

Preamplifier Installation and Operation

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Angle Linear has been producing preamplifiers since 1977 and GaAs FET and PHEMT preamplifiers since 1980. Customer related problems have been virtually eliminated due to a "user-friendly" design plus many safety features which protect the PHEMT in case of installation or user errors. Angle Linear PHEMT preamplifiers are simple to install and a few precautions will insure many years of super performance.

Unless otherwise specified, all standard Angle Linear PHEMT preamplifiers operate from a +10 to +18 VDC supply. Current drain is 40 mA DC. For voltages greater than +18 VDC an external dropping resistor should be employed. Input and output connectors are labeled on the enclosure. The DC connection is made (soldered) directly to the feed-thru capacitor terminal. Ground or return is soldered to the ground terminal. Use a shielded cable for DC power. This will eliminate an extra "antenna" in case of radiated transients caused by lightning, known as EMP.

Angle Linear preamplifiers are unconditionally stable. That simply means, no matter in what type of system you install the preamplifier, it will not oscillate. All of our preamplifiers are tuned for best input and output match in a 50 Ohm system while minimizing the noise figure. This means you can cascade filters with the preamplifier and they will maintain their passband characteristics.

Every Angle Linear PHEMT (GaAsFET) preamplifier can withstand an in-band input of 50 milliWatts without damage. This maximum should be kept in mind when selecting band pass filters, multiplexers and T-R relays. The band pass characteristics of these preamplifiers provide some filtering but external filtering is usually required. All duplexers require the addition of at least two receive port band pass coaxial cavity filters. Consult Angle Linear with your requirements. If you are using separate receive and transmit antennas the filtering should be equivalent to half of a duplexer plus the two band pass resonators. If you are running 100 watts of transmit power you need >-90db of transmitter attenuation in your duplexer, not counting the receiver filter attenuation.

To insure the best possible performance from a PHEMT preamplifier, that is improvement of system sensitivity, losses before the preamplifier should be minimized. The antenna to duplexer to band pass filter to preamplifier coaxial cables should be as short as possible and have minimal insertion loss. The higher the frequency of operation the greater are the losses/effects on system performance. Keep all losses to a minimum. Double-shielded coaxial cable or hard-line should be your first choice for interconnecting cables. Avoid using adapters if possible.

Angle Linear products are warranted against defects in materials and workmanship for a period of one year from date of purchase. In the event of failure, determination of cause will be up to the judgement of Angle Linear. If misuse, accidental or otherwise is suspect, an appropriate charge will be levied for repair.

Static Caution

Accumulated static charge on coaxial cables can damage PHEMT preamplifiers. During installation the following steps will assure static protection:

1. Do not remove the unit from its static protection bag until ready for installation or testing. After testing, place preamplifier back in bag until it's placed in service.
2. Before connecting, short out all cables to remove any static buildup.
3. Before connecting, touch case of preamplifier to shield of coaxial connector.
4. Attach DC cable ground or return, then + DC to terminals on preamplifier.
5. Attach output cable.
6. Attach input cable.
7. Apply power