

TT Series Remote Control and Sensor Transceiver Module



The TT Series transceiver is designed for reliable bi-directional, long-range remote control and sensor applications. It consists of a highly optimized Frequency Hopping Spread Spectrum (FHSS) RF transceiver and integrated remote control transcoder. The FHSS system allows higher power and therefore, longer range than narrowband radios. The TT Series transceiver has obtained modular approval for the United States and Canada.

High Performance: The TT Series transceiver has been designed as a high performance, long-range remote control solution. It has a robust FHSS protocol, good output power and best-in-class receiver sensitivity.

Long Range: The module has a typical sensitivity of -112dBm . The low power version has $+12.5\text{dBm}$ transmitter output power and has a range of over 2 miles (3.2km) line of site in typical environments with 0dB gain antennas. A high power version outputs $+23.5\text{dBm}$ achieving up to 8 miles (12.8km).

Easy Implementation: The transceiver has 8 status lines that can be individually configured as inputs to register button presses or as outputs to drive application circuitry. When an input line on one module goes high, it sends a transmission to take a corresponding output line on a paired module high. This makes implementation of basic remote control extremely simple.

Small Size: At $1.15" \times 0.63"$ ($29.21\text{mm} \times 16.0\text{mm}$) the module is smaller than most competitive products.

Pairing: A simple and efficient pairing operation configures two modules to operate together. A single button press on each side causes the modules to swap their 32-bit addresses and store them in non-volatile memory.

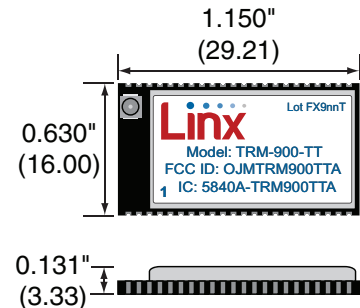
Acknowledgements: A receiving module can send an acknowledgement to the transmitting unit after receiving a command or when a line is raised with external circuitry to indicate successful control. The acknowledgements can be configured to include up to two bytes of custom data.

Low Power: Linix designed the TT Series with battery-powered applications in mind, so its power consumption has been highly optimized. Duty cycle and power down features give the designer complete control over the module.

Configuration: Primary settings are hardware-selectable, eliminating the need for an external microcontroller or other logic. Advanced configuration and operation are supported by a UART interface; however, no programming is required for basic operation.

Certification: The module has been certified by the United States FCC and Canada's Industry Canada. Use of specific antennas is required to utilize this certification as is labeling of the end product.

Antenna: An integrated antenna connector and hardware pin gives the designer antenna implementation flexibility.



Specifications	
Operating Voltage	2.5 to 5.5VDC
TRM-900-TT TX Supply Current @ 12.5dBm	36mA typical
TRM-900-TT-A TX Supply Current @ 23.5dBm	TBD
RX Supply Current	19mA typical
Standby Current	200 μA typical
RX Sensitivity	-111dBm
Response Time	4 to 50ms
Operating Temperature Range	-40 to $+85^\circ\text{C}$

Applications

- Long range remote control
- Long range sensor monitoring
- Irrigation control
- Home and industrial automation
- Remote access control with confirmation
- Remote status monitoring
- Robotics
- Keyless entry
- Lighting control

