

ExtremeSwitching CES/CER 2000 Series Technical Specifications

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ExtremeSwitching CES/CER 2000 Series Technical Specifications

This document highlights the features and specifications for CES/CER 2000 Series devices.

System specifications

System component	Description
Enclosure	1U
Power inlet	C14
Power supplies	One internal AC or DC power supply, 1+1 redundancy
Fans	6
Cooling	Six 4-speed fans; front-to-back airflow

Ethernet

System component	Description
SFP GbE ports	24 SFP, 4 Combo, 2 XFP 24 SFP, 4 Combo, 4 SFP+ 48 SFP, 2 XFP
Ethernet management port	10/100/1000 MbE RJ-45

LEDs

System component	Description
10/100/1000 Port LEDs	
Lnk/Act	Indicates whether a link is up or down and the port is transmitting and receiving traffic
10-Gbps Port LEDs on devices with two or four 10-Gbps ports	
Lnk/Act (2 LEDs)	Indicates whether the fiber port is connected and the traffic is being transmitted and received on the fiber port
Power and fan status LEDs	
Fan	Indicates the status of the fan tray
AC PS1	Indicates whether power supply 1 is installed and operating normally
AC PS2	Indicates whether power supply 2 is installed and operating normally
DC	Indicates whether the power supply has DC power

Other

System component	Description
Serial cable	EIA or TIA DB9 serial cable
RJ-45 connector	10/100/1000 copper

Weight and physical dimensions

Model	Height	Width	Depth	Weight
CES 2000 Series 2024C-4X	4.4 cm	44.3 cm	43.9 cm	9.4 kg
	1.7 inches	17.4 inches	17.3 inches	20.7 lb
CES 2000 Series 2024C-4X with 4x10G uplink installed	4.4 cm	44.3 cm	43.9 cm	9.5 kg
	1.7 inches	17.4 inches	17.3 inches	21 lb
CES 2000 Series 2024C	4.4 cm	44.3 cm	44.8 cm	7 kg
	1.7 inches	17.4 inches	17.6 inches	15.5 lb
CES 2000 Series 2024C with 2x10G uplink installed	4.4 cm	44.3 cm	44.8 cm	7.9 kg
	1.7 inches	17.4 inches	17.6 inches	17.5 lb
CES 2000 Series 2024F-4X	4.4 cm	44.3 cm	43.9 cm	9.5 kg
	1.7 inches	17.4 inches	17.3 inches	21 lb
CES 2000 Series 2024F-4X with 4x10G uplink installed	4.4 cm	44.3 cm	43.9 cm	9.7 kg
	1.7 inches	17.4 inches	17.3 inches	21.4 lb
CES 2000 Series 2024F	4.4 cm	44.3 cm	44.8 cm	7 kg
	1.7 inches	17.4 inches	17.6 inches	15.5 lb
CES 2000 Series 2024F with 2x10G uplink installed	4.4 cm	44.3 cm	44.8 cm	7.9 kg
	1.7 inches	17.4 inches	17.6 inches	17.5 lb
CER 2000 Series 2024C-4X-RT	4.4 cm	44.3 cm	44.8 cm	9.5 kg
	1.7 inches	17.4 inches	17.6 inches	21 lb
CER 2000 Series 2024C-4X-RT with 4x10G uplink installed	4.4 cm	44.3 cm	43.9 cm	9.5 kg
	1.7 inches	17.4 inches	17.3 inches	21 lb
CER 2000 Series 2024C	4.4 cm	44.3 cm	43.9 cm	7 kg
	1.7 inches	17.4 inches	17.3 inches	15.5 lb
CER 2000 Series 2024C with 2x10G uplink installed	4.4 cm	44.3 cm	44.8 cm	7.9 kg
	1.7 inches	17.4 inches	17.6 inches	17.5 lb
CER 2000 Series 2024F-4X-RT	4.4 cm	44.3 cm	43.9 cm	9.4 kg
	1.7 inches	17.4 inches	17.3 inches	20.8 lb
CER 2000 Series 2024F-4X-RT with 4x10G uplink installed	4.4 cm	44.3 cm	43.9 cm	9.9 kg
	1.7 inches	17.4 inches	17.3 inches	21.8 lb
CER 2000 Series 2024F	4.4 cm	44.3 cm	44.8 cm	7 kg
	1.7 inches	17.4 inches	17.6 inches	15.5 lb

Model	Height	Width	Depth	Weight
CER 2000 Series 2024F with 2x10G uplink installed	4.4 cm	44.3 cm	44.8 cm	7.9 kg
	1.7 inches	17.4 inches	17.6 inches	17.5 lb

Environmental requirements

Condition	Operational	Non-operational
Ambient temperature	0°C to 40°C (32°F to 104°F)	-25°C to 70°C (-13°F to 158°F)
Relative humidity (non-condensing)	5% to 95% at 40°C (104°F)	95% maximum
Altitude (above sea level)	3000 m (10,000 feet)	4500 m (15,000 feet)
Shock	N/A	N/A
Vibration	N/A	N/A
Airflow	267 lfm	N/A
Operating noise	< 60 dB	N/A

Power supply specifications (per PSU)

Power supply model	Maximum output power rating (DC)	Input voltage	Input line frequency	Maximum input current	Input line protection	Maximum inrush current
RPS9	504 W	100 - 240 VAC (nominal) 85 - 264 VAC (range)	50/60 Hz (nominal) 47 - 63 Hz (range)	6 A	Line Fused	30 A peak @ 25°C
RPS9DC	504 W	48 VDC (nominal) 40 - 60 VDC (range)	N/A	15 A	-Ve Fused	25 A peak @ 25°C

Power consumption (idle configuration)

Idle: No optics or connections to ports installed and system booted up. Fans at nominal speed.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
BR-CES-2024C-4X with 4x10G Uplink AC & DC	1.64 A	0.86 A	2.96 A	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
	184 W	182 W	158 W		
	628.79 BTU/hr	619.30 BTU/hr	540.63 BTU/hr		
BR-CES-2024C-4X AC & DC	1.64 A	0.86 A	2.96 A	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
	184 W	182 W	158 W		
	628.79 BTU/hr	619.30 BTU/hr	540.63 BTU/hr		

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
BR-CES-2024F-4X with 4x10G Uplink AC & DC	1.87 A 205 W 699.51 BTU/hr	0.98 A 189 W 643.19 BTU/hr	2.98 A 162 W 553.74 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024F-4X AC & DC	1.87 A 205 W 699.51 BTU/hr	0.98 A 189 W 643.19 BTU/hr	2.98 A 162 W 553.74 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024C-4X-RT with 4x10G uplink AC & DC	1.88 A 205 W 699.48 BTU/hr	0.96 A 201 W 684.53 BTU/hr	3.20 A 171 W 583.23 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024C-4X-RT AC & DC	1.88 A 205 W 699.48 BTU/hr	0.96 A 201 W 684.53 BTU/hr	3.20 A 171 W 583.23 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024F-4X-RT with 4x10G uplink AC & DC	1.82 A 197 W 672.79 BTU/hr	0.94 A 195 W 666.34 BTU/hr	3.34 A 184 W 629.10 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024F-4X-RT AC & DC	1.82 A 197 W 672.79 BTU/hr	0.94 A 195 W 666.34 BTU/hr	3.34 A 184 W 629.10 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.

Power consumption (typical configuration)

Typical: Fully configure all ports and 25% traffic on all ports. Random packet size, random payload, and room temperature. Fans at nominal speed.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
BR-CES-2024C-4X with 4x10G Uplink AC & DC	2.19 A 241 W 823.44 BTU/hr	1.11 A 237 W 808.73 BTU/hr	3.82 A 200 W 681.87 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024C-4X AC & DC	1.80 A 203 W 692.04 BTU/hr	0.93 A 199 W 677.33 BTU/hr	3.02 A 161 W 550.46 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024F-4X with 4x10G Uplink AC & DC	2.39 A 255 W 871.53 BTU/hr	1.23 A 251 W 857.95 BTU/hr	3.80 A 209 W 711.35 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024F-4X AC & DC	2.00 A 217 W 740.13 BTU/hr	1.04 A 213 W 726.54 BTU/hr	3.00 A 167 W 579.95 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
BR-CER-2024C-4X-RT with 4x10G Uplink AC & DC	2.34 A 246 W 840.14 BTU/hr	1.20 A 243 W 829.58 BTU/hr	3.96 A 210 W 714.63 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024C-4X-RT AC & DC	1.94 A 208 W 708.69 BTU/hr	1.01 A 205 W 698.18 BTU/hr	3.16 A 171 W 583.23 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024F-4X-RT with 4x10G uplink AC & DC	2.83 A 297 W 1014.30 BTU/hr	1.44 A 293 W 997.81 BTU/hr	4.16 A 217 W 740.84 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024F-4X-RT AC & DC	2.42 A 259 W 882.90 BTU/hr	1.25 A 254 W 866.41 BTU/hr	3.36 A 179 W 609.44 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.

Power consumption (maximum configuration)

Maximum: Fully configure all ports with connection and traffic at maximum throughput. Fans at high speed.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
BR-CES-2024C-4X with 4x10G Uplink AC & DC	2.41 A 256 W 874.91 BTU/hr	1.24 A 253 W 862.96 BTU/hr	4.14 A 217 W 739.96 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024C-4X AC & DC	1.95 A 212 W 724.73 BTU/hr	1.01 A 209 W 712.79 BTU/hr	3.22 A 173 W 589.78 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024F-4X with 4x10G Uplink AC & DC	2.54 A 268 W 914.91 BTU/hr	1.32 A 264 W 900.47 BTU/hr	4.06 A 222 W 756.34 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CES-2024F-4X AC & DC	2.09 A 224 W 764.78 BTU/hr	1.08 A 220 W 750.30 BTU/hr	3.14 A 178 W 606.16 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024C-4X-RT with 4x10G Uplink AC & DC	2.51 A 266 W 906.68 BTU/hr	1.31 A 261 W 890.37 BTU/hr	4.22 A 225 W 766.95 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024C-4X-RT AC & DC	2.06 A 222 W 756.51 BTU/hr	1.07 A 217 W 740.20 BTU/hr	3.92 A 183 W 622.55 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.
BR-CER-2024F-4X-RT with 4x10G uplink AC & DC	3.03 A 315 W	1.53 A 298 W	4.56 A 239 W	1	Input current only 1 PSU installed. Watts

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
	1075.87 BTU/hr	1017.54 BTU/hr	815.32 BTU/hr		and BTU/hr with 2 PSUs.
BR-CER-2024F-4X-RT AC & DC	2.54 A 271 W 672.79 BTU/hr	0.94 A 254 W 666.34 BTU/hr	3.64 A 195 W 665.14 BTU/hr	1	Input current only 1 PSU installed. Watts and BTU/hr with 2 PSUs.

Data port specifications (Ethernet)

Model	Port type	Number of ports	Description
CES 2000 Series 2024C-4X	10 GbE	4	Supports four 10-GbE SFP+ uplink ports
CES 2000 Series 2024C	10 GbE	2	Supports an optional field-ungradable two 10-GbE uplink ports
CES 2000 Series 2024F-4X	10 GbE	4	Supports four 10-GbE SFP+ uplink ports
CES 2000 Series 2024F	10 GbE	2	Supports an optional field-ungradable two 10-GbE uplink ports
CER 2000 Series 2024C-4X-RT	10 GbE	4	Supports four 10-GbE SFP+ uplink ports
CER 2000 Series 2024C	10 GbE	2	Supports an optional field-upgradable two 10-GbE uplink ports
CER 2000 Series 2024F-4X-RT	10 GbE	4	Supports four 10-GbE SFP+ uplink ports
CER 2000 Series 2024F	10 GbE	2	Supports an optional field-upgradable two 10-GbE uplink ports

Serial port specifications (DB9)

Pin	Signal	Description
1	Reserved	Reserved
2	TXD (output)	Transmit data
3	RXD (input)	Receive data
4	Reserved	Reserved
5	GND	Logic ground
6	Reserved	Reserved
7	Reserved	Reserved
8	Reserved	Reserved
9	Reserved	Reserved

Serial port specifications (pinout RJ-45)

Pin	Signal	Description
1	TD+	Transmit data
2	TD-	Transmit data
3	RD+	Receive data
4	Not used (10BaseT) CMT (100BaseTX)	Not used
5	Not used (10BaseT) CMT (100BaseTX)	Not used
6	RD-	Receive data
7	Not used (10BaseT) CMT (100BaseTX)	Not used
8	Not used (10BaseT) CMT (100BaseTX)	Not used

Serial port specifications (protocol)

Parameter	Value
Baud	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

Memory specifications

Memory	Type	Size
Main memory	DRAM	1 GB
Compact Flash	Internal compact flash	64 MB

Regulatory compliance (EMC)

- FCC Part 15, Subpart B (Class A)
- EN 55022 (CE mark) (Class A)
- EN 55024 (CE mark) (Immunity) for Information Technology Equipment
- ICES-003 (Canada) (Class A)
- AS/NZ 55022 (Australia) (Class A)
- VCCI (Japan) (Class A)

- EN 61000-3-2
- EN 61000-3-3
- EN 61000-6-1

Regulatory compliance (safety)

- CAN/CSA-C22.2 No. 60950-1-07/UL60950-1 - Safety of Information Technology Equipment
- EN 60825-1 Safety of Laser Products - Part 1: Equipment Classification, Requirements and User's Guide
- EN 60825-2 Safety of Laser Products - Part 2: Safety of Optical Fibre Communications Systems
- EN 60950-1, IEC 60950-1 Safety of Information Technology Equipment

Regulatory compliance (environmental)

- 2011/65/EU - Restriction of the use of certain hazardous substance in electrical and electronic equipment (EU RoHS)
- 2012/19/EU - Waste electrical and electronic equipment (EU WEEE)
- 94/62/EC - packaging and packaging waste (EU)
- 2006/66/EC - batteries and accumulators and waste batteries and accumulators (EU battery directive)
- 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (EU REACH)
- Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 - U.S. Conflict Minerals
- 30/2011/TT-BCT - Vietnam circular
- SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in EIPs (China)
- SJ/T 11364-2006 Marking for the Control of Pollution Caused by EIPs (China)