anywhere from 25V TO 100V. The lead spacing on the listed capacitors fits well into the pads on the board.
- Solder the 78L05 +5V Voltage Regulator at U11.

CV Daughterboard Option

If you are planning to install the PROM CV switching option, you will need to install the following:

- Solder a MTA .100 4 pin header at J4.
- Solder a ferrite bead at L2.
- Solder the 10uF electrolytic capacitor at C3. Observe the polarity.

Inverter Option

I have included an inverter circuit to allow the option of a –OUT for the Miniwave. The values for the inverter components are fairly flexible and experimentation could yield different / better results. A link can be used as well in place of the R10 trimmer. Hence, the following component values, other than the first two are just a suggestion.

- Solder a ferrite bead at L2.
- Solder the 10uF electrolytic capacitor at C3. Observe the polarity.
- Solder a 2K trimmer at R10.

- Solder a DIP8 socket at U10 for the TL072 or similar dual low noise opamp. The opamp may be soldered directly to the board if desired.
- Solder a 33pF ceramic capacitor at C16.
- Solder a 11K ¼ watt resistor at R11
- Solder a 10K ¼ watt resistor at R12
- Solder a 4.7K ¼ watt resistor at R13
- Solder a 100R ¼ watt resistor at R14
- Connect the IN pad on the Expander board to the J4 pad on the Miniwave main board.
- Connect the OUT pad on the Expander board to the OUT- jack.

Location	Part Description	Mouser Part#
C1,C3	10uF 100V Electrolytic Radial Capacitor	140-XRL100V10
C2,C4	4.7uF 100V Electrolytic Radial Capacitor	140-XRL100V4.7
C5-C13	.1uF Axial Ceramic Capacitors (104)	581-SA105E104M
C16	33pF Axial Ceramic Capacitor (330)	80-C410C330J1G
L1, L2	Ferrite Bead	623-2743001112
R0-R9	100K 1/4 Watt Resistor	271-100K
R10	2K Trimmer	652-3296W-1-202
R11	11K 1/4 Watt Resistor	271-11K
R12	10K 1/4 Watt Resistor	271-10K
R13	4K7 1/4 Watt Resistor	271-4.7K
R14	100R 1/4 Watt Resistor	271-100
U1-U9	User Supplied 27C512 EPROM	
U10	TL072	595-TL072ACP
U11	78L05 +5V Voltage Regulator	511-L78L05ACZ
J1	Mill-Max DIP28 Socket	575-193628
J2	AMP .156 MTA 4 Pin Header	571-6404454
J3	AMP .100 MTA 10 Pin Header	571-16404540
J4	AMP .100 MTA 4 Pin Header	571-6404544
	Aries ZIF Socket	535-28-526-10
	Lorlin 12 Position Rotary Switch	105-14571
	Mill-Max DIP28 Socket	575-193628
	Mill-Max DIP8 Socket	575-193308
	DIP28 Plugs	Jameco #99670