DIN Rail Managed Ethernet Switch & Serial Server

TC3847-1DR

- **Compact Chassis with Full Management**
- **Base Unit with 2x GigE SFP** Ports +6x 10/100Base-T**
- **Expansion Card with 4 Channels of RS-232 or RS-422/RS-485**
- **Dual-Master Mode Supported for Redundant Poll-Response Application over Network (Optional)**
- **Ethernet Rate Limiting, VLAN, QoS**
- **Built-In Power/Temperature Sensors**
- **Industrial Hardened & IEC 61850-3, IEEE 1613 & NEMA TS-2 Compliant**
- **Member of JumboSwitch® Product Family**

TC3847-1DR DIN Rail Ethernet Switch & Serial Server

The TC3847-1DR is a compact, efficient Industrial Ethernet switch solution with full JumboSwitch® network compatibility and integrated Serial Server. It is compatible with all JumboSwitch® product family chassis, management software, features and options. The device guarantees maximum reliability and performance for industrial automation and mission critical redundant ring network applications.

The TC3847-1DR comes standard with two gigabit SFP ports and six 10/100Base-T ports. Additionally, it offers an integrated expansion card with four serial RS-232, RS-422 or RS-485 channels. Serial channels are independent and can be mixed or matched. Point-to-point serial tunneling and serial server configurations are supported on a per-port basis.

Dual-Master Mode is optional and available in either Single- or Dual-Channel configuration. Dual-Master Mode offers support for redundant poll-response network applications.

The TC3847-1DR's industrial hardened version supports temperatures from -40°C to 80°C and meets IEC 61850-3, IEEE 1613 and NEMA TS-2 industry standards. It supports distances up to 100km (single mode laser) and offers a "one fiber, bi-directional" option.

Unique diagnostics include built-in power and temperature monitoring sensors and remote optical measurements for launch power and sensitivity. Additional diagnostics monitor traffic statistics, fiber ring status, alarm conditions, etc. Security features include password protection.

Management is accessed via web, SNMP, telnet, or serial console. Virtual LAN (VLAN), QoS and Network Time Protocol (NTP) are supported. Optical and power redundancy with automatic switchover is standard. Power options include 12VDC, 24VDC, -48VDC or 115/230VAC.

Applications

An all-in-one connectivity solution for industrial automation and commercial network applications, the TC3847-1DR benefits users by offering Managed Ethernet Switch with 4-channel Serial Server.

The TC3847-1DR is often used by Utilities to connect substation RTUs/PLCs, including older legacy units with serial interfaces, to a central control center. Optional Dual-Master Mode adds redundancy, enabling two different hosts to poll remote slave units at the same time.

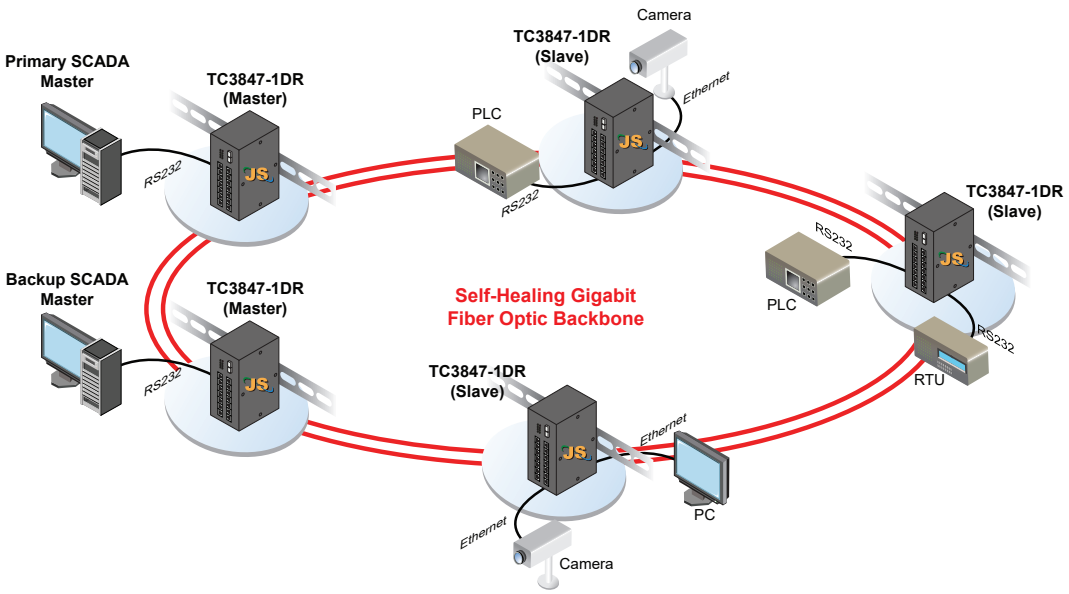
For Over 20 Years!
Designed & Made in USA

**SFP Transceiver not included

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 Application using the TC3847-1DR in a Gigabit Ethernet Ring Network utilizing Dual Masters

Data Rates

RJ45.....10/100Mbps
SFP.....1000Mbps

Connection Capacity

Base (Ethernet)
RJ45.....6 Ports
SFP.....2 Ports
Expansion (Serial-RS-232/422/485)
RJ-11.....8 Ports

(NOTE: Supports maximum of 4 channels of RS-232 or RS-422 or RS-485 or Mix)

Optical

Transmitter.....LASER
Receiver.....PIN Diode
Wavelength (SFP)
.....850/1300nm MM
.....1300/1550nm SM
SFP Optic Connectors.....LC
Loss Budget - 1300/1550nm
Multimode@62.5/125µm.....15dB
Single Mode @9/125µm.....20dB

(NOTE: Contact factory for higher requirements)

LEDs

PWR A, PWR B, Vcc, EXP, DFLT, ALM, SHR, MSTR, MGM, etc.

(NOTE: Different expansion may have different LEDs)

System

Bit Error Rate.....1 in 10^{10} or Better

Alarm

Dry Contact.....NO or NC (selectable)

Diagnostic Functions

.....Traffic Statistics
.....Launch Power
.....Temperature

Power

Standard.....12VDC
Optional.....24VDC, -48VDC or 115/230VAC (w/ external cube)

Operating Temperature

Standard Temp.....-20°C to 70°C
Extreme Temp (optional).....-40°C to 80°C

Storage

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

Physical

Height.....(16.26 cm) 6.4”
Width.....(5.84 cm) 2.3”
Depth.....(13.21 cm) 5.2”
Weight.....(544 gm) 1.2 lbs

Expansion Ordering Information

TC3840DR-X-14-0.....Master Unit,
.....Dual-Master
(or regular Serial Server)
TC3840DR-X-13-1.....Slave Unit,
.....Dual-Master on Port 1 & 2,
use for Single-Channel
TC3840DR-X-13-3.....Slave Unit,
.....Dual-Master on Port 1 & 2
and 3 & 4, use for Dual-Channel

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.