T1/E1 Fiber Optic Modem

- Distances up to 80km
- Local & Remote Loopback
- Extensive trouble-shooting LED Indicators
- No Jitter
- Multimode & Single Mode (850/1300/1550nm)
- Optical Redundancy (Optional)
- One Fiber Bi-Directional (Optional)
- Low Current Consumption
- Replaceable Line Interface Module
- Local Dry Contact Alarm Relay
- RJ45 (RJ48C) and Detachable Terminal Block Connectors

The Model TC1631R/S is a T1/E1 Fiber Optic Modem that converts analog T1 or E1 signals to digital fiber optic signal and vice versa. TC1631R is for 19” rack mount and TC1631S is for standalone unit. Both have the same functions and features, the only difference is power connectors.

TC1631 offers advanced features such as digital transmission, jitter removal and a field replaceable Line Interface Module. Because it is based on modern FPGA (Field Programmable Gate Array) technology, the IC chip counts are reduced to a minimum, hence offering extremely low power consumption (less than 3 watts) and higher reliability.

Transparent to the framing format, the TC1631R/S's T1/E1 interface shapes the transmit pulse to support CCITT G.703, or, for connecting to DSX-1 cross connects, copper line distances are from 0 to 655 feet. The internal elastic buffer removes jitter from transmit data.

The TC1631R/S has multiple LED indicators to ease installation and troubleshooting. These LEDs indicate power, operating voltage, alarm status, local and remote T1/E1 signal loss, bipolar violations, all ones warning, Optic signal sync active and more. Four DIP switches, accessible from the front panel, control settings for Line Code, Local Loopback, Remote Loopback, and Disable Alarm. The internal SW2 DIP switches, control the settings for the Line Length. The dry contact alarm relay switch provides remote alarm monitoring capability.

The TC1631R/S is compatible with all types and sizes of fiber optic cable. Fiber optic connectors are SC (optional ST or FC). The T1 or E1 signal connects to two pairs of feed-thru detachable terminal block or RJ-48 connectors at the rear panel. Standard input power is 12V DC. Alternate power sources are available as an option.

Applications

The TC1631 Fiber Optic T1/E1 Modem is typically used to link Channel Banks, PBX’s, and M13 Multiplexers to DSX-1 Cross Connects. It is also used to link Customer Premises Equipment to CSU/DSUs and with metallic medium T1/E1 multiplexers to transmit over fiber optic cable.

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**Data Rates**

<table>
<thead>
<tr>
<th>Type</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>1.544 Mbps</td>
</tr>
<tr>
<td>E1</td>
<td>2.048 Mbps</td>
</tr>
</tbody>
</table>

**Optical**

- **Transmitter**: LED/ELED/LASER*
- **Receiver**: PIN Diode
- **Wavelength**: 850/1300nm MM
- **Fiber Optic Connectors**: SC, Optional ST or FC
- **Loss Budget**: 15dB

**Electrical**

- **Connector**: T1 or E1 (G.703)
- **T1/E1 (100/120 ohm) Connector**: Detachable Terminal Block
- **RJ-48C (RJ-45 Female)**
- **E1 Connector**: 75 ohm

**System**

- **Bit Error Rate**: 1 in $10^{10}$ or better
- **Alarm**: Dry Contact

**Visual Indicators**

- **System Status**: PWR A, PWR B, Vcc, ALM, Rx-A, Rx-B, USE-B, SYNC
- **T1/E1 Status**: LOC, LAIS, BPV, LOCLB, RMTRD, RAIS, RMTLB, LEN

**Diagnostic Functions**

- Local & Remote Loopback

**Power**

- **Standard**: 12VDC @300mA
- **Optional**: 24VDC, -48VDC, or 115/230VAC w/ power cube

**Temperature**

- **Operating**: -10°C to 50°C
- **Hi-Temp (optional)**: -20°C to 70°C
- **Storage**: -40°C to 90°C

**Humidity**

- 95% non-condensing

**Physical (Standalone Unit)**

- **Height**: (3.53 cm) 1.4"
- **Width**: (18.14 cm) 7.2"
- **Depth**: (16.57 cm) 6.6"
- **Weight**: (635gm) 1.4 lbs

*Contact factory for higher requirements

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**Note:** Information contained in this data sheet is subject to change without prior notice.