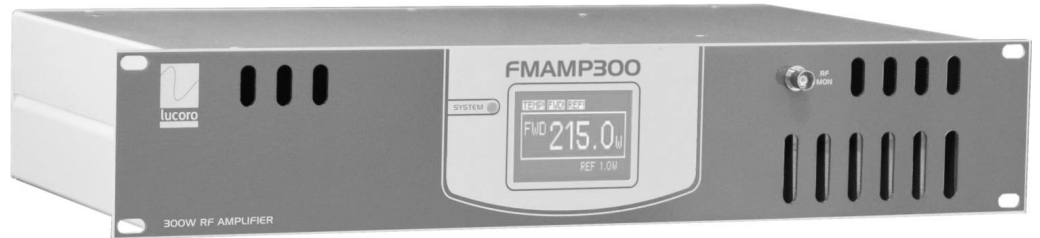




User Manual

FMAMP300

Broadcast 300W RF Amplifier



WARNING!

This RF Amplifier is capable of generating extremely high RF potential. Touching internal parts, or the connected antenna system, will cause serious RF burns. Antenna systems should be installed such that exposure by any person to RF fields cannot exceed safe limits. The permitted limits vary from country to country. Expert advice should be sought about the safe installation of this transmission system.



RISK OF FIRE!

RF (Radio Frequency) energy could cause ignition of combustible surfaces during fault conditions. Installation should be left to qualified personnel. RF can cause burns to skin. Ensure antenna systems and feeder cables are not situated near, or could fall onto, any combustible surface.



WARNING!

Never operate this device without a suitable 50 ohm load connected to the RF OUTPUT socket, or without a suitably installed and matched antenna system connected. Although the output of this transmitter is protected against antenna load faults, MIS-OPERATION MAY RESULT IN DAMAGE NOT COVERED BY ANY WARRANTY.



IMPORTANT!

Correct operation of the cooling fans in this product is vital to reliable continuous operation. Schedule bi-annual maintenance checks. We strongly advise the use of a standby transmitter system for use during maintenance events or fault conditions, to prevent prolonged breaks in transmission.



IMPORTANT!

Always reduce the RF Output power to minimum before changing the transmission frequency. Once the new frequency is active, slowly increase the RF output power control to provide the required power output level.



IMPORTANT!

Never connect an RF input source of greater than 3 Watts to this RF Amplifier. MIS-OPERATION MAY RESULT IN DAMAGE NOT COVERED BY ANY WARRANTY.

Introduction

The FMAMP300 is powerful and reliable RF Amplifier featuring the latest Enhancement Mode FET technology. Its high gain performance gives 300 Watts output (adjustable) from just 2 Watts input.

TTL remote monitoring and switching allows the FMAMP300 to be easily integrated into automated back-up applications.

Before operating

These instructions should be read in full before the Amplifier is operated.

The safety and operating instructions should be retained for future reference.

All warnings on the Amplifier and in the operating instructions should be adhered to.

All operation and user instructions should be followed.

Use of this device into a radiating antenna requires a valid licence from a Spectrum Management Authority in most countries.

Use of this device as part of a transmission system, or combined transmission system not specified by the manufacturer, may require further testing to ensure that it remains compliant with the essential requirements and other relevant provisions of current EU Low Voltage, EMC and Radio Equipment Directives. Approval and clearance from the Spectrum Management Authority may also be required.

Installation must adhere to safety regulations and the requirements of the relevant authorities. We recommend that at least two people are present during installation. Keep a file containing installation instructions and plans, including details of the transmission system (antennas, feeders, filters, etc) and operating instructions for all equipment at the transmission site at all times. Display posters detailing first aid treatment and treatment for electrical shock, along with telephone numbers for contacting the emergency services in the event of personal injury.

Ensure antenna system lightning strike protection is in place.

To reduce the risk of electrical shock, do not remove the cover, or any screws. There are no user serviceable parts inside; refer servicing to qualified personnel.

Do not expose this appliance to rain or moisture. The Amplifier should not be used near water. Care should be taken so that objects do not fall - and liquids are not spilled - into the enclosure through openings.

To reduce the risk of fire, always replace fuses with the same type and rating.

The Amplifier should be mounted into a well-ventilated standard 19 inch equipment rack. It should be situated so that its location or position does not interfere with its proper ventilation.

Use front-to-back equipment rack supports to take the weight of the Product and permit it to slide out for servicing. Fixing the device only by the front panel mounting holes is not recommended.

The Amplifier should be situated away from heat sources.

The transmitter should be connected to a power supply only of the type described in the operating instructions or as marked on the unit. Precautions should be taken so that the grounding or polarisation of this appliance is not defeated.

The unit should be cleaned only as recommended by the manufacturer.

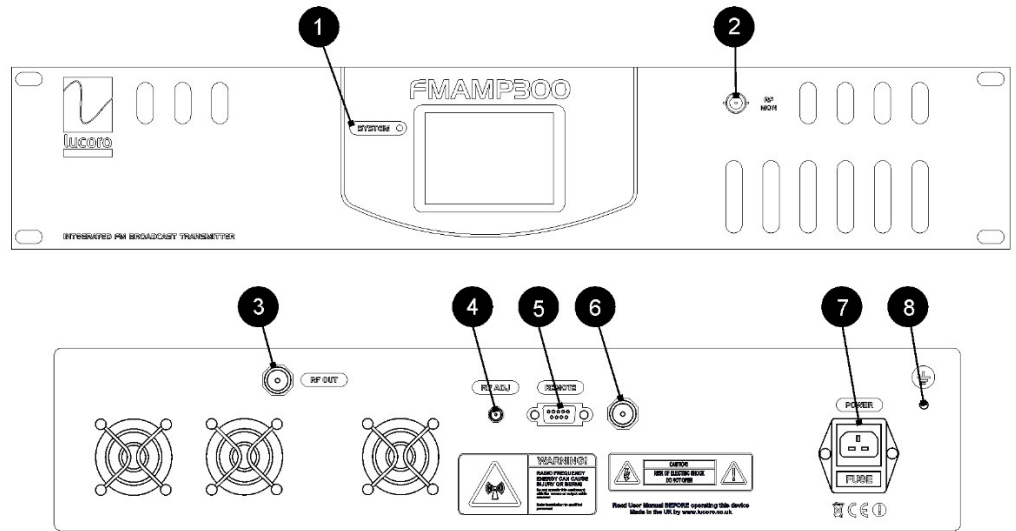
The Amplifier should be serviced by qualified service personnel if it does not appear to operate normally, exhibits a marked change in performance, has been subjected to shock, damage, moisture, or if foreign objects have ingressed.

The user should not attempt to service the Amplifier beyond that which is described in the Operating Instructions. All other servicing should be referred to qualified service personnel.

This appliance may become warm under normal operating conditions.

Recycle according to WEEE regulations.

Controls and Connectors



1. **SYSTEM** Status LED. Green indicates correct operation, red indicates a system error requiring urgent further investigation.

2. **RF MON** BNC connector for monitoring of the RF output. Output level will be the RF output level attenuated by approximately 40dB. Not to be used for measurement of harmonics.

3. **RF OUT** 'N' Socket. Connect a matched, pre-tested antenna system with a return loss of $>14\text{dB}$ to this socket. Ensure all parts of the feeder and antenna system are rated for 500W or above.

4. **RF ADJ** Use a suitable trimmer tool to carefully and slowly adjust the RF output power level, (RF FWD on the display). Never set to above the 300W maximum rated output power.

5. **REMOTE** 9-pin D-sub Female. Remote control and monitor inputs and outputs are available on this connector:

Pin 1. Reflected Power Alarm. TTL logic low during normal operation. Floats high to indicate a high level of reflected power (critical antenna mis-match) has been detected.

Pin 2. Forward Power alarm. TTL logic low during normal operation. Floats high to indicate RF output has failed.

Pin 4. Temperature alarm. TTL logic low during normal operation. Floats high to indicate over-temperature condition has occurred.

Pin 9. RF Mute Control. Supplying between 5 and 12V this pin to (with reference to chassis ground potential) will mute the RF output. Primarily used in automated changeover systems.

Pin 6, 7, 8 GND connection, at chassis earth potential.

The above 'Open Collector' outputs are capable of operation up to 50V and sinking a current of 75mA maximum. The normally high, (ie. 'pull low' upon alarm condition) provides inherent 'power failure' or 'cable connection failure' signalling.

6. **RF IN 'N'** Socket. Connect the RF input (Exciter) to this socket. **POWERS IN EXCESS OF 3 WATTS WILL DAMAGE THIS AMPLIFIER.**

7. **POWER** AC input 100V – 250V ac. 50/60Hz. Connect a power lead with an IEC C13 connector (and a 13 amp fuse in the plug or at the distribution panel) to this socket. Two 6.3 amp time delay fuses are fitted within this connector's Fuse carrier.

8. **EARTH** Grounding connection point (M4 stud and bolt).

Installation

Connect a suitable rated test load to the RF OUTPUT socket before connecting the unit to mains power. **IMPORTANT! FAILURE TO DO SO MAY RESULT IN DAMAGE NOT COVERED BY WARRANTY.**

Reduce the output power (using the rear panel RF OUTPUT POWER ADJUST control) anti-clockwise to the lowest level. (32-turn trimmer).

Using a test load connected to the RF output of the external drive source (Exciter), check that its output 2 Watts or below.

Connect the exciter to the RF Amplifier, power-up the Exciter and Amplifier and check for expected operation. Once all settings are correct, power down the unit. Disconnect the test load and connect to the antenna. Power up the unit and increase the RF Power (using the rear panel RF ADJ control) to the desired level, not exceeding 300W.

Operation

The FMAMP300 is designed for continuous reliable transmission, however the fans must be periodically checked for correct operation and free airflow.

The front panel display shows the forward power level (**FWD**), reflected power level (**REF**).



Correct operation is confirmed by a front panel green STATUS LED. Should this turn red, the transmission system may shut down its RF output and will, in any case, require URGENT attention.

The LCD display shows all main parameters so no further menus are provided or required.

The following are LCD display fault indicators and their meaning:

TEMP! The system is running too hot and has shut down the RF output as a safety precaution. Check the fans for correct operation. Also check the antenna system, including all cabling (and/or filters and/or combiners where fitted) for correct operation. The FWD! indicator (see below) will also show and the standby transmission system (where used) will have activated (TTL control).

REF! The system has detected a fault in the antenna system and has shut down the RF output as a safety precaution. Check the antenna system, including all cabling (and/or filters and/or combiners where fitted) for correct operation. The FWD! indicator (see below) will also show and the standby

transmission system (where used) will have activated (TTL control).

FWD! The system has detected there is no forward power. This may be due to one or both of the above symptoms, due to a PLL failure, or due to excessive power setting. The standby transmission system (where used) will have activated (TTL control).

Ensure air vents and internal air tunnels are kept free from dust during operation.

The cooling fans should be replaced after 40,000 hours of cumulative operation. This life rating is for guidance only and is subject to ideal environmental operating conditions. Immediately replace any fan that fails or becomes slow or noisy, immediately. Replacement fan assemblies with wiring loom and mating connector are available from the manufacturer. It is recommended that replacement work be carried out by the manufacturer or an approved agent.

EC Declaration of Conformity to R&TTE Directive 1999/5/EC

We, Lucoro Broadcast
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YO51 9FS

hereby take sole responsibility to confirm that the product:

FMTX300 and its variants
(125W, 50W, 1W versions)
(and versions thereof with M and RBRX suffix)

which this declaration refers to, conforms to all applicable requirements of EU Directive 2014/53/EU and is CE marked accordingly:

Low Voltage Directive 2014/35/EU:

EN60215:1996 Safety Requirements for
Radio Transmitting Equipment

EMC Directive 2014/30/EU:

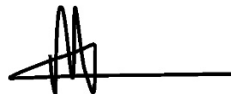
EN301489-1 ERM/EMC for Radio Equipment
Specific Conditions for FM Transmitters (Part 11)

Radio Equipment Directive 2014/53/EU:

EN302018-2 Transmitting Equipment for
FM Radio Broadcasting service

The following operation conditions and installation arrangements have to be presumed:

- (i) According to Operating Instruction Manual
- (ii) Connected lead lengths of 2 metres or less



M. O'Rorke, Director
September 2018

Technical Specifications

RF:

Frequency range	87.5 to 108.00MHz
Frequency stability	Better than $\pm 200\text{Hz}$
Output power	50 - 300W
Harmonic & spurious output	$< -63\text{dBc}$ typical
AM Noise	$< 0.5\%$ @ $\pm 40\text{kHz}$ deviation
THD	$< 0.15\%$ @ $\pm 75\text{kHz}$ deviation
RF output connector	'N' type (F)

Monitoring:

RF	BNC (F) -40dB 50 ohms
MPX	BNC (F) 1V P-P 10K ohms

Audio Interface:

Audio Input Level	+8dBu for $\pm 75\text{kHz}$ deviation
Audio Input Impedance	600 Ohms
Audio input connectors	XLR (F)

RDS:

Groups	0A & 2A (others on request)
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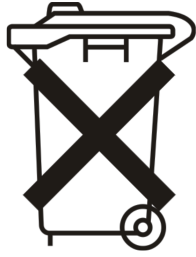
Power Supply:

Input AC	100V to 250V (50/60 Hz)
Consumption (maximum RF output)	500W (230V 50Hz)

Mechanical:

Size (mm)	2U 88 (H) x 482 (W) x 290 (D)
Weight	5kg
Temperature	0°C to +42°C
Humidity	95% (relative non-condensing)

We reserve the right to alter specifications without notice. E&OE.



WEEE - Waste Electrical and Electronic Equipment

The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration.

IMPORTANT!

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO THIS PRODUCT. Do not misconstrue any information as our recommendation to use any product, process, or equipment in conflict with any regulatory authority or patent.

Ensure compliance with all applicable safety requirements when installing or using this equipment, and operate in accordance with local laws governing the use of radio transmission equipment.

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