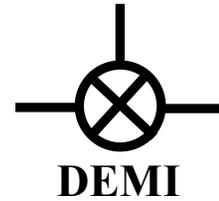


Design Note



From: DEMI Production Dept.
DN#: 019
Date: May 15, 2006
Re: Mast Mount LNA power switch option for High Power Transverters

PREFACE: Down East Microwave High Power transverters have an option to interface with a mast mount receive preamplifier. This option varies depending on the type and configuration of the preamplifier. This option can be ordered but if it wasn't, it may be installed after delivery. There are numerous techniques to achieve this depending on the type and configuration of the preamplifier. This design note will discuss a generic configuration and its functions.

IMPLEMENTATION: Most commercially built mast mount receive preamplifiers will operate by applying DC voltage to the coaxial cable that is connected to the output side of the preamplifier. This allows for an easy one-cable connection. Some of the new transceivers have an ON-OFF preamplifier switch built in. The option we can install in the transverter is just that. It is an ON-OFF switch, which applies DC voltage to the receiver coax connector of the transverter.

CIRCUIT DESCRIPTION: In every High Power transverter, there is an extra set of isolated contacts in the DC relay. This relay controls transmit and receive functions of the transverter. The common connection of the isolated set is connected to the switched +13.8VDC. The NC (normally closed) contact is routed to a switch installed in the front panel. The switch is labeled Preamplifier- ON-OFF. From the switch, it is then connected to a fuse block. From the fuse, it is routed to a small value choke that is connected to the receive coax connection on the transverter board. This coax connects to the TR relay or the separate RX connection on the transverter.

CIRCUIT OPERATION: When the transverter is powered on, +DC voltage is routed to the isolated contacts, preamplifier switch, fuse, and then the RX coaxial connection. If a coax cable is connected to the RX connection of the transverter, +DC will flow through the center conductor to any mast-mounted preamplifier of choice. When the transverter is placed into "Transmit" by activating the PTT circuit, the +DC voltage is removed from the coax allowing the mast mount preamplifier to switch to its Transmit state until the PTT circuit is de-activated. If you wish to by-pass the preamplifier during receive, placing the preamplifier switch in the off position will remove the +DC from the coax allowing the preamplifier to switch to its transmit state, or By-pass mode.

A fuse is installed in the line to prevent damage to the transverter if the external coax becomes shorted or if any "DC shorted" test equipment (such as power meters or 50 ohm loads) is connected with the preamplifier switch "ON". Select the fuse as close as possible to the maximum current consumption of the preamplifier. The Isolated relay contacts are rated for 3 amps so do not exceed this rating for a fuse at any time or damage may occur to the transverter.