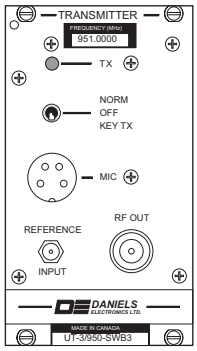
TN390 UT-3/900 UHF 900 MHz Synthesized Transmitter



The UT-3/900 transmitter is a low power, synthesized FM transmitter capable of operating in 12.5 KHz (narrowband) or 25 kHz (wideband) channels. The UT-3/900 transmitter operates in one of three frequency bands: 896 to 902 MHz, 928 to 935 MHz, or 935 to 960 MHz. A modular design allows each of the transmitter's modules, MT-3 Transmitter Main Board, MT-3 Audio Processor, UT-3/900 Amplifier, and OS-3/900 Synthesizer, to be individually assembled and tested. This facilitates construction, tuning and maintenance as well as troubleshooting procedures. The synthesizer module can be programmed to have up to 16 channels exclusive to one frequency band.

Specifications

Frequency Bands	928 - 935 MHz / 935 - 960 MHz
Channel Spacing	12.5 KHz or 25 KHz
Transmitter Switching Range	Unlimited
RF Output Power	0.5 to 3.0 Watts adjustable
Duty Cycle	100% (-40 °C to +60 °C)
Undesired Emissions (Conducted Spurious)	< -80 dBc
Undesired Emissions (Conducted Harmonics)	< -80 dBc
FM Hum & Noise Ratio (300 Hz - 3.4 KHz)	> 40 dB
Carrier Frequency Stability	± 1.0 ppm (-30 °C to +60 °C) (-40 °C to +60 °C optional)
Modulation Type	11K0F3E (FM) or 16K0F3E (FM)
VSWR Protection	< 20:1 (All Phase Angles)
Audio Distortion	< 2.0% @ 25 °C (< 2.5% @ -40 °C to +60 °C)
Output Impedance	50 Ω (Type N Connector)
Operating Temperature	-30 °C to +60 °C (-40 °C to +60 °C optional)
Standby Current	< 7 mA
Transmit Current (3.0 W)	< 2.00 A

Models Available

UT-3/930-SWB300	Low Current Synthesized, 25 KHz Bandwidth, 3.0 W, 928 - 935 MHz
UT-3/930-SNB300	Low Current Synthesized, 12.5 KHz Bandwidth, 3.0 W, 928 - 935 MHz
UT-3/950-SWB300	Low Current Synthesized, 25 KHz Bandwidth, 3.0 W, 935 - 960 MHz
UT-3/950-SNB300	Low Current Synthesized, 12.5 KHz Bandwidth, 3.0 W, 935 - 960 MHz

Transmitter Operating Frequency

The transmitter is initially aligned at the factory for the frequency stamped on the 'Factory Set Operating Frequency' label on the front panel. For any frequency change, no re-alignment of the transmitter may be required. To align and / or adjust the transmitter the outer cover needs to be removed, the transmitter needs to be plugged into the subrack via a cable and / or extender card and power must be applied to the system. A 50 Ω dummy load should be connected to the RF output when transmitting.

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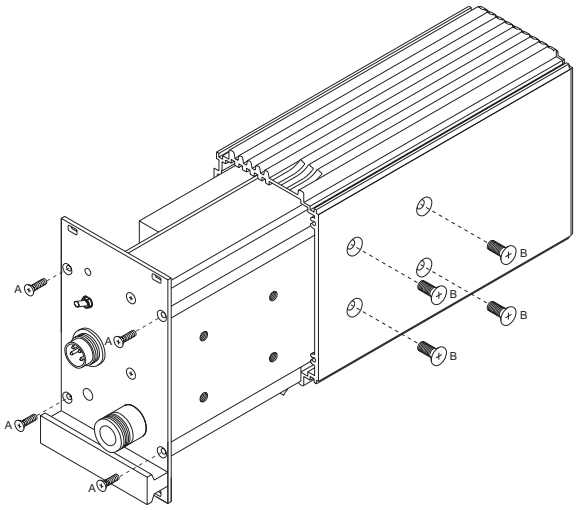
Transmitter Alignment Procedures



Remove the four front panel screws (A) and four side panel screws (B) to slide the transmitter outer cover off and expose the Main Board, Local Oscillator, Audio Processor Board and Amplifier.

Audio Processor Alignment:
For circuit board version 43-911916 through 43-911923 refer to Technical Note TN130 Audio Processor Tuning Procedure. For other circuit board versions, refer to the appropriate manual.

Synthesizer Alignment:
No synthesizer alignment is required.

Amplifier Output Power and Alarm Adjustment:
Adjust R27 fully counterclockwise. Turn R8, the output power adjustment, to the desired transmitter output power. Do not exceed 3.0 Watts. The output power alarm is factory set for a 3 dB loss in forward output power. Terminate the transmitter with a 3:1 mismatch load. Monitor pin Z26 and slowly turn R27, the antenna VSWR alarm adjustment, clockwise until pin Z26 goes low.

Note: For complete alignment procedures, refer to the instruction manual. These notes are for reference only.

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