

INTRODUCTION

2m- and 70 cm-transceivers for amateur radio normally offer such a receiver sensitivity which can be described as a noise figure of approx. 6...8 dB.

Remarkable improvement in sensitivity can be achieved by use of a low noise preamplifier in front of the receiver / transceiver such as our DRESSLER EVV-line.

By use of these preamplifiers the total noise figure drops down to approx. 1 dB which means an improvement of 5...7 dB in noise figure !!

When the preamplifier is located close to the antenna system an additional improvement can be obtained, because the cable losses are negligible in receive mode now.

The benefit in sensitivity is very impressive and can be demonstrated very easy using weak and noisy signals. To make sure that the DRESSLER- EVV-preamp will satisfy you not only in noise figure but also in reliability we would like you to read this manual carefully.

The water proofed cabinet is equipped with aluminium mast-mounting brackets to fit diameters up to 50 mm.

For best total noise figure the preamp. should be installed as near as possible to the antenna - but make sure that you still get an access to the preamp in case of service.

Connections to the preamp are correct if the N-socket for antenna connection is at left hand and output at right hand (looking to label of plastic box).

RECEIVE-TRANSMIT-SWITCHING and SUPPLY

On all of our mast head preamplifiers power supply and receive / transmit switching (r/t-switching) is one and the same proc.!! There are two ways existing to switch and supply the preamp, but in both cases it is essential that in RECEIVE mode the power is ON and in TRANSMIT mode the power is switched to OFF !!!

If in TRANSMIT mode the preamplifier is connected to DC-voltage rf power is fed to the output stage and will damage the transistor and attenuator. So never connect DC-supply-voltage to your EVV while you are transmitting !

1. R/T SWITCHING BY USE OF THE FEED-THROUGH CAPACITOR

A simple method to switch the EVV is to connect a DC voltage of 12-15 volts (in receive mode) to the feed through capacitor which you will find between both N sockets. Positive voltage comes to the feed-through capacitor and MINUS comes to the shield of the coaxial cable which has same potential as the ground of the preamplifier.

2. R/T SWITCHING BY USE OF A REMOTE SUPPLY-INTERFACE

If you do not like to use a separate cable to supply the EVV you can supply the supply-voltage via the coax-cable located between the station and the output connector of the EVV. The PLUS pole comes to the center of the coaxial cable (at mode receive) and negative pole comes to the shield of the coax cable. Such a supply-interface can be build yourself or you can use our DRESSLER VV-INTERFACE.

Please note that a minimum DC-voltage of 12 volts must be offered to the preamplifier. Using long coaxial cables and a remote supply (VV-INTERFACE) means, that a voltage drop down along that cable will occur. A higher voltage than 12 volts must be fed into the remote supply to make sure, that the mast head preamp gets a minimum of 12 volts and a maximum of 15 volts. A good value is an app. voltage of 13 - 15 volts DC.

GENERAL

Thanks to its very low insertion losses the EVV can remain into the coaxial line all the time without sacrificing sensitivity in case when the preamp is switched off.

Models EVV2000 and EVV700 (GAAS) possess of silver plated coaxial relays - model EVV2000 to allow 1000 watts PEP (instead 700 watts like on model EVV200) and model EVV700 to minimize insertion losses.

To analyse an improvement in sensitivity the signal-to-noise-ratio (S/N ratio) must be considered and never the absolute noise level presented by the receiver. A remarkable higher noise floor is very normal when a preamplifier is switched on, because the preamp also is amplifying the noise level picked up by the antenna by its gain it is important to know, that the wanted signal is increased more than the noise, so that the total S/N-ratio is improved.

By the fact the preamp is increasing all signals in the 2m-or 70cm band, the receiver has to handle with a mixture of stronger signals than without preamp. So Intermodulation (IM) can occur much easier than before without preamp. That does not mean the the preamplifier has low IM-performance. In nearly all cases the receiver with its limited IM - performance does not have such a good Intercept Point to be suitable to the Intercept Point of the EVV-preamplifier. IM-effects normally are very rare and only can be expected on crowded band conditions. In cases of IM switch the preamp off and your receiver again can handle with weaker signal avoiding IM. This discussion abt. IM is valid to all kinds and brands of preamps

TECHNICAL PERFORMANCE

MODEL	EVV 200 GAAS	EVV 2000 GAAS	EVV 700 GAAS
frequency range	144 - 146	146 - 146	430 - 440 MHz
bandwidth -3 dB	2.5 - 3.5	2.5 - 3.5	10 - 12 MHz
noise figure	0.7 - 0.9	0.7 - 0.9	0.7 - 1 dB
gain	16 - 18	16 - 18	15 - 19 dB
insertion losses	0.2 - 0.3	0.15- 0.2	0.2 - 0.4 dB
max.transm.power PEP	700	1000	500 Watts
max.transm.power FM	400	600	300 Watts
supply voltage	12 - 15	12 - 15	12 - 15 Volts
supply current	140	220	200 mA
impedances	50	50	50 Ohms
GaAs FET model	3 SK 97	3 SK 97	3 SK 97

All technical datas are subject to change without notice. November 1983.

