

T100 TRANSCEIVER OPERATING INSTRUCTIONS

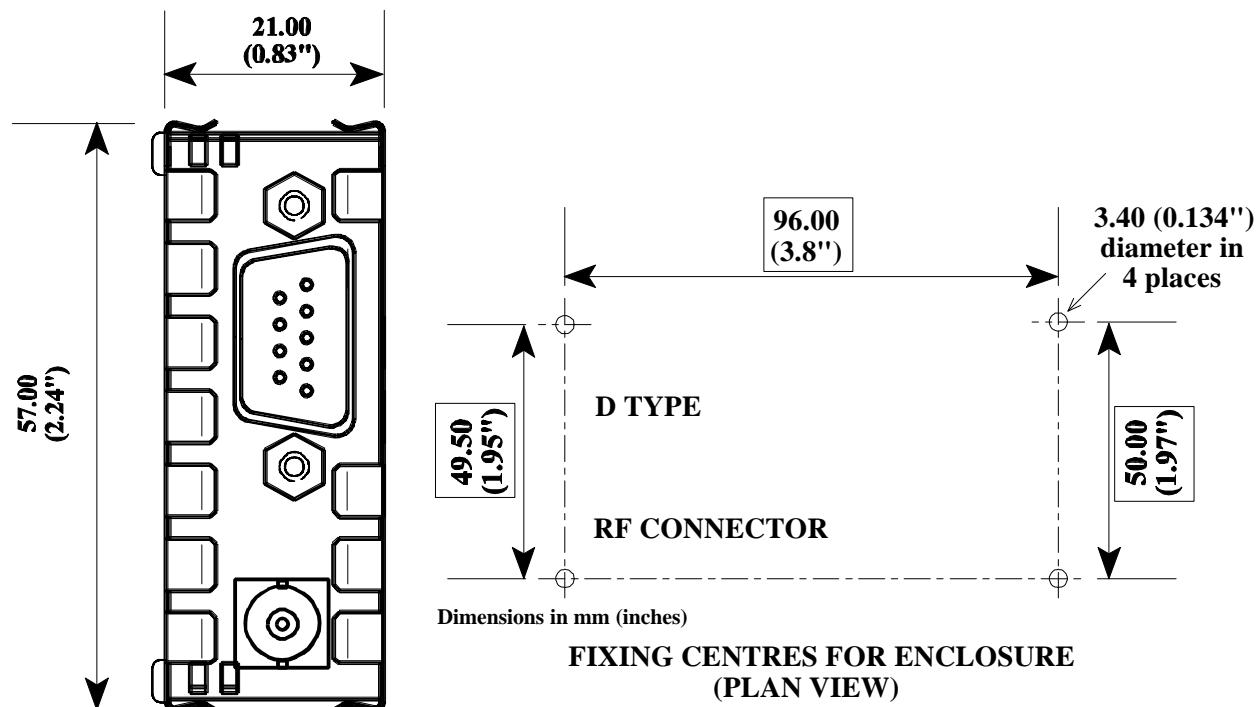
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These operating instructions are intended to provide the user with sufficient information to install and operate the unit correctly.

The Tactical Electronics T100 transceiver is intended to fulfil the numerous OEM applications by virtue of its highly reliable design, miniature size, and quality manufacture.

MOUNTING DETAILS

The T100 is intended to fit easily and with minimum space requirements into the user's own equipment housing. The complete module is housed within a tin-plated enclosure and is secured by means of four 10mm self-tapping sheet metal screws which locate in the four corners through the lower screening cover. DO NOT overtighten these screws during assembly.



CONNECTION

The radio antenna connects by means of a BNC coaxial connector. All other connections to the T100 transceiver are made using a standard 9-way D type connector as detailed in the table below.

PIN	NAME	FUNCTION	REMARKS
1	MOD I/P	Modulation input	To transmitter; Analog (750mV p-p for nominal deviation) or TTL/CMOS compatible (factory set)
2	RX O/P	Receiver Output	Analog (350mV p-p) or 5V CMOS levels, high (+5V) when no signal present (factory set)
3	--- TXE	transmit enable	HIGH >2.5V = receive LOW <0.8V = transmitter enabled
4	0V	0 volts	common DC and signal ground
5	+ Vin	positive supply	+10 to +14 V DC
6	SQF	Squelch flag output	HIGH (+5V, 10kΩ pull-up) = Signal present LOW (<0.8V) = Signal not present
7	CS	channel select	Serial channel select input (RS232 compatible)
8	RSSI	Received Signal Strength Indicator	+1 to +3V DC nominal, 50dB range
9	0V	0 volts	common DC and signal ground

OPTIONS

Frequency and Channel spacing

The T100 is available in both 12.5 and 25kHz channel spacing variants within the following frequency bands:

135 - 140 MHz
150 - 180 MHz
180 - 210 MHz

RF connection

As well as the standard BNC coaxial connector, the T100 is also available with a SMB or flying lead RF connection. Contact Tactical Electronics Corporation for details.

Transmit Power

The maximum transmit power of the unit is 2W. This can be adjusted down to 100mW if necessary for differing approved bands of operation.

CHANNEL SELECTION & PROGRAMMING

The software supplied with the T100 transmitter is the TLSPRG.exe program. The software can be run on a PC with the serial port connected to pin 7 of the transmitter via a suitable adaptor as shown in Figure 1. The unit may be programmed in-situ provided that pin 7 is available. There is no feed-back facility with this circuit, and for this reason, the TLSPRG software repeats the programming three times to eliminate error.

This version of software is programmed by a series of 8 byte data packets at 1200 baud. Each packet includes a 16 bit sync code and an 11 bit checksum to eliminate the possibility of spurious programming.

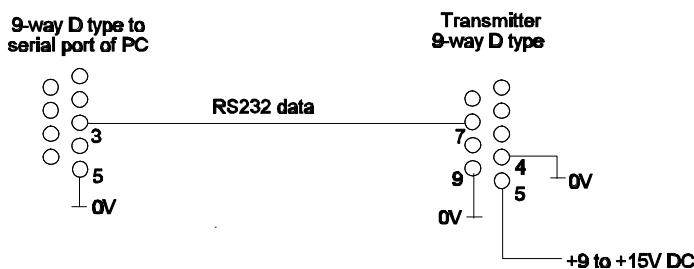


Figure 1 Programming adaptor

RUNNING THE SOFTWARE

Please note that mouse operation is not supported with this program

1. Connect the T100 transceiver to a suitable supply and to the PC using the programming adaptor.
2. Insert the TLSPRG disk into drive A and type:

A:TLSPRG <return>

3. The user is then prompted to enter the serial port number of his PC which is used to communicate with the TX00 transmitter. Enter 1 or 2.
4. Note: Do not select the port with the mouse connected as this will cause the program to run incorrectly.

After the software has successfully loaded the screen displays the following prompts:

Enter frequency in MHz?

The user can then enter the required operating frequency and then '0' to quit.

RANGE INFORMATION

The following table gives an indication of the typical ranges to be expected between a transmitter and receiver that have simple end-fed dipole antennas.

The following assumptions have been made in the calculations:

- line-of-sight between antennas
- 0dB gain for the transmitter and receiver antennas
- 0dB loss for connectors and cables between the antenna and the radio connector
- 20dB fade and environmental margin
- 100dBm received signal strength, allowing for digital and analog signals

Range versus TX power				
Frequency (MHz)	Power (mW)	Power (dBm)	Range (km)	Range (miles)
173	100mW	20	13.8	8.5
173	500mW	27	30.9	19.1
173	1W	30	43.5	27.0
173	2W	33	61.5	38.2

TECHNICAL SPECIFICATION

Frequency of operation	:	135 to 210MHz (other frequency bands available)
Frequency bands	:	135 - 140 MHz 150 - 180 MHz 180 - 210 MHz
Switching bandwidth	:	3MHz within frequency bands
Channel spacing	:	12.5kHz (25kHz available as an option)
Number of RF channels	:	One, set by PIC micro controller changed by serial channel select
RF output power	:	2W nominal at 12V DC
Frequency stability	:	$\pm 2.5\text{ppm}$ over temperature range (12.5kHz version)
Supply voltage	:	+12V DC nominal (+10 to +14 volts max. range) 50% duty cycle maximum
Supply current		
Transmit	:	600mA typical at 2W 400mA typical at 1W
Receive	:	50mA typical
Size	:	119 x 57 x 21 mm (l x w x h) including connectors 4.69" x 2.24" x 0.83" (l x w x h) including connectors
Weight	:	120 gms (4.2 oz)
Temperature (operating)	:	-30 to +55 °C standard
Temperature (storage)	:	-30 to +70 C°