

TRACER

Wireless 2XT1

Product Features

- Digital microwave radio
- Dual T1s
- No license required per FCC Rules Part 15.247
- Direct-sequence spread spectrum
- NEBS Level 3 compliant models
- Two frequency bands: 2.4 to 2.4835 or 5.725 to 5.850 GHz
- Remote Loopback
- Remote control of far end
- Point-to-point, up to 30 miles
- Industry-leading five-year warranty

TRACER® is an unlicensed digital microwave radio from ADTRAN® that uses spread-spectrum technology to provide two independent T1 communication links.

As authorized under part 15.247 of the FCC rules, TRACER operates in the 2.4 to 2.4835 GHz and 5.725 to 5.850 GHz industrial, scientific, and medical (ISM) band. TRACER equipment can operate license-free in the U.S. and many other countries.

The TRACER system is composed of two primary hardware elements: a Baseband Processor (BBP) and a Radio-Frequency Converter (RFC). All signaling and power functions between the BBP and the RFC are provided over a single coax connection. TRACER's two component construction provides system configuration flexibility to suit the most difficult installations. In the rackmount configuration, the BBP and RFC are each contained in a 19" x 1U (1.75-inch) chassis, suitable for mounting indoors in a rack or tabletop.

Like the rackmount system, the TRACER mastmount system is also composed of a BBP and an RFC. To minimize transmission line loss, the weatherproof RFC can be mounted

near the antenna at up to 350 feet from the Baseband Processor using one RG-8 size coax. All signaling and power functions between the BBP and RFC are provided over this single coax connection.

TRACER transports two T1 digital signals in any framing or line-code format and provides two DS-1/DSX-1 interfaces. A separate maintenance channel is embedded in the TRACER data stream, providing remote configuration and monitoring functions. The maintenance channel is provided without impacting T1 capacity.

By using the latest technology and incorporating ADTRAN's ISO 9001 manufacturing processes, ADTRAN has designed TRACER to provide the highest levels of reliability and durability. As a result, TRACER includes an industry-leading five-year warranty. In addition, every TRACER product is backed by ADTRAN's outstanding 24-hour technical support.

Wireless 2XT1



Product Specifications

Transmitter

2.4 GHz

- **Output Power:** +20 dBm maximum
- **Frequency Band:** 2.4 to 2.4835 GHz
- **Channel Bandwidth:** 40 MHz
- **Intermediate Frequency:** 140 MHz

5.8 GHz

- **Output Power:** +20 dBm maximum
- **Frequency Band:** 5.725 to 5.850 GHz
- **Channel Bandwidth:** 40 MHz
- **Intermediate Frequency:** 140 MHz

Receiver

2.4 GHz

- **Receive Level Threshold:** -91 dBm (10^{-6} BER)
- **Receive Level Max:** -30 dBm
- **Frequency Range:** 2.4 to 2.4835 GHz
- **Channel Bandwidth:** 40 MHz
- **Intermediate Frequency:** 70 MHz

5.8 GHz

- **Receive Level Threshold:** -89 dBm (10^{-6} BER)
- **Receive Level Max:** -30 dBm
- **Frequency Range:** 5.725 to 5.850 GHz
- **Channel Bandwidth:** 40 MHz
- **Intermediate Frequency:** 70 MHz

Frequency Plan

2.4 GHz

- **A:** TX 2.422 GHz, RX 2.462 GHz
- **B:** TX 2.462 GHz, RX 2.422 GHz

5.8 GHz

- **A:** TX 5.747 GHz, RX 5.827 GHz
- **B:** TX 5.827 GHz, RX 5.747 GHz

Spread Spectrum Data Pump

- **Modulation:** QPSK
- **Spreading Method:** Direct sequence
- **Codes:** 10
- **Code Length:** 120
- **Processing Gain:** >12dB

Rackmounted RFC

- **Spreading Rate:** 12 times

Radio Frequency Converter

- **Preselector Filter:** Capacity-tuned
- **Antenna Port:** N-type, female
- **Impedance:** 50 Ω

Digital Interface

- **Capacity:** 2 x T1
- **Data Rate:** 2 x 1.544 Mbps
- **Digital Interface:** DS-1/DSX-1
- **Connection:** RJ-48C, Bantam
- **Monitor:** Bantam
- **Line Code:** AMI, B8ZS
- **Framing:** SF, ESF
- **Alarms:** YEL/AIS, Red, BPV
- **Loopbacks:** Local and remote

User Interface

- **Front Panel:** Status LEDs, configuration switches
- **Diagnostics:** T1 loopback, remote test with BERT, self-test
- **Test Points:** RSSI, system voltages
- **Alarm Contacts:** Major, minor (normally open or closed)

Terminal Interface

- **Function:** Menu-driven user interface, monitor and control of local and remote end, password-protected, event history
- **Data Rate:** 9600 bps
- **Emulation:** VT 100
- **Connection:** DB-25 (RS-232)

Mechanical and Environmental

Baseband Processor

- **Operating Temperature:** -25° to 65° C
- **Width:** 16.75" (for 19" EIA rackmounting)
- **Height:** 1.75" (1U)
- **Depth:** 9.5"
- **Humidity:** 95%, non-condensing



2XT1 Baseband Processor

- **Weight:** 6 lbs.

Radio Frequency Converter (Rackmount)

- **Operating Temperature:** -40° to 65°C
- **Width:** 16.75" (for 19" EIA rackmounting)
- **Height:** 1.75" (1U)
- **Depth:** 9.5"
- **Humidity:** 95%, non-condensing
- **Weight:** 9 lbs.

Radio Frequency Converter (Mastmount)

- **Operating Temperature:** -40° to 65°C
- **Diameter:** 9"
- **Height:** 21"
- **Humidity:** 100%
- **Weight:** 18 lbs.

Power

- **Input Voltage:** 21-63 vDC, either polarity referenced to ground
- **Power Consumption:** 30 watts (amperage=30 watts/voltage)
- **DC Connector:** 3-pin screw clamp
- **AC Adapter Connector:** 3-pin DIN

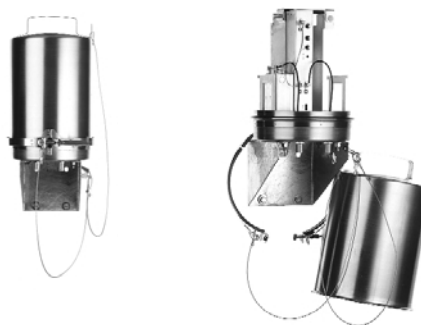
Regulatory Compliance

- FCC Part 15.247
- FCC Part 68
- Industry Canada RSS139

Ordering Information

| Equipment 2.4 GHz | Part # |
|------------------------|------------------|
| 2xT1 Rackmount, Freq A | 4280TRACERT1L7-A |
| 2xT1 Rackmount, Freq B | 4280TRACERT1L7-B |
| 2xT1 Mastmount, Freq A | 4280TRACERT1L8-A |
| 2xT1 Mastmount, Freq B | 4280TRACERT1L8-B |
| Optional Power Supply | 1360DSK24VL1 |

| Equipment 5.8 GHz | Part |
|------------------------|----------------|
| 2xT1 Rackmount, Freq A | 4280TRC582TR1A |
| 2xT1 Rackmount, Freq B | 4280TRC582TR1B |
| 2xT1 Mastmount, Freq A | 4280TRC582TM1A |
| 2xT1 Mastmount, Freq B | 4280TRC582TM1B |
| Optional Power Supply | 1360DSK24VL1 |



Mastmounted RFC



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TL 9000

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