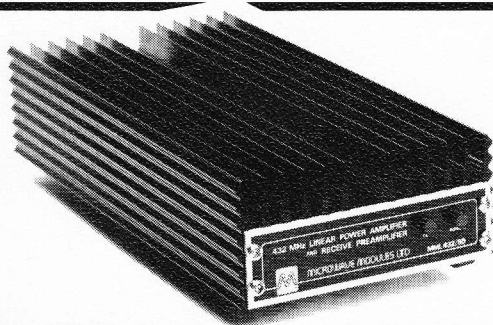




MICROWAVE MODULES LTD

432 MHz 50 WATT LINEAR POWER AMPLIFIER & LOW NOISE RECEIVE PREAMP: MML 432/50



FEATURES

- ★ 50 WATTS TYPICAL OUTPUT
- ★ RUGGED 145 W DISSIPATION PA TRANSISTOR
- ★ ULTRA LOW-NOISE RECEIVE PREAMPLIFIER
- ★ EQUIPPED WITH RF VOX AND MANUAL OVERRIDE
- ★ LED STATUS LIGHTS FOR POWER AND TRANSMIT
- ★ SUPPLIED WITH POWER LEAD AND ALL CONNECTORS

SPECIFICATION

LINEAR AMPLIFIER

Power profile : 50 watts typical output for 10 watts input

Frequency bandwidth : 430-440 MHz at -1 dB

Power requirements : 13.8 volts at 8 amps for 50 watts output

Quiescent current : 1 Amp nominal at 13.8 volts (with zero drive)

RECEIVE PREAMP

Overall gain : 12 dB typical

Overall noise figure : 2.0 dB

Frequency bandwidth : 430-440 MHz at -1 dB

Receive current : 75 mA nominal at 12.5 volts

GENERAL

RF input connector : 50 ohm BNC

RF output connector : 50 ohm Type 'N'

Weight : 2kg. (4lb. 6oz.)

Overall size : 265 x 115 x 55 mm
(10½ x 4½ x 2¾")

DESCRIPTION

This 432 MHz solid state linear power amplifier, MML 432/50, is intended for use with any existing 432 MHz equipment having an output power of 10 watts. When used in conjunction with such a drive source, this linear amplifier will provide a power output of 50 watts, and the incorporation of a low-noise receive preamplifier will provide an improved overall system noise figure.

The inclusion of the latest state of the art power transistor (rated at 145W dissipation) guarantees highly reliable and ultra-linear performance, which makes the unit ideal for all modes of operation, (SSB, FM, AM, CW and ATV). The amplifier utilises recently developed matching techniques which allow safe operation even when improperly subjected simultaneously to 50% overdrive and a supply voltage of 15V. The PA transistor is thermally tracked against ambient temperature variation and operational temperature rise.

By means of an internal RF Vox circuit the linear will automatically switch onto transmit when 432 MHz drive is applied to the input socket. However, this facility may be overridden by the application of an earth to the phono socket located on the rear panel. This may be achieved by connection to the transceiver PTT switching line.

Protection is included against reverse polarity.

All RF circuitry is constructed on high quality double sided glass-fibre PC board and the use of broadband stripline techniques gives the unit a bandwidth of 430-440 MHz, without the need to retune.

The unit is housed in a highly durable, extruded aluminium enclosure, RF input and output sockets are located on the rear panel, together with the push to talk line phono socket.

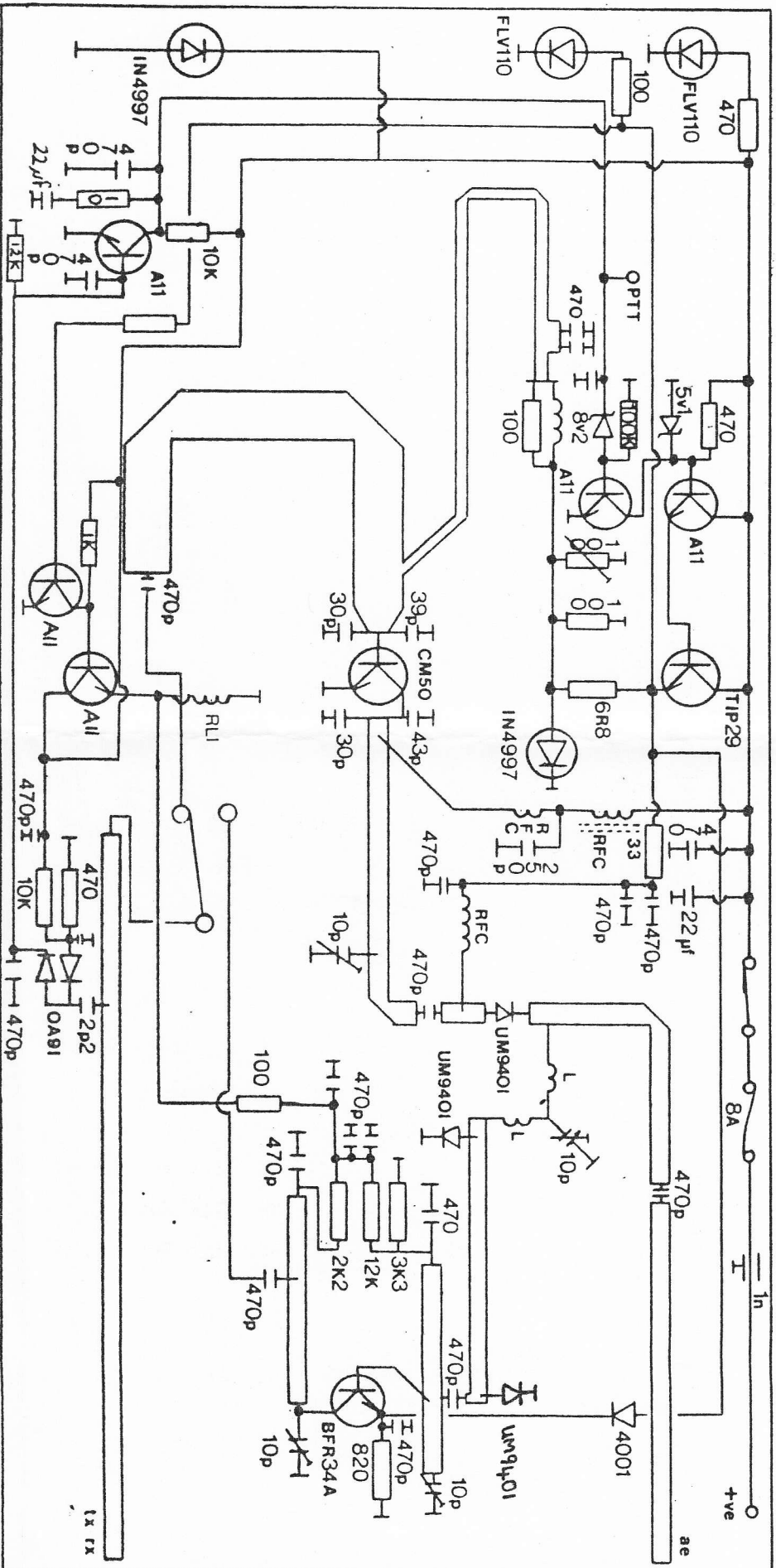
The unit is supplied fitted with a 12V supply cable, plugs for both input and output connectors and a phono plug for the PTT line.

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MML432-50





MICROWAVE MODULES LTD

CONNECTIONS AND USE OF YOUR NEW MICROWAVE MODULES LINEAR AMPLIFIER.

Now that you are the proud owner of a Microwave Modules product you will be expecting the usual high quality and performance associated with our name.

To guarantee this performance and reliability, it is important to read and follow the notes below.

1. COAXIAL LEADS

All coaxial leads should be made using low-loss 50 ohm coax cable and critical lengths which represent resonant quarter waves and multiples thereof should be avoided. This can be further complicated by the velocity factor of the coax cable, which has to be taken into account when calculating lead lengths.

In general terms, and when operating at 144MHz, and when using transceivers such as the FT290-R or FT480-R, the patch lead between the transceiver and amplifier should be no less than 4 feet in length. This may seem contrary to the normal way of thinking, in keeping leads as short as possible to minimise cable loss, but a system compatibility problem can occur, which is a result of a standing wave causing the transceiver protection to shut off (or partially shut off) the PA and resultant output power.

This effect can also be responsible for apparent 'low' output power from amplifiers, when in fact the full transceiver power is not reaching the amplifier in the first instance.

2. POWER SUPPLIES

A well regulated and stabilised DC power supply is essential for reliable and trouble-free operation. We do not generally recommend the use of car batteries in a fixed station environment, as the source of 12 volts, but if this is the only available source, it is imperative that a battery charger is not connected whilst the linear amplifier is connected to the battery. Battery chargers produce both DC and AC, and semiconductors react violently to AC, and may well become damaged beyond repair.

IN ALL CASES EXTREME CARE SHOULD BE TAKEN TO AVOID REVERSE POLARITY.

Any power supply which is chosen should be adequately rated to cater for the current consumption of the amplifier and also for any other equipment which may be used at the same time. (eg. transceiver).

3. ANTENNAS

The load presented to the output of the linear amplifier should have a VSWR of 1.5 to 1 or better. If this is not the case it is advisable to take steps to reduce the VSWR to ensure an efficient match and to maintain reliability of the amplifier.

Antennas should be fed with 50 ohm coax cable and care should be taken when attaching the connectors. An intermittent or poorly soldered connection can cause serious damage and we cannot over-emphasise the importance of checking all such connections.

Antennas should not be located close to the transceiver, power supply or amplifier. Strong RF fields can cause feedback and other associated problems simply because of close proximity.

4. INPUT LEVELS

It is important not to exceed the input power level rating of the amplifier, otherwise damage to the input components and/or the PA device may occur. This can be expensive to put right as well as inconvenient and can easily be avoided if care is taken. Often such problems may not be the direct fault of the user, as certain transceivers do produce considerably more output power than specified. If you are in any doubt please check your individual equipment. Better to be safe than sorry!

5. GENERAL

In our experience most problems or suspected problems are generally attributable to system faults rather than individual items. If you have followed the advice given and connected your equipment properly, no problems should be encountered.

If however, after checking you do have a problem, then contact the supplier of the amplifier and they will advise as necessary.