

T3/E3-over-IP Gateway

TC3845-3

- Jitter Complies with G.823 and G.824 Standards.
- Transports 1 Ch. T3/E3 Over Ethernet/IP
- Near Stratum-II Clock Precision & Extremely Low Latency
- Point-to-Point Applications
- VLAN and QoS Support
- Manage Via Web, SNMP, Serial Console, Telnet
- Temperature & Power Consumption Monitoring
- Extreme Temp (-40°C to +80°C) Optional
- Meets or Exceeds IEC 61850-3, IEEE1613 & NEMA TS-2 Standards
- Member of the JumboSwitch® Product Family



TC3845 - T3/E3-over-IP Gateway

Featuring extremely low latency, the TC3845-3 T3/E3-over-IP Gateway transports T3/E3 over Layer 2/3 Ethernet/IP networks. It is simple to configure and supports point-to-point topologies.

The TC3845-3 transports one T3 or E3 channel. Each channel is independent and transparent to protocols and signaling that run over T3/E3. All applicable T3/E3 and Ethernet Industry standards and T3/E3 line codes are supported.

The TC3845-3 achieves minimal end-to-end processing delay by using high-performance adaptive clock recovery buffering and forwarding technology. Specifically, a high-precision, near Stratum II reference clock (OCXO) is used for optimal jitter and wander performance that complies with the ITU-T G.823/24 standards. Using an OCXO also allows the unit to handle large temperature swings without any bit errors or loss of sync that would otherwise be present when using a less stable clock source.

To ensure reliable communications, the TC3845-3 supports VLAN and QoS for packet prioritization. Other key features include Traffic Monitoring and Statistics, Network Time Server (NTP Server), Remote Firmware Upgrade and Temperature and Power Consumption Monitoring. Setup, diagnostics, and management are accessed via Web, SNMP, Serial Console, and Telnet. Diagnostics include LED indicators and local and remote loopback for T3/E3 and Ethernet to assist with troubleshooting and maintenance.

The TC3845-3 interface card fits into any available JumboSwitch housing option including 2S Standalone chassis and 1U/2U/4U card cages. Power supply options are 12VDC, 24VDC, -48VDC or 115/230VAC. Standard operating temperature is -20°C to +70°C and the extreme temperature version is -40°C to +80°C.

Applications

Typical applications include transporting voice, video, and data across IP networks.

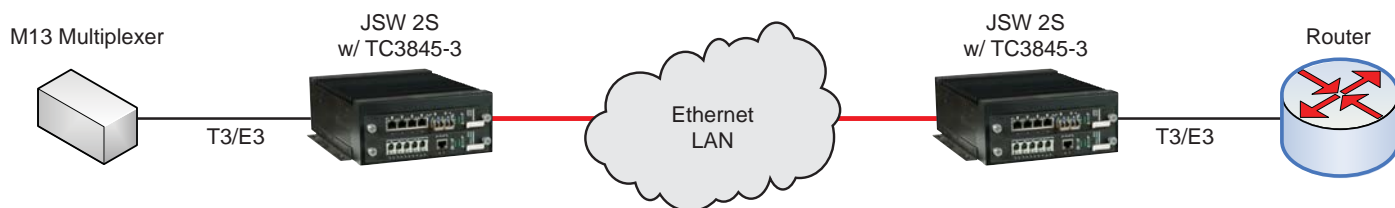
For example, the TC3845-3 is often used to extend T3/E3 links between PBX's, connect video conferencing or link Cell Towers to Central Offices.

It is also used to extend T3/E3 links between M13 multiplexers and Routers.

Environmental & EMI Compliance

The JumboSwitch product family meets all pertinent industry-specific standards for environmental, performance and security requirements including IEC 61850-3, IEEE 1613, NEMA TS-2 and NERC CIP. Furthermore, future JumboSwitch family products will continue to be compliant with both existing and emerging industry standards and requirements, including developing Ethernet standards. Please refer to the charts below for specific standards compliance information.

	Tests	Industrial Standards	TC Communications - JumboSwitch Type Test and Levels	
			Power Supply Unit (PSU)	RJ-45 & Signal
Temperature/Humidity	Low Temperature Use	IEC 61850-3, IEEE 1613, NEMA TS-2	IEC 60068-2-1; Ae; -40°C; 16 hour	
	Low Temperature Storage	IEC 61850-3, IEEE 1613, NEMA TS-2		
	High Temperature Use	IEC 61850-3, IEEE 1613, NEMA TS-2	IEC 60068-2-2; Be; +80°C; 16 hour	
	High Temperature Storage	IEC 61850-3, IEEE 1613, NEMA TS-2	IEC 60068-2-2; Bd; +85°C; 16 hour	
	Damp Heat	IEC 61850-3, IEEE 1613, NEMA TS-2	IEC 60068-2-30; Db; +55°C; 95%; 96 hours	
Mechanical	Vibration	IEC 61850-3, IEEE 1613, NEMA TS-2	IEC 60068-2-6; Fc; 3 - 150 Hz; 7.5 mm; 2 g; 10 sweeps per axis	
	Shock	IEC 61850-3, IEEE 1613, NEMA TS-2	IEC 60068-2-27; Ea; 30g; 11ms	
ElectroMagnetic Compatibility	Electrostatic Discharge Immunity	IEEE 1613	IEC 61000-4-2; 8kV contact; 15 kV air	
	Radiated RF Immunity	IEC 61850-3, IEEE 1613	IEC 61000-4-3; 80 MHz - 1000 MHz; 20 V/m; AM 80% 1 kHz	
	EFT/Burst Immunity	IEC 61850-3, IEEE 1613	IEC 61000-4-4; 4 kV CM	IEC 61000-4-4; 4 kV CM
	Surge Immunity	IEC 61850-3	IEC 61000-4-5; 4 kV LG; 2 kV LL	IEC 61000-4-5; 4 kV LG; 2 kV LL
	Conducted RF immunity	IEC 61850-3	IEC 61000-4-6; 150 kHz - 80 MHz; 10 V; AM 80% 1 kHz	IEC 61000-4-6; 150 kHz - 80 MHz; 10 V; AM 80% 1 kHz
	Magnetic Field Immunity	IEC 61850-3	IEC 61000-4-8; 50 Hz; 100 A/m cont.; 1000 A/m 1 s	
	Damped Oscillatory Magnetic Field Immunity	IEC 61850-3	IEC 61000-4-10; 100 kHz; 30 A/m	
	Damped Oscillatory Magnetic Field Immunity	IEC 61850-3	IEC 61000-4-10; 1 MHz; 30 A/m	
Power Supply Unit (PSU) Variations	AC Voltage Dips	IEC 61850-3	IEC 61000-4-11; 30% & 100%, 0.5s	NA
	DC Voltage Dips	IEC 61850-3	IEC 61000-4-29; 40% & 70%, 0.1s	NA
	Damped Oscillatory Wave	IEC 61850-3	IEC 61000-4-12; 2.5 kV CM, 1.0 kV DM @1MHz	IEC 61000-4-12; 2.5 kV CM, 1.0 kV DM @ 1MHz
	Conducted PF CM Voltage	IEC 61850-3	IEC 61000-4-16; 50 Hz; 30 V cont.; 300 V 1s	IEC 61000-4-16; 50 Hz; 30 V cont.; 300 V 1s
	Conducted Emission	IEC 61850-3	CE/FCC/CISPR22 class A	CE/FCC/CISPR22 class A
	Conducted emission	IEC 61850-3	CE/FCC/CISPR22 class A	CE/FCC/CISPR22 class A
	Radiated emission	IEC 61850-3	CE/FCC/CISPR22 class A	
Dielectric	Dielectric 50 Hz Test	IEEE 1613	IEC 60255-5; 2 kV	IEC 60255-5; 0.5 kV
	Impulse Voltage Test	IEEE 1613	IEC60255-5; 5 kV	IEC 60255-5; 5 kV



Typical Point-to-Point Application Using TC3845-3 to Extend T3/E3 between a M13 Multiplexer and a Router

Data Rates

T3	44.736 Mbps
E3	34.368 Mbps
Ethernet	10/100 Mbps Full Duplex
Console	9.6K

Connection Capacity

T3/E3	1 Channels
Ethernet	1 Port

Electrical

T3 Interface	
Line Code.....	B3ZS
Standards.....	G.703,G.824, ANSI,T1.102, Bellcore, TR-NWT-W499
Connector.....	BNC
Impedance.....	75 Ω
E3 Interface	
Line Code.....	HDB3
Standards.....	G.703,G.823
Connector.....	BNC
Impedance.....	75 Ω
Ethernet Interface	
Standards	IEEE 802.3,802.3u, 802.1p&Q
Connector.....	RJ45
Console Port.....	RJ45

System

Bit Error Rate	1 in 10 ¹⁰ or Better
----------------------	---------------------------------

Regulatory Approval

CE, FCC Part 15, CISPR (EN55022)
CLASS A, IEC 61850-3, IEEE 1613,
NEMA TS-2

Diagnostic Functions

Local and Remote Loopback for
T3/E3 and Ethernet

LEDs

Unit Status.....	PWR (A, B), Alarm
.....	Vcc, BP, MGM
T3/E3.....	Status
Ethernet.....	Link/Act

Power

Standard.....	12VDC
Optional.....	24, -48 VDC
.....	90-260 VAC, 50/60Hz
Power Consumption.....	<10W

Operating Temperature

High Temp	-20°C to 70°C
Extreme Temp	-40°C to 80°C

Storage

Temperature.....	-40°C to 90°C
Humidity.....	95% non-condensing

Physical (rack mount card)

Height.....	(3.15 cm) 1.24"
Width.....	(17.78 cm) 7.0"
Depth.....	(22.86 cm) 9.0"
Weight.....	(0.3 kg) 0.75 lbs



TC Communications, Inc.
17881 Cartwright Road
Irvine, CA 92614 U.S.A.
Factory Tel: (949) 852-1972
Fax: (949) 852-1948

Sales Office
U.S.A. Domestic International:
(800) 569-4736 (949) 852-1973

Web Site: www.tccomm.com
E-mail: sales@tccomm.com

2/12

Note - Information contained in this data sheet is subject to change without prior notice. 010E