



# TC-450SB & TC-900SB BASE STATION USER GUIDE

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## GENERAL

The TC-450SB and TC-900SB are 4 Watt full duplex radio base stations which include antenna diplexers. These base stations are designed for narrow band data transmission applications which employ filtered baseband or audio sub carrier data modulation.

The unit is housed within a 2RU 19" rack mount enclosure providing the user with visible LED indications of critical parameters.

## PROGRAMMING

Configuration of the unit is fully programmable, with parameters held in non volatile memory (NVRAM). Configuration parameters are accessible using the TC-SRPROG installation package, consisting of a programming lead, manual and software which will run on an IBM compatible PC under Windows 95/98/NT. The programming interface cable includes an RS-232 level translator within the DB25 way backshell, providing direct connection to a PC serial port (a 25 pin to 9 pin converter may be required). It is essential that each unit is programmed to suit individual requirements prior to operation. When connected, the programmer can download the radio's current configuration which will then be displayed on the screen. Similarly, once variables have been modified and written to the radio, the programmer will confirm the "success of" completion of this operation. (Note: Tx & Rx modules are programmed separately - to program Tx module, turn display switch "OFF" to program Rx module - turn display switch "ON").

## CONFIGURABLE ITEMS

### Tx/Rx Frequencies

The transmit and receive frequencies can be configured individually and are designed to operate in the 400 to 520MHz and 800-960MHz region.

Various band segments are available within this range and are manufactured by types (refer to manual for model numbers) to accommodate for the various Tx/Rx offsets and channel spacings. Most 450MHz and 900MHz channel assignments are split frequency (the go and return frequencies are markedly different). In this case, the radio's supplied will be manufactured differently in the factory such that one receives on the high frequency assignment and transmits in the lower frequency assignment and vice versa with the other radio.

The programmer will automatically display the radio's default transmit and receive frequencies when connected.

### Reference Frequency Trim

Frequency adjustment of the main reference oscillators can be performed by the programmer to allow retuning of the unit for service purposes. NOTE: This should only be performed by qualified radio technicians equipped with the appropriate test equipment. If altered, the programmer will indicate the frequency shift which has been applied to the unit since the initial factory calibration.

### PTT Timer

To avoid permanent transmission in the case of data equipment failure, the TC-450SB and TC-900SB have a transmission time limiter which can be disabled or set in 1 second increments to a maximum time of 65 seconds.

This PTT Timer function is factory preset to DISABLED.

## Received Signal Strength Threshold

The TC-450SB and TC-900SB have a programmable receive signal level detect circuitry which is factory set to activate at approximately -110dbm (0.75uV). This level is typical and should generally be left at the default value unless system design dictates otherwise.

## Transmitter Output Power

The transmitter output power can be programmed from 0.1 watt to 5 watt. The factory standard setting is 4 watt at the antenna Port.

## INTERNAL ADJUSTMENTS & SELECTIONS

The TC-450SB and TC-900SB have been designed for minimal alignment requirements. To this end, there are few internal adjustments and selections.

Any adjustments should be done by qualified technicians.

## TELEMETRY

Analogue outputs available include Tx power, temperature, received signal strength, AFC frequency error and carrier detect output which can be used to offer remote diagnostic facilities.

## TC-12SR/24SR/48SR MODEM OPTIONS

These options are available as plug in modules and are all full duplex devices (That is, only one unit required in a full duplex base station).

If linking options on modems require changes, such as "Automatic PTT Control", remove screws from lid of base station to access the internal plug in devices located on the front panel PCB.

Factory default setting for PTT control on modem options is "Manual PTT Control".

## EXTERNAL CONNECTIONS

The antenna connector is a high quality female N Type connector while all other external connections are accessible via a 15 way DMin Female connector as shown below.

There is also a 9 way connector fitted which serves as a test and 600 ohm audio interface connector (not normally used).

NOTE: These DB9 and DB15 way connectors are offered at the front and rear of the unit for ease of connection - in parallel with each other.

