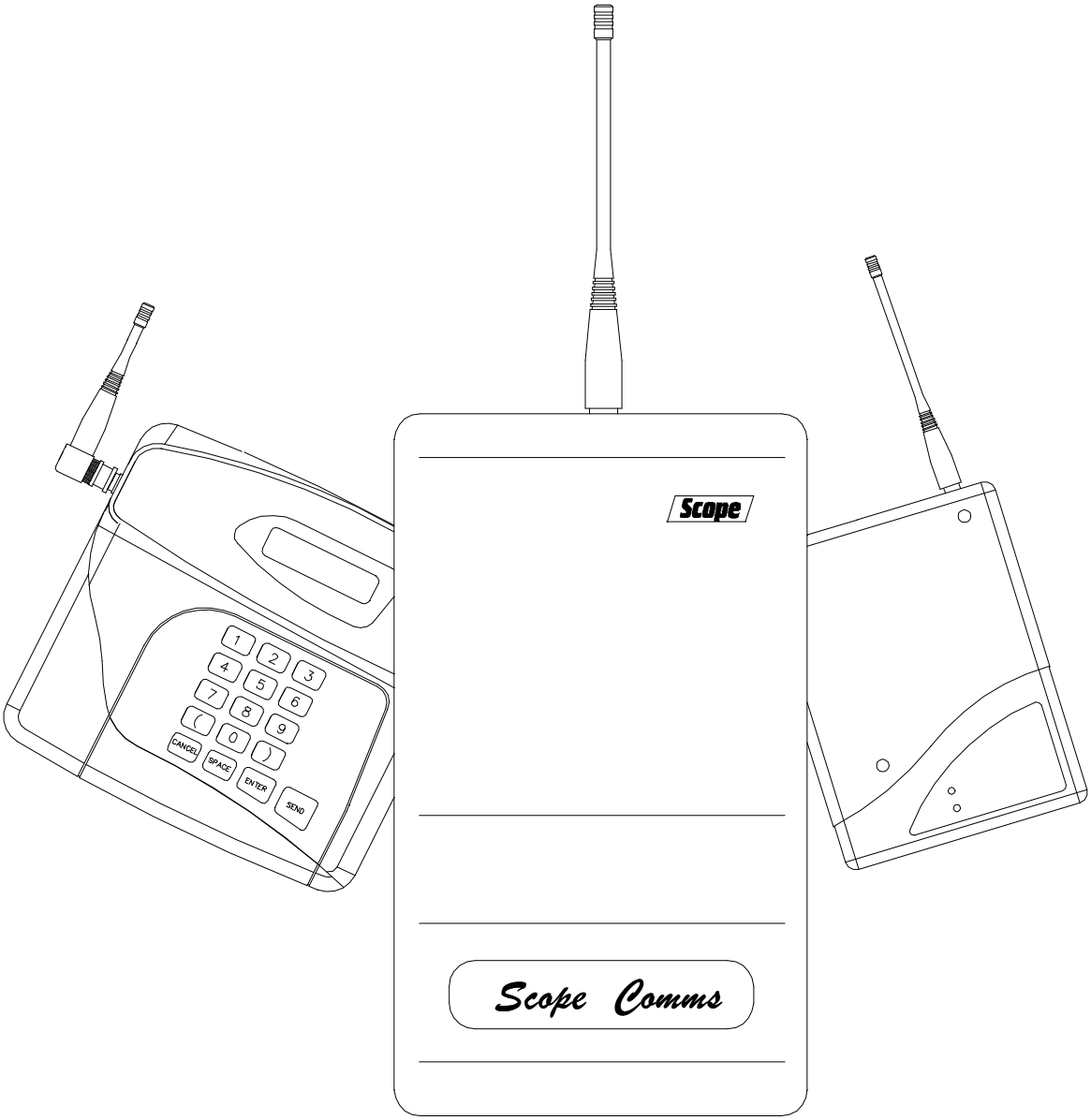
Scope

UHFAMP

UHF Power Amplifier MK2

Installation & User Manual



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UHF Power Amplifier Model AMP1-10 MK2

Overview

This amplifier is designed to increase the operating range of an already correctly installed system. In such a system the need for a well sited transmitting aerial should previously have been addressed. The amplifier is not intended as a substitute for an indifferent, poorly located aerial. In this context, we would strongly advise not to connect a simple quarter wave antenna directly to the 'N' type output connector, as this will inevitably produce a strong local radiated field, which is quite capable of causing interference to other equipment in the vicinity.

Note! This system requires a valid Radiocommunications Agency licence for operation in the UK. It is the user's responsibility to apply for this licence on form RA5.

Warning! Alteration or modification to any part of this equipment, without the prior written consent of the manufacturer, will invalidate all Approvals and Warranties attaching to the equipment. Further liability for the operation of the equipment, under the applicable law, will pass to the user, who will absolve the manufacturer of any further responsibility for it's correct operation and use.

Installation

The output from the amplifier should be fed, via good quality coaxial cable, to a dipole or beam aerial mounted high on a mast and clear of local obstructions. A minimum cable specification is RG213 or UR67, and for runs longer than ten metres, helical membrane (Heliax) cables are worth considering. At high frequencies, poor quality cable and associated plugs and sockets incur high losses, and quickly negate the theoretical improvements in system performance which a power amplifier might otherwise bring.

The following example is presented as an illustration of potential system losses. At 460 MHz standard RG213 or UR67 cable loses 1 decibel - approximately 20% - of the incident power for every 5 metres of length, and 15 metres (50 feet) loses 3dB. This means that if you start with 10 watts out of the amplifier, you will get only 5 watts at the far end of 15 metres of RG213 cable! These loss figures apply only to cable in a new, dry condition. Note that word dry, because once moisture is allowed to enter the ends of the cable it will corrode the copper conductors, particularly the outer braid, and thereby raise the loss to the point where the cable looks like a reasonable dummy load, soaking up most of the transmitter power. It follows that only good quality watertight, 'O' ring sealed connectors should be used. Unsealed crimped connectors are a false economy and will result in the system failing in the longer term.

At radio frequencies signal currents flow only very near to the surfaces of electrical conductors, a phenomenon which is known as skin effect. This means that the surface resistivity of the cheaper nickel plated and chromium plated connectors makes a significant contribution to the losses. For this reason we would advise to use the better quality silver plated N series connectors.

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Installation

For the DC powered unit, connect the power lead provided between the transmitter unit and Amplifier module using the 2 pin lockable connectors located on the end chassis plates of the respective units (these are polarised to avoid reverse connection).

Similarly, connect the RF input lead attached to the Amplifier module to the BNC connector on the transmitter unit.

Do not attempt to increase the length of either the DC power cable or the RF input lead as this may severely reduce the output power of the Amplifier.

For the mains powered unit, fit the mains lead into the IEC socket on the base of the unit and connect the RF input lead as above.

The Amplifier module can be wall mounted using the fixing holes provided in the rear chassis plate. To access these, remove the two cross-headed screws from the front cover (DC model) or slacken the four cross-headed screws on the end plates (mains model) and lift off the cover. Do NOT use the chassis as a drilling template, the vibrations may cause irreparable damage to the electronic circuitry. Please also note that the unit is only intended for indoor installation and as such should be mounted in close proximity to the transmitter unit (this is limited anyway by the fixed length of the RF input cable).

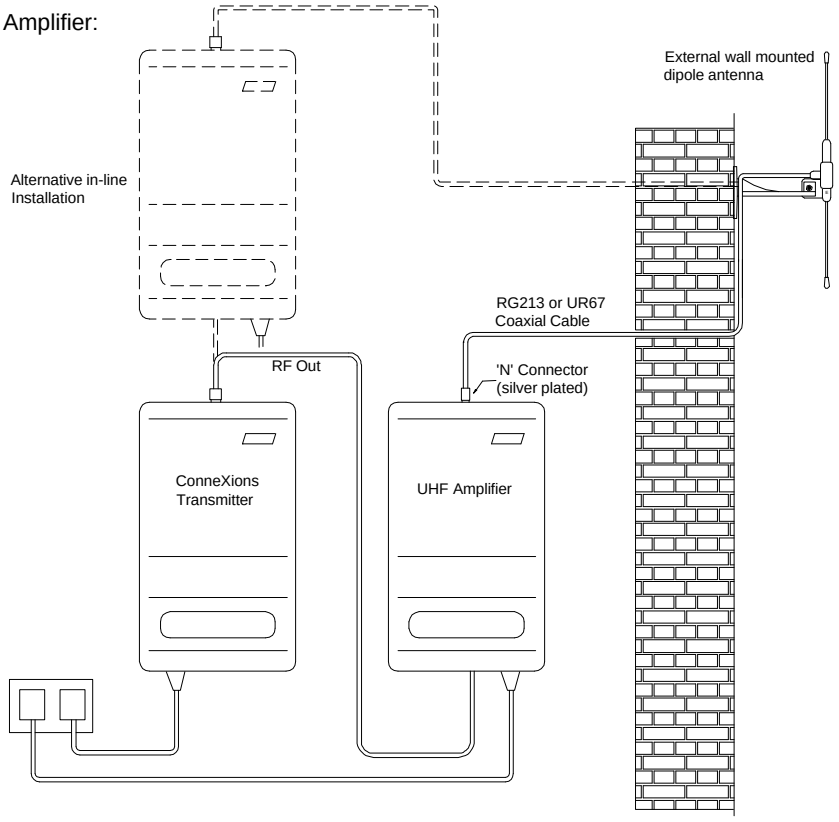
Note: when installing the mains powered model, ensure the battery is fitted and connected before operating the unit. Similarly, for the DC powered unit, ensure the battery in the ConneXions unit is fitted and connected prior to operation.

Operation

The Amplifier is automatically switched into operation when the host unit transmits and therefore requires no further user intervention.

See diagrams on page 3 for typical examples of installation.

Mains powered UHF Amplifier:
Typical Installation



DC powered UHF Amplifier:
Typical Installation