

# TRACER<sup>®</sup>

## WIRELESS 2xT1 MASTMOUNT

### PRODUCT FEATURES

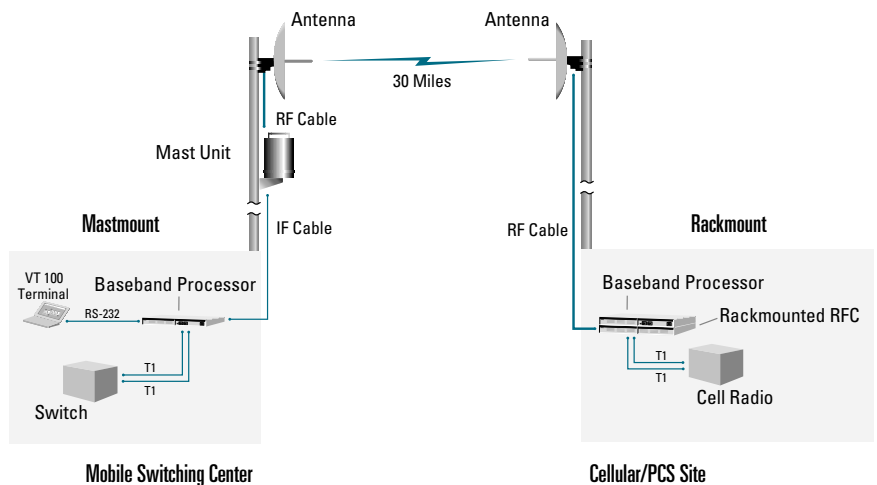
- Digital microwave radio
- Dual T1
- No license required: FCC rules Part 15.247
- Direct sequence spread spectrum
- Frequency 2.4 to 2.4835 GHz
- Mastmounting for maximum signal efficiency
- Frequency agile
- Remote loopback
- Remote control of far-end
- 1U, 19" rack space using mastmounted RFC
- Point-to-point, up to 30 miles
- Industry leading 5-year warranty

The ADTRAN<sup>®</sup> TRACER<sup>®</sup> is an unlicensed digital microwave radio 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 - 2.4835 GHz industrial, scientific, and medical (ISM) band.

The TRACER mastmounted system is composed of two primary hardware elements; a Baseband Processor (BBP) and a Radio-Frequency Converter (RFC). To minimize transmission line loss at 2.4 GHz, the weatherproof RFC may be mastmounted up to 350 feet from the Baseband Processor, using a single, RG-8 size coax. All signaling and power functions between the Baseband Processor 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 DS1/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 the T1 capacity.

By using the latest technology and incorporating ADTRAN's ISO 9001 manufacturing processes, ADTRAN has created TRACER to provide the highest levels of reliability and durability. As a result, TRACER is backed by an industry-leading standard 5-year warranty and ADTRAN's outstanding 24-hour technical support.



Mast- and Rackmounted RFCs may be mixed to accommodate individual system requirements.

## CORPORATE OFFICE

ADTRAN, Inc.  
901 Explorer Boulevard  
P.O. Box 140000  
Huntsville, AL 35814-4000

800 9ADTRAN  
256 963-8000  
fax: 256 963-7916  
fax back: 256 963-8200  
e-mail: info@adtran.com  
web site: www.adtran.com

## REGIONAL OFFICES

Atlanta, GA  
800 332-6945

Chicago, IL  
877 787-0785

Dallas, TX  
800 471-8648

Denver, CO  
800 471-8651

Irvine, CA  
800 788-5408

Kansas City, KS  
800 471-8649

Philadelphia, PA  
800 471-8656

San Antonio, TX  
888 223-7671

Seattle, WA  
888 727-4920

## INTERNATIONAL CONTACTS

Asia Pacific/Australia  
852-2824-8283 (Hong Kong)

Canada  
800 232-6811

Caribbean/Latin America  
954 746-5355

All other International  
inquiries  
256 963-2500



I.S. EN ISO 9001

ADTRAN is an ISO 9001  
registered company.



Printed in the U.S.A. on recycled paper.  
64280TRACERT1L1-8D May 1999  
©1999 ADTRAN, Inc. All rights reserved.

# Product Specifications

## TRANSMITTER

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

## RECEIVER

- **Receive Level Threshold:** -91 dBm (10<sup>-6</sup> BER)
- **Receive Level Max:** -30 dBm
- **Receive Level Nominal:** -60 dBm
- **Frequency Range:** 2.4 to 2.4835 GHz
- **Channel Bandwidth:** 40 MHz
- **Intermediate Frequency:** 70 MHz

## FREQUENCY PLAN

- A-TX 2.422 GHz                      RX 2.462 GHz
- B-TX 2.462 GHz                      RX 2.422 GHz

## SPREAD SPECTRUM DATA PUMP

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

## RADIO FREQUENCY CONVERTER

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

## DIGITAL INTERFACE

- **Capacity:** 2 x T1
- **Data Rate:** 2 x 1.544 Mbps
- **Digital Interface:** DS1, DSX-1
- **Connection:** RJ-48C, Bantam
- **Monitor:** Bantam
- **Line Code:** AMI, B8ZS
- **Framing:** SF, ESF

- **Alarms:** YEL/AIS, Red, BPV
- **Loopbacks:** Local & remote

## USER INTERFACE

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

## TERMINAL INTERFACE

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

## MECHANICAL & ENVIRONMENTAL

### Baseband Processor

- **Operating Temperature:** -25° to 65°C
- **Width:** 16.75", (for 19" EIA rackmounting)
- **Height:** 1U (1.75")
- **Depth:** 11.5"
- **Humidity:** 95%, non-condensing
- **Weight:** 6 lbs

### Mastmount RFC

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

### Power

- **Input Voltage:** 21-56 VDC
- **Power Consumption:** 30 watts, (amperage=30 watts/voltage)
- **DC Connector:** 3-pin screw clamp
- **AC Adapter Connector:** 3-pin DIN

# Ordering Information

## EQUIPMENT

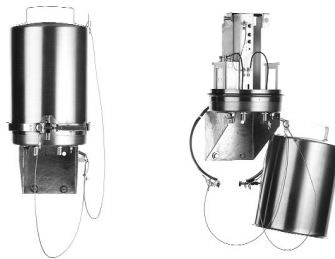
## PART #

2xT1 Mastmounted system, preconfigured frequency plan A.....	4280TRACERT1L1-A
2xT1 Mastmounted system, preconfigured frequency plan B.....	4280TRACERT1L1-B
Systems are shipped with pre-configured frequency plans, but may be switched without additional equipment to accommodate either plan.	
AC Adapter .....	1360DSK24VL1

## REGULATORY COMPLIANCE

FCC Part 15.247 .....	HDCTRACER2T1-M
FCC Part 68 .....	HDCUSA-32567-DE-N
Industry Canada .....	2250911A
.....	2250391123A

TRACER is a registered trademark of ADTRAN, Inc.  
Tracer is also available in a rackmount configuration.  
For information on this equipment please see ADTRAN document number 64280TRACERT1L2-8B.  
Specifications subject to change without notice.



Mastmounted RFC



2xT1 Baseband Processor