Interfacing Down East Microwave Inc. (DEMI) Transverters

This document is provided to aid in the connection and operation of DEMI transverters with most of the transceivers available on the new and used market today. The guidelines herein are by no means the absolute, but will determine how we will configure your transverter if purchased from us assembled or help you to decide what options you will need if you wish to purchase a kit. The maximum advantage of any DEM transverter is obtained by using the highest quality IF (Transceiver) available. But don't let this deter you from using a converted 11 meter transceiver for your IF. These have been employed quite successfully for contesting, Earth / Moon / Earth, Rag chewing, and simplex FM operation. We have a lot of experience in interfacing but we have not seen every type and model in the world. If you are interested in using our transverters, we will try our best to help. We just need you to be familiar with your rig and to have an idea of what you want the end results to be.

What is a Transverter?

A transverter is a receive converter and a transmit converter joined by a common local oscillator. Its intentions are to convert a transceiver to a different set of frequencies or band. It will do so being totally transparent to the existing transceiver. This means that most functions of the transceiver will also be the same on the converted band. The transverter may be used in any mode that the transceiver is capable of. All filtering, signal processing, memory storage, scanning, frequency splitting, and all of the other bells and whistles that your transceiver can do, can be done on another band. There are a few things that are not transparent to all transceivers. Two of them are power control and frequency readout. Although there are a few transceivers on the market that allow these two functions, most transceivers will not. Power control is addressed in the transverter set-up and can be adjusted in other ways. The frequency read out will become a minor to not noticeable inconvenience the more you use your system.

Why use a Transverter?

The two main reasons to use a transverter are Performance and Economics. DEMI transverters are designed for the high performance, weak signal enthusiast. Coupling one with a modern day, "High End" transceiver, will offer you the highest performance VHF-UHF-

Microwave system available today! Yes, with the right transceiver as an IF, they will out perform any VHF-UHF-Microwave transceiver on the market today! Being that a transverter is an add on to an existing system, it now becomes economical. It is not necessary to own more than one "High End " transceiver to be on all of the VHF-UHF-Microwave bands in a top notch style. Then at the other end of the spectrum, that $50 converted "CB Rig" now looks different when it can be put on 6M through 70 cm with a little effort that might also turn out to be fun to do!

What to look for!

After making a determination of what frequency output transverter you wish to use, and understanding our transverter schemes, (6 meters through 70 Centimeters convert to 10 meters, and all transverters 900 MHz and up convert to 2 meters), consult the manual of the desired transceiver. A lot of transceivers manuals are sometimes confusing but most of the time the answers to the questions are in there somewhere. And most of all , consult someone that is using you rig with a transverter. Sometimes someone else's experience is worth more than a manual with a translated instruction can provide. Try to determine the following:

1. Does the transceiver have a transverter port. If it does, what type. Is it TX only? RX only? or is it a common port? What are the TX port output levels? Does the manufacture recommend any reconfiguration of the transceiver before use? To our knowledge, we don't know of a 2M transceiver with a transverter port!

2. If it is determined that a transverter port does not exist, does the transceiver have a ALC input? If it does, what are the maximum negative voltage levels specified ? Also determine if a +DC voltage can be supplied from the transceiver when it is powered on. Some 2M transceivers qualify!

3. If still no luck, Is there a way that the power output can be set not to exceed 25Watts? Most 2M and 10 M multi-modes are this way. Also there are HF QRP rigs (5-10 watts) and some of the newer transceivers can be programmed to a default of 10 watts. These can all be used.

4. Last resort. Are you willing to modify or have your rig modified? Consider investment and reversibility of the modification. But a point to be made is when a mod is done correctly to a desirable transceiver, it should enhance its value to the VHF-UHF and Microwave enthusiasts.

If you fall into one of the categories above, you still need to check out a few more things. We do not manufacture a RF sensed transverter. All DEMI transverters require some sort of

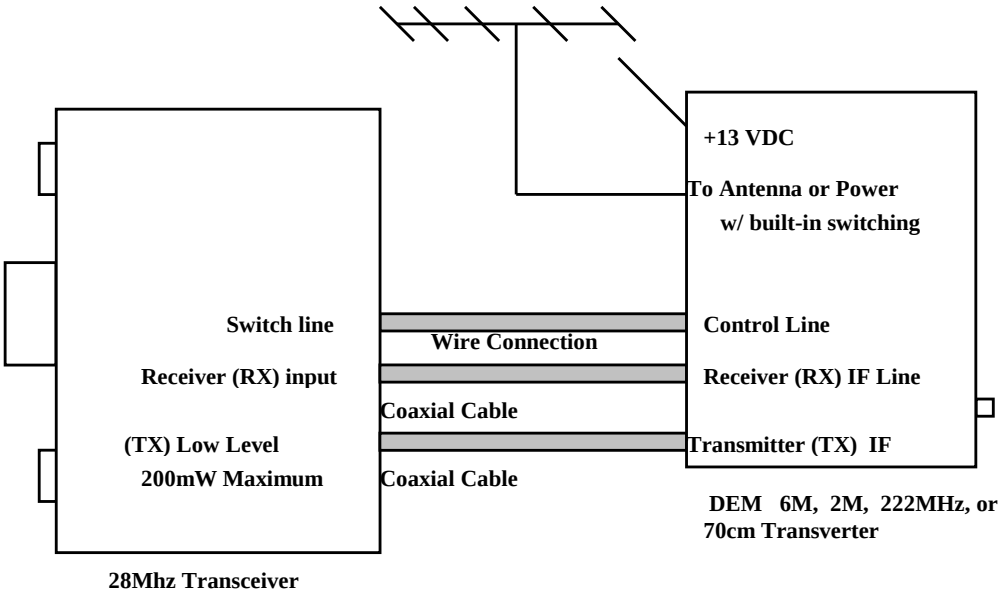
keying control from a transceiver. Either a Push to Talk to Ground signal, (PTT) or a Positive voltage on Transmit, (TTL) will work with all DEMI transverters. Find out what you have and consider other auxiliary circuits that you may want to operate from this signal. Check for anything that may conflict.

If you have answered most of the questions and have a pretty good idea what you are looking for, please call us and we can further discuss your requirements, offer suggestions, help you get the most bang for your buck!

Below are a few examples of some transverter systems showing their interfacing. Please understand that we haven't any preference when considering other manufactures transceivers to be used as IF's for our transverters. The examples shown are a sample of common 'Lash-ups" that are used in a transverter system

A typical radio to transverter connection would be as follows: (most common set-up)
2 - 50Ω Cables, 1 transmit, 1 receive, with BNC connectors on one end, (for the transverter), and the other end will depend on your transceivers connections. (DIN connector, RCA phono, BNC, etc.)

1- Control wire pair preferably shielded, with an RCA connector installed on one end for the transverter and the other again depends on your transceiver.



A type of interface and a very popular one is to make use of a 10M or 2M 25 watt transceiver. The transceivers can be easily modified or a DEM Interface that attenuates the 25 watts and separates the transmit and receive lines for simple hook-ups while keeping the transceiver in stock condition.

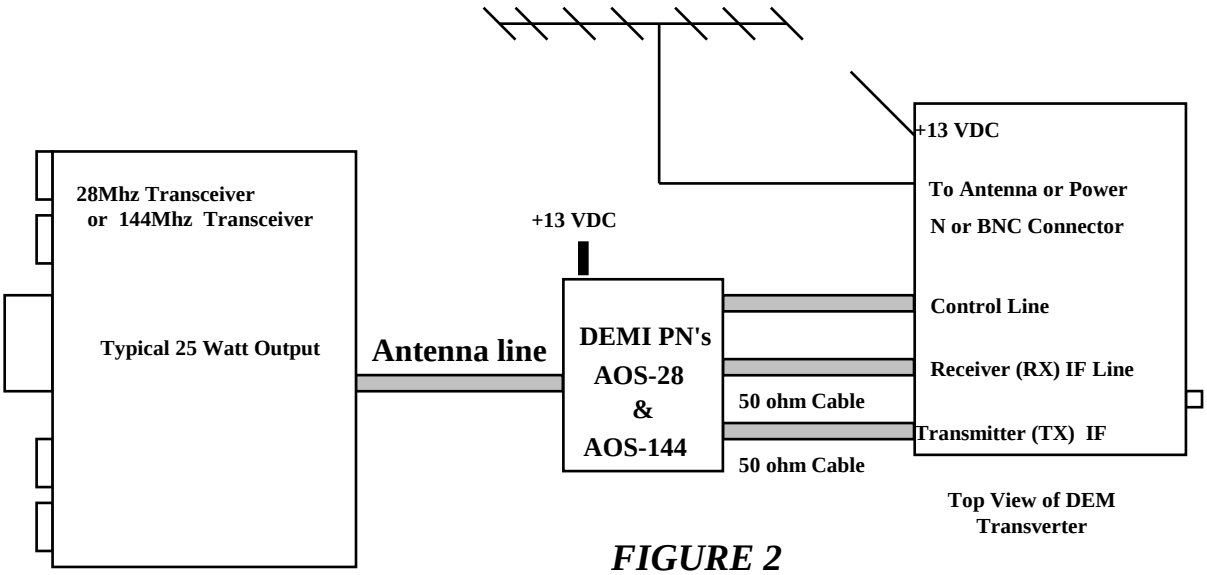


FIGURE 2

If you find that your radio is not transverter compatible, you may want to modify or have your transceiver modified to provide the necessary interface connections. In theory it is simple, but due to a possible time consuming effort needed to modify some of today's rigs, Down East Microwave at this time does not provide this service. We will make recommendations and provide any amateur, the documentation that we might have on file for your transceiver free of charge.

DEMI has many different ways to interface many different rigs. We also have other auxiliary equipment such as intermediate converters to convert 2M to 10M (L144-28INT). This is used to convert all of our microwave transverters to 28 MHz. IF's.

So thank you for considering a DEM transverter and good luck with your interfacing. If you have any questions or wish a product description for any of our products, please call! Below is a brief listing and description of interfaces that we carry in our catalog. Most are available in kit form as well as assembled.