

# Universal Rack Mount Card Cages

2U (TCRM198)  
4U (TCRM197)

- Industry Standard 19" Wide
- Ruggedized Design for Harsh Environments
- Designed to Hold All JumboSwitch Family Hot-Swappable Cards
- Extreme Temperature (-40°C to +80°C) Optional
- Power Supplies Managed via Web, SNMP, Serial Console or Telnet
- Various AC & DC Power Ranges
- Built-In Power Redundancy



(2U Cage)



(4U Cage)

JumboSwitch 2U & 4U Card Cages

The JumboSwitch 2U & 4U rack mount cages are designed to hold JumboSwitch family hot-swappable cards. The 2U cage holds one Main, one Management and two interface cards. The 4U cage holds one Main, one Management and up to seven interface cards.

Both card cages come standard with dual load-sharing power supplies. AC and DC power supplies can be mixed in the same unit. The universal AC power supply automatically adjusts for 90 to 264VAC input and 47 to 63 Hz operation. Here are the options:

- 12VDC, 24VDC, -48VDC and 125VDC
- 115VAC/230VAC or 260VAC (50-60Hz)

The dual load-sharing power supplies automatically switch over in the event of a power failure. Through the TC3840 Management card, the power supply can be remotely managed via Web, SNMP, Serial Console or Telnet. Power supply cycling and monitoring ON/OFF status can be done remotely.

Standard operating temperature is -20°C to +70°C and the extreme temperature version is -40°C to +80°C.

(Please see page 3 for dimensions.)

## Applications

Sturdy and durable, JumboSwitch 2U & 4U card cages house hot-swappable JumboSwitch family cards in a standard 19" rack. Power supplies can be remotely managed and dual load sharing power supplies automatically switch over in the event of a power failure.

## 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



Front View



Rear View

JumboSwitch 2U



Front View

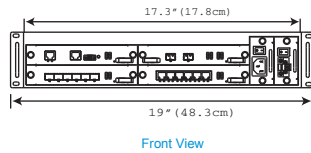
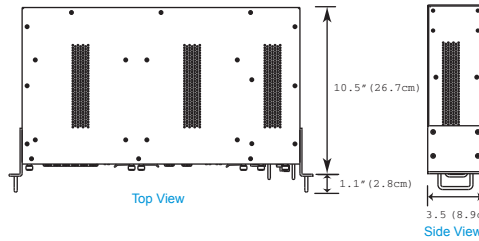
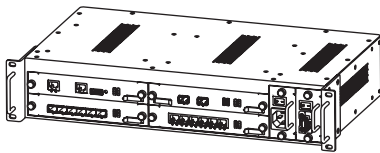


Rear View

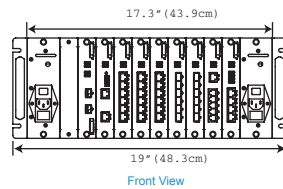
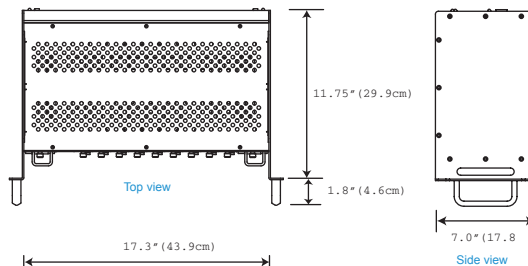
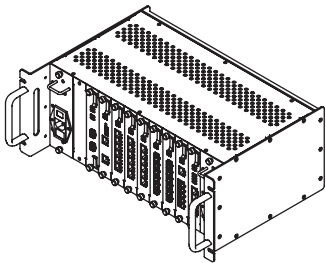
JumboSwitch 4U

JumboSwitch 2U and 4U Card Cages, Front and Rear View.

JumboSwitch 2U



JumboSwitch 4U



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



ISO 9001  
QMI-SAI Global  
#1045959

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](http://www.tccomm.com)  
E-mail: [sales@tccomm.com](mailto:sales@tccomm.com) 8/10



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

