

OPROES

# TEKLOGIX

## TRX7355-26 pin Radio Interface Description

Assemblies 19983-004 (no voice)  
19983-005 (with voice)

The TRX7355 -26 pin radio module is a narrowband radio that uses the JDT 242-3474-xyz radio deck (Teklogix part number 30116-xyz) and the interface boards 19983-004-no voice or 19983-005-with voice.

The interface performs synthesizer programming, Rx and Tx mode control of the radio, Tx data generation filtering and amplitude control, Rx signal filtering amplitude control and level detection. The voice option uses operational amplifiers for implementing the required frequency response.

The main control is done by the host (Teklogix terminal or base station), and the interface implements a low level logic in U1 (FPGA).

Communication between the host and the interface is done on the serial data bus connected to U1.

**Received data signal path** : P2-13, routed through U20(5,6,7) to the filter U12, U3, digital potentiometer U9(17,18,19), and level detectors U6 and U19; also branched through U24 and U2(5,6,7) to the TXMOD/SINAD control output: P1-15.

**Transmit data signal path**: data is generated by the resistor network R13, R19, R20, R21, R23 and the analog switches in U23, under control of the FPGA U1; filtered by U12, U3, amplitude adjusted by U9 and routed to the output buffer U2(12,13,14) and radio connector P2-6; also branched to the control output P1-15 (TXMOD / SINAD) through U24 and U2. Fine bias for the output is done by U9(11,12,13)

**Squelch level** for the Carrier Detect is controlled by U9(6,7,8) and the comparator U19(1,2,3).

**Modulation Balance** is controlled by the DC voltage generated by U9(1,2,3) and applied to the radio input P2-14

**Voice receive path** (for voice option ass'y -005): P2-13 through the subaudible filter U4(5,6,7), Rx de-emphasis configuration of U4(9,10,8), 5th order Bessel LPF in U4(12,13,14) and(2,3,1), volume control digital potentiometer U11 and speaker out amplifier U7.

**Voice transmit path** (for voice option ass'y -005): P1-21 through pre-amplifier U2(1,2,3), subaudible filter U4(5,6,7), Tx pre-emphasis configuration of U4(9,10,8), 5th order Bessel LPF in U4(12,13,14) and(2,3,1), U2(1,2,3), routed to U3(8,9,10) amplitude adjusted by U9 and routed to the output buffer U2 and radio connector P2-6; also branched to the control output P1-15 (TXMOD / SINAD) through U24 and U2.

**Power supplies**: U8: 5 V regulator  
Q4: power-on switch  
Q1, Q11, U3(5,6,7) regulator for the transmit control input of the radio P2-3

Main functions of U1 are:

- address decoding and data latching from and to the host
- control of the signal routing using analog switches U15, U20, U22, U24
- drive of of the filter IC-U12

Local 4 MHz clock is provided by U5 and X1