

- 2 FXS Ports (TC3848-1DR) or; 1FXS + 1FXO (TC3848-2DR)
- Extreme Temp (-40°C to +80°C) Optional
- Audio Codes Standards  
G.711 ALAW/ULAW  
G.726-32, G.729A, T.38 Fax
- Internal Address Book
- Compatible with SIP
- Manage via Web, SRTP & TLS Supported for security
- Remote Firmware Upgrade
- DIN Rail Mountable
- Meets or Exceeds IEC 61850-3, IEEE 1613, & NEMA TS-2, Standards
- Member of the JumboSwitch® Product Family



TC3848-1DR with Ethernet Base (Left)  
TC3848-1DR w/o Ethernet Base (Center)  
TC3848-2DR w/o Ethernet Base (Right)

Compact and simple to configure, the TC3848-1DR/TC3848-2DR is the ideal solution to bring phone service into harsh environments where industrial grade equipment is a must. By simply connecting the TC3848-1DR and/or TC3848-2DR to your existing LAN, it is the easiest and most flexible way to extend POTS or PBX extensions over an IP/Ethernet network when used with or without TC3848-1/-2.

The TC3848-1DR/2DR, like all JumboSwitch product family interface cards, meets or exceeds pertinent industry standards including IEC 61850-3, IEEE 1613 for networking devices and NEMA TS-2 for traffic control environments. Please refer to the chart on page 2 for details on specific tests.

### Applications

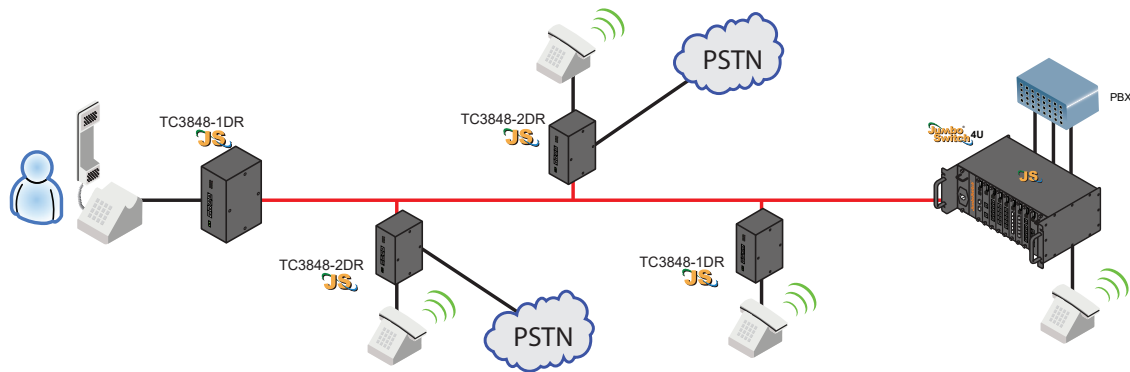
The TC3848-1DR/2DR is ideal for creating phone solutions over LANs in harsh environments.

\*VoIP+ is a function of JumboSwitch Family; A voice over IP product answers to higher standards, it's not just a gateway, but a complete PABX by itself.

## 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



Remote Hot-link to central PBX extension

## Electrical

### Interfaces

TC3848-1DR.....2 FXS  
 TC3848-2DR.....1FXS & 1FXO

### FXS/FXO Interface

Impedance.....600 Ω, FXS  
 Frequency Band.....300Hz to 3400Hz  
 Connector.....2 RJ11

### Ethernet Interface

Connector.....2 RJ45

### Dry Contact Interface (Future Release)

Connector.....Terminal Block  
 .....Detect (2 Pin), Relay (2 Pin)  
 Load Voltage (peak AC).....60V  
 Load Voltage (DC).....60V  
 Continuous load current.....0.55A  
 Peak load current.....1.2A  
 Max On Resistance.....2.5 Ω  
 Output Capacitance.....150pF  
 Detector Max input voltage.....9V

### Console Interface

Connector.....2.5mm Audio Jack

### Alarm Relay (Future Release)

Connector.....Terminal Block  
 .....NO or NC

## Media Processing

Voice Codec.....G.711 ALAW, ULAW  
 .....G.726-32, G.729A

## Packetization

RTP/RTCP.....RFC 3350, 3551, 2198  
 DTMF Relay.....RFC 2833

## Protocols

### VoIP Signaling Protocols

SIP - RFC 3261, 3262, 3263, 3264, 2327

### Ethernet Protocols

HTTP, IPv4, TCP, UDP, ICMP, ARP, DNS,  
 IEEE 803/3u/3x

## SLIC Characteristics

Maximum Ringer Load (REN).....3  
 Short/Long Haul  
 Ringer Voltage.....45Vrms  
 Distance.....4,000 feet

## Regulatory Approval

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

## LEDs

System Status.....PWR A, PWR B  
 .....Vcc, ALM  
 Phone.....Ring, Hook  
 Ethernet.....Link, Duplex

## Power

Standard.....12VDC  
 Optional.....24, -48VDC  
 .....90-260 VAC, 50/60Hz

## 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

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



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ISO 9001  
 Quality

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



[www.JumboSwitch.com](http://www.JumboSwitch.com)



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