4 Channel Serial-over-T1/E1 Multiplexer

TC8631-1

- **4 ch. RS-232 or 4 ch. RS-422/RS-485**
- **2-Wire or 4-Wire RS-485**
- **ESF Framing Support for T1**
- **PCM31C Framing Support for E1**
- **Very Low Latency – 600µs**
- **Individually Isolated Ground for each Serial Port**
- **Supports 120Ω & 75Ω E1**
- **Built-in Power Redundancy**
- **Rack Mount or Stand Alone**

TC8631-1 Front Panel
(2X TC8631-1 in TCRM19F-R Chassis)

TCRM19F-R Rear Panel

The TC8631-1 is a 4 Channel Serial-over-T1/E1 multiplexer with built-in power redundancy.

TC8631-1 can support either T1 or E1 upon order. TC8631-1 can be used with either of the following 1U card cages:

- TCRM19F-I: up to 2x TC8631-1 with separate T1/E1 connections
- TCRM19F-R: up to 2x TC8631-1 over a single or redundant T1/E1 connection

The device requires no additional equipment for T1/E1 link and device verification. Extensive diagnostics are available to quickly identify issues with your serial or digital lines. Three different types of loopbacks: local, remote, and T1/E1 loopback assist in isolating whether an issue lies on your serial line or your T1/E1 line. CSU Loop Code Up/Down is also supported. Each unit provides TX/RX LEDs for verifying signals on each serial channel, Power LEDs for verifying power inputs, Alarm LEDs for verifying T1/E1 signal, and a Remote LED to monitor the remote unit.

All products part of the Mini Channel Bank series are equipped with the "R2" button. The "R2" button, was developed to isolate causes of disruptions, leveraging the Alarm LEDs and allows users to clear the history on the local unit and mirror and reset the Alarm LEDs on the remote unit. Each of the Alarm LEDs have the ability to show current T1/E1 errors and a history of up to 3 errors.

The TC8631-1 is compatible with standard 100Ω T1 for copper line lengths up to 6000ft and up to 2.5km for 75Ω / 120Ω E1 (copper line length is the distance between the TC8631-1 and the T1/E1 cross-connect). The T1/E1 uses an RJ48 connector and the serial channels use RJ-11 connectors. Optional BNC adapter cable is available for 75 Ohm E1. Power is 12VDC standard or optional 24VDC, -48VDC, 125VDC, or 115/230VAC with an external power cube. Optionally, a high temperature version (-20°C to 70°C) and extreme temperature version (-40°C to 80°C) are also available.

* Check factory for availability
**NOTE - Mirrored Bits® is a registered trademark of Schweitzer Engineering Laboratories Inc.

TC COMMUNICATIONS®
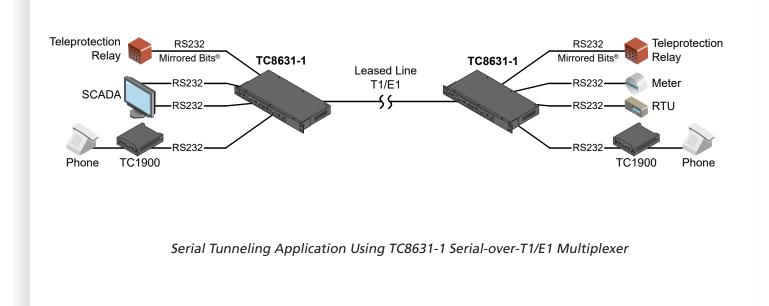### FIBER OPTIC CONNECTIVITY

Applications

The TC8631-1 offers an inexpensive, plug and play method for connecting up to four serial devices over existing T1/E1 links. Popular applications include:

- Transport of asynchronous RS-232/RS-422/RS-485
- Transport of SCADA communications
- Protocol-transparent
- Support for SEL Mirrored Bits®**
- Connection for two Power Utility teleprotection relays

The TC8631-1 can also convert the RS-232 Async to RS-422/RS-485 signals running from the local side to the remote side or vice-versa.

Serial Tunneling Application Using TC8631-1 Serial-over-T1/E1 Multiplexer

Serial

Standard RS-232/RS-422/RS-485
Ports 4
Data Rate
  RS-232 Async w/ Control ....
  .... Up to 64 Kbps
  RS-422 Async................. Up to 64 Kbps
  RS-485 2 or 4-wire ....4.8 Kbps,
  .... 9.6Kbps, 19.2Kbps, 38.4Kbps
  *Above data rate valid when used in
  TCRM19F-I*

Standard RS-232/RS-422/RS-485
Ports 8
Data Rate
  RS-232 Async w/ Control ....
  .... Up to 38.4 Kbps
  RS-422 Async.............. Up to 38.4 Kbps
  RS-485 2 or 4-wire ....4.8 Kbps,
  .... 9.6Kbps, 19.2Kbps, 38.4Kbps
  *Above data rate valid when used in
  TCRM19F-R*

T1/E1
T1
Receiver sensitivity .... 0dB to -36dB
Line Code...............................AMI / B8ZS
Framing.. ESF
E1
Receiver sensitivity .... 0dB to -43dB
Line Code..............................AMI / HDB3
Framing....................................PCM31C

Electrical
Connector RJ11F
Interface.......................................RS-232
.... 2 or 4-wire RS-485, RS-422

Visual Indicators
Channel Status (each ch.).............. Tx, Rx
System ....PWR A, PWR B, Vcc,
....ALM, RMT
T1/E1.................... BPV, LOS, SYNC, AMI,
.... RAI, AIS, CRC

System
Bit Error Rate ....1 in 10^9 or better

Alarm
Dry Contact........... Normal Open/Closed

Power
Standard .... 12VDC @300mA
Optional........ 24VDC, −48VDC, 125VDC,
.... or 115/230VAC w/ power cube

Temperature
Operating ....−10°C to 50°C
Hi-Temp (optional) ....−20°C to 70°C
Extreme (optional) ....−40°C to 80°C
Storage...............................−40°C to 90°C
Humidity .... 95% non-condensing

Physical (Standalone Unit)
Height ....(3.53cm) 1.40″
Width ....(18.14cm) 7.20″
Depth ....(24.89cm) 9.80″
Weight ....(907g) 2.0lbs

TC COMMUNICATIONS®
FIBER OPTIC CONNECTIVITY

Certified System ™

SAI GLOBAL

ISO 9001
Quality

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