



Technical Specifications

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Cisco ASR 9000 Series Routers Physical Descriptions

Table 1: Cisco ASR 9000 Series Routers Physical Descriptions

Router	Chassis Height	Chassis Width	Chassis Depth	Chassis Weight ¹
Cisco ASR 9010 Router	36.75 inches (93.35 cm)	17.50 inches (44.45 cm) 19.0 inches (48.3 cm) including chassis rack-mount flanges and front door width	28.65 inches (72.72 cm) including the cable management system and front cover	Chassis only – 149.5 pounds (67.81 kg) Chassis: fully configured using all card slots and six power modules – 375 pounds (170.5 kg)
Cisco ASR 9006 Router	17.50 inches (44.45 cm)	17.50 inches (44.45 cm) 19.0 inches (48.3 cm) including chassis rack-mount flanges and front door width	28.93 inches (73.48 cm) from the rear cover to the front of the cosmetic doors	Chassis only – 87.5 pounds (39.69 kg) Chassis: fully configured using all card slots and six power modules – 230 pounds (104.33 kg)

Router	Chassis Height	Chassis Width	Chassis Depth	Chassis Weight ¹
Cisco ASR 9904 Router	10.38 inches (26.36 cm)	17.75 inches (45.08 cm) 19.0 inches (48.3 cm) including chassis rack-mount flanges	28.56 inches (72.53 cm) from the cable management system to the tip of the fan tray handle	Chassis only – 43.3 pounds (19.64 kg) Chassis: fully configured using all card slots and four power modules – 122.8 pounds (55.70 kg)
Cisco ASR 9906 Router	24.39 inches (61.95 cm)	17.6 inches (44.7 cm)	28.77 inches (73.08 cm) 31.45 inches (79.88 cm) including the cable management system	Chassis only – 108.02 pounds (49 kg) Chassis: Configured with two fan trays, two RSPs, five fabric cards, and one PEM – 251.10 pounds (113.9 kg)
Cisco ASR 9910 Router	36.70 inches (93.28 cm)	17.6 inches (44.70 cm) including chassis rack-mount flanges and front door width	31.50 inches (80.01 cm) including the cable management system and front cover	Chassis only – 143.11 pounds (64.915 kg) Chassis: Configured with two fan trays, two RSPs, five fabric cards, and one PEM – 349.59 pounds (158.575 kg)
Cisco ASR 9912 Router	52.5 inches (133.4 cm)	17.6 inches (44.7 cm) 19.0 inches (48.3 cm) including chassis rack-mount flanges and front doors	25.7 inches (65.2 cm) 29.4 inches (74.7 cm) including the cable management system 30.1 inches (76.4 cm) including cable management system and front doors	Chassis only – 181 pounds (82.10 kg) Chassis: fully configured using all card slots and three power trays – 643 pounds (291.66 kg)
Cisco ASR 9922 Router	77.00 inches (195.58 cm)	17.60 inches (44.70 cm) 19.0 inches (48.3 cm) including chassis rack-mount flanges and front door width	26.3 inches (66.82 cm) 30.00 inches (76.20 cm) including the cable management system 30.62 inches (77.77 cm) with front doors	Chassis only – 300 pounds (136 kg) Chassis: fully configured using all card slots and four power modules – 1038 pounds (470.28 kg)

¹ Chassis only does not include cards, power modules, fan trays, filter, or chassis accessories.

Cisco ASR 9000 Series Routers Environmental Specifications

Table 2: Cisco ASR 9000 Series Routers Environmental Specifications

Description	Value
Operating Temperature: ²	41 to 104°F (5 to 40°C)
Operating Temperature, ³ (Short term), ^{4 5}	23 to 131° F (-5° to 55°C) for Cisco ASR 9006 Router, Cisco ASR 9906 Router, and Cisco ASR 9904 Router 23 to 122° F (-5° to 50°C) for Cisco ASR 9010 Router, Cisco ASR 9922 Router, Cisco ASR 9910 Router, and Cisco ASR 9912 Router
Non-operating Temperature	-40 to 158°F (-40 to 70°C)
Humidity	Operating: 10 to 85 percent noncondensing Non-operating: 5 to 95 percent noncondensing
Altitude ⁶	Operating: 0 to 13,000 ft. (0 to 4,000 m) Non-operating: 0 to 15,000 ft (0 to 4,570 m) 16-port 10-Gigabit Ethernet line card: 0 to 5,904 ft (0 to 1,800 m)
Power Dissipation	All Cisco ASR 9000 Series Routers Use the Cisco Power Calculator (Cisco.com account required) at http://tools.cisco.com/cpc/launch.jsp to estimate the maximum power distribution.
Acoustic noise	78 dB at 80.6°F (27°C) maximum
Shock	Operating (halfsine): 21 in/sec (0.53 m/sec.) Non-operating (trapezoidal pulse): 20 G ⁷ , 52 in/sec (1.32 m/sec)
Vibration	Operating: 0.35 Grms ⁸ from 3 to 500 Hz Non-operating: 1.0 Grms from 3 to 500 Hz

² Operating temperature specifications for the router will differ from those listed in this table when 40-port Gigabit Ethernet line cards using GLC-GE-100FX SFP transceiver modules are installed in the router. This is due to the lower temperature specifications of the SFP module. Please contact a Cisco representative for more information.

³ Short term operating temperature specifications for the router will differ from those listed in this table when the 16-port 10-Gigabit Ethernet line card is installed in the router because of the lower temperature specifications of the SFP+ modules and that are used in this line card. When using this line card, the maximum operating temperature is 104°F (40°C).

⁴ Short-term refers to a period of not more than 96 consecutive hours and a total of no more than 15 days in 1 year. (This refers to a total of 360 hours in any given year, but no more than 15 occurrences during that 1-year period.).

⁵ The 24 port 10 Gigabit Ethernet linecard requires high temperature optics to run in the extended temperature range.

⁶ Operating altitude specifications for the router will differ from those listed in this table when the 16-port 10-Gigabit Ethernet line card is installed in the router. When using the SFP-10G-SR module, the maximum altitude is 5905 ft. (1800 m). When using the SFP-10G-LR or SFP-10G-ER modules, the maximum altitude is sea level.

⁷ G is a value of acceleration, where 1 G equals 32.17 ft./sec² (9.81 m/sec²).

⁸ Grms is the root mean square value of acceleration.

Cisco ASR 9000 Series Routers AC Electrical Specifications

Table 3: Cisco ASR 9000 Series Routers AC Electrical Specifications

Description	ASR 9010	ASR 9006	ASR 9904	ASR 9922
Power modules per system	Version 1 power system: Up to six AC power modules per system, three per tray Version 2 power system: Up to eight AC power modules per system, four per tray Version 3 power system: Up to six AC power modules per system, three per tray	Version 1 power system: Up to three AC power modules per system Version 2 power system: Up to four AC power modules per system Note The ASR 9006 chassis does not support version 3 power modules.	Version 2 power system: Up to four AC power modules per system	Version 2 power system: Up to sixteen AC power modules per system, four per tray Version 3 power system: Up to twelve AC power modules per system, three per tray
Total AC input power per power module	Version 2 power system: 3290 VA (3000 W output module)Version 3 power system: 6510 VA (6000 W output module)	Version 1 power system: 3400 VA (volt-amps) per AC power module Version 2 power system: 3290 VA (3000 W output module)	Version 2 power system: 3290 VA (3000 W output module)	Version 2 power system: 3290 VA (3000 W output module)Version 3 power system: 6510 VA (6000 W output module)
Rated input voltage per power module ²	200–240 VAC nominal (range: 180 to 264 VAC) 220–240 VAC (UK)			
Rated input line frequency ¹	50/60 Hz nominal (range: 47 to 63 Hz) 50/60 Hz (UK)			
Input current draw ¹	15 A maximum at 200 VAC 13 A maximum at 220 to 240 VRMS (UK)			
Source AC service requirement ¹	20 A North America; 16 A international; 13 A United Kingdom			

Description	ASR 9010	ASR 9006	ASR 9904	ASR 9922
Redundancy	AC power modules operate in N+N redundancy mode ¹⁰	At least two AC power modules required for N+1 redundancy for a fully configured system	At least two AC power modules required for N+1 redundancy for a fully configured system	AC power modules operate in N+N redundancy mode ²

⁹ For each AC power supply module. Some power/chassis configurations may operate at lower current ratings than those specified in this table. Contact your Cisco technical representative for more information.

¹⁰ The number of AC power modules needed depends on the configuration of the chassis (e.g. number of line cards, RPs, and FC cards installed). Use the Cisco Power Calculator (Cisco.com account required) at <http://tools.cisco.com/cpc/launch.jsp> to calculate how many AC power modules are needed.


Caution

Be sure that the chassis configuration complies with the required power budgets. Failure to properly verify the configuration may result in an unpredictable state if one of the power units fails. Contact your local sales representative for assistance.

Description	ASR 9906	ASR 9910	ASR 9912
Power modules per system	Version 3 power system: Up to three AC power modules per system	Version 3 power system: Up to six AC power modules per system, three per tray	Version 2 power system: Up to twelve AC power modules per system, four per tray Version 3 power system: Up to nine AC power modules per system, three per tray
Total AC input power per power module	Version 3 power system: 6510 VA (6000 W output module)	Version 3 power system: 6510 VA (6000 W output module)	Version 2 power system: 3290 VA (3000 W output module) Version 3 power system: 6510 VA (6000 W output module)
Rated input voltage per power module	200–240 VAC nominal (range: 180 to 264 VAC) 220–240 VAC (UK)		
Rated input line frequency	50/60 Hz nominal (range: 47 to 63 Hz) 50/60 Hz (UK)		
Input current draw	15 A maximum at 200 VAC 13 A maximum at 220 to 240 VRMS (UK)		
Source AC service requirement	20 A North America; 16 A international; 13 A United Kingdom		

Description	ASR 9906	ASR 9910	ASR 9912
Redundancy	At least two AC power modules required for N+1 redundancy for a fully configured system	AC power modules operate in N+N redundancy mode ¹¹	

¹¹ The number of AC power modules needed depends on the configuration of the chassis (e.g. number of line cards, RPs, and FC cards installed). Use the Cisco Power Calculator (Cisco.com account required) at <http://tools.cisco.com/cpc/launch.jsp> to calculate how many AC power modules are needed.

Cisco ASR 9000 Series Routers DC Electrical Specifications

Table 4: Cisco ASR 9000 Series Routers DC Electrical Specifications

Description	ASR 9010	ASR 9006	ASR 9904	ASR 9922
Power modules per system	Version 1 power system: Up to six DC power module per system, three per tray Version 2 power system: Up to eight DC power modules per system, four per tray Version 3 power system: Up to eight DC power modules per system, four per tray	Version 1 power system: Up to three DC power modules per system Version 2 power system: Up to four DC power modules per system	Version 2 power system: Up to four DC power modules per system	Version 2 power system: Up to sixteen DC power modules per system, four per tray Version 3 power system: Up to sixteen DC power modules per system, four per tray
Total DC input power per power module	Version 1 power system: 1700 W (1500 W output module) Version 2 power system: 2340 W (2100 W output module) Version 3 power system: 4730 W (4400 W output module)	Version 1 power system: 1700 W (1500 W output module) Version 2 power system: 2300 W (2100 W output module)	Version 2 power system: 2300 W (2100 W output module)	Version 2 power system: 2340 W (2100 W output module) Version 3 power system: 4730 W (4400 W output module)
Rated input voltage per power module	–48 VDC nominal in North America –60 VDC nominal in the European Community (Range: –40.5 to –72 VDC [–75 VDC for 5 ms])			
Rated input current draw	49 A maximum at –48 VDC nominal 39 A maximum at –60 VDC nominal			
Source DC service requirement ¹²	Sufficient to supply the rated input current. Local codes apply.			

Description	ASR 9010	ASR 9006	ASR 9904	ASR 9922
Redundancy	DC power modules operate in N+1 redundancy mode ¹³	At least two DC power modules are required for N+1 redundancy for a fully configured system	At least two DC power modules are required for N+1 redundancy for a fully configured system	DC power modules operate in N+1 redundancy mode2

¹² For each DC power supply module. Some power/chassis configurations may operate at lower current ratings than those specified in this table. Contact your Cisco technical representative for more information.

¹³ The number of DC power modules needed depends on the configuration of the chassis (e.g. number of line cards, RPs, and FC cards installed). Use the Cisco Power Calculator (Cisco.com account required) at <http://tools.cisco.com/cpc/launch.jsp> to calculate how many AC power modules are needed.

Description	ASR 9906	ASR 9910	ASR 9912
Power modules per system	Version 3 power system: Up to four DC power modules per system	Version 3 power system: Up to eight DC power modules per system, four per tray	Version 2 power system: Up to twelve DC power modules per system, four per tray Version 3 power system: Up to twelve DC power modules per system, four per tray
Total DC input power per power module	Version 3 power system: 4730 W (4400 W output module)	Version 3 power system: 4730 W (4400 W output module)	Version 2 power system: 2340 W (2100 W output module) Version 3 power system: 4730 W (4400 W output module)
Rated input voltage per power module	–48 VDC nominal in North America –60 VDC nominal in the European Community (Range: –40.5 to –72 VDC [–75 VDC for 5 ms])		
Rated input current draw	49 A maximum at –48 VDC nominal 39 A maximum at –60 VDC nominal		
Source DC service requirement ¹⁴	Sufficient to supply the rated input current. Local codes apply.		
Redundancy	DC power modules operate in N+1 redundancy mode	DC power modules operate in N+3 redundancy mode ¹⁵	DC power modules operate in N+1 redundancy mode2

¹⁴ For each DC power supply module. Some power/chassis configurations may operate at lower current ratings than those specified in this table. Contact your Cisco technical representative for more information

¹⁵ The number of DC power modules needed depends on the configuration of the chassis (e.g. number of line cards, RPs, and FC cards installed). Use the Cisco Power Calculator (Cisco.com account required) at <http://tools.cisco.com/cpc/launch.jsp> to calculate how many AC power modules are needed

**Caution**

While performing a FPD upgrade of the ASR 9000 6kW AC Power Module Version 3 (PWR-6KW-AC-V3) and the ASR 9000 4.4kW DC Power Module Version 3 (PWR-4.4KW-DC-V3), ensure that you connect both input power cords to the power supply. If the power cords are not connected, the FPD upgrade for the power module will fail.

AC Input and DC Input Voltage Range

AC Input Voltage Range

Table 5: AC Input Voltage Range (Single-Phase Power Source)

Range	Minimum	Minimum Nominal	Nominal	Maximum Nominal	Maximum
Input Voltage	180 VAC	200 VAC	220 VAC	240 VAC	264 VAC
Line Frequency	47 Hz	50 Hz	50/60 Hz	60 Hz	63 Hz

DC Input Voltage Range

Table 6: DC Input Voltage Range

Range	Minimum	Nominal	Maximum
Input Voltage	−40 VDC	−48 VDC	−72 VDC

Power System DC Output Levels

DC Output Levels for Version 1 Power System

Table 7: DC Output Levels for Version 1 Power System

Parameter	Value
Voltage	
Maximum	−54.5 VDC
Nominal	−54.0 VDC

Parameter	Value
Minimum	–53.5 VDC
Power	
Minimum (one power module)	1500 W
Maximum (three 2100 W power modules per tray x two trays)	12,600 W (Cisco ASR 9010 Router only) ¹⁶
Maximum (three 2100 W power modules in a single tray)	6300 W (Cisco ASR 9006 Router only)

¹⁶ Maximum output power the power system is capable of supporting (not system power consumption).

DC Output Levels for Version 2 Power System

Table 8: DC Output Levels for Version 2 Power System

Parameter	Value
Voltage	
Maximum	–55.5 VDC
Nominal	–54.0 VDC
Minimum	–52.5 VDC
Power	
Minimum (one power module)	2100 W
Maximum (four 2100 W DC power modules or 3000 W AC power modules in a single tray) ¹⁷	8400 W (DC) 12,000 W (AC) Cisco ASR 9006 Router and Cisco ASR 9904 Router
Maximum (four 2100 W DC power modules or 3000 W AC power modules per tray x two trays)	16,800 W (DC) 24,000 W (AC) (Cisco ASR 9010 Router only)
Maximum (four 2100 W DC power modules or 3000 W AC power modules per tray x four trays)	33,600 W (DC) 48,000 W (AC) (Cisco ASR 9922 Router only)

¹⁷ Maximum output power the power system is capable of supporting (not system power consumption).

DC Output Levels for Version 3 Power System

Table 9: DC Output Levels for Version 3 Power System

Parameter	Value
Voltage	

Parameter	Value
Maximum	–55.5 VDC
Nominal	–54.0 VDC
Minimum	–52.5 VDC
Power	
Minimum (one power module)	4400 W
Maximum (four 4400 W DC power modules or three 6000 W AC power modules per single tray) ¹⁸	17,600 W (DC) 18,000 W (AC) (Cisco ASR 9906 Router only)
Maximum (four 4400 W DC power modules or three 6000 W AC power modules per tray x two trays) ¹⁹	35,200 W (DC) 36,000 W (AC) (Cisco ASR 9010 Router only)
Maximum (four 4400 W power modules or three 6000 W AC power modules per tray x three trays)	52,800 W (DC) 54,000 W (AC) (Cisco ASR 9912 Router only)
Maximum (four 4400 W power modules or three 6000 W AC power modules per tray x four trays)	70,400 W (DC) 72,000 W (AC) (Cisco ASR 9922 Router only)

¹⁸ Maximum output power the power system is capable of supporting (not system power consumption).

¹⁹ Maximum output power the power system is capable of supporting (not system power consumption).

RSP/RP Port Specifications

Table 10: RSP/RP Port Specifications

Description	Value
Console port	EIA/TIA-232 RJ-45 interface. The default port speeds are: <ul style="list-style-type: none"> • 115200 Baud, 8 data, no parity, 2 stop bits with flow control none for the RP2 card on the Cisco ASR 9922 Router and the Cisco ASR 9912 Router • 9600 Baud, 8 data, no parity, 2 stop bits with flow control none for all other RSP/RP cards
Auxiliary port	EIA/TIA-232 RJ-45 interface, 9600 Baud, 8 data, no parity, 1 stop bit with software handshake (default)
Management ports (0, 1)	Dual-speed (100M/1000M) RJ-45
Sync ports (0, 1)	Can be configured as one of the following: <ul style="list-style-type: none"> • BITS (Building Integrated Timing System) port • J.211 or UTI (Universal Timing Interface) port

RSP, RP, FC Power Consumption Specifications

The following table lists the power consumption specifications for the RSP cards, RP cards, and fabric cards (FCs). For power consumption values for the Ethernet line cards, see the [Cisco ASR 9000 Series Aggregation Services Router Ethernet Line Card Installation Guide](#).



Caution Be sure that the chassis configuration complies with the required power budgets. Failure to properly verify the configuration may result in an unpredictable state if one of the power units fails.

Table 11: RSP Cards, RP Cards, Fabric Cards Power Consumption Specifications

Card	Power Consumption
RSP Card	175 W at 77°F (25°C) 205 W at 104°F (40°C) 235 W at 131°F (55°C)
RSP-440 Card	285 W at 77°F (25°C) 350 W at 104°F (40°C) 370 W at 131°F (55°C)
RSP-440 Lite Card	240 W at 77°F (25°C) 270 W at 104°F (40°C) 300 W at 131°F (55°C)
RSP-880 Card	425 W at 81°F (27°C) 430 W at 104°F (40°C) 450 W at 131°F (55°C)
RSP880-LT Card	285 W at 81°F (27°C) 295 W at 104°F (40°C) 315 W at 131°F (55°C)
RSP4-S Card (ASR 9910)	310 W at 81°F (27°C) 310 W at 104°F (40°C) 370 W at 131°F (55°C)
RSP5 Card	470 W at 81°F (27°C) 480 W at 104°F (40°C) 490 W at 131°F (55°C)

Card	Power Consumption
RP Card	227 W at 77°F (25°C) 251 W at 104°F (40°C) 259 W at 131°F (55°C)
RP2 Card	390 at 81°F (27°C) 400 at 104°F (40°C) 410 at 131°F (55°C)
RP3 Card	260 W at 81°F (27°C) 275 W at 104°F (40°C) 285 W at 131°F (55°C)
FC Card (ASR 9922)	135 W at 77°F (25°C) 147 W at 104°F (40°C) 160 W at 131°F (55°C)
FC2 Card (ASR 9922)	155 W at 81°F (27°C) 160 at 104°F (40°C) 165 at 131°F (55°C)
A99-SFC3 Card (ASR 9922)	320 W at 81°F (27°C) 330 at 104°F (40°C) 340 at 131°F (55°C)
FC Card (ASR 9912)	80 W at 77°F (25°C) 82 W at 104°F (40°C) 88 W at 131°F (55°C)
FC2 Card (ASR 9912)	94 W at 81°F (27°C) 103 W at 104°F (40°C) 105 W at 131°F (55°C)
A99-SFC3 Card (ASR 9912)	165 W at 81°F (27°C) 175 W at 104°F (40°C) 185 W at 131°F (55°C)
SFC-T Card (ASR 9906)	75 W at 81°F (27°C) 75 W at 104°F (40°C) 85 W at 131°F (55°C)

Card	Power Consumption
A99-SFC3-S Card	150 W at 81°F (27°C) 160 W at 104°F (40°C) 170 W at 131°F (55°C)
A99-SFC3-T Card	105 W at 81°F (27°C) 108 W at 104°F (40°C) 110 W at 131°F (55°C)

Fan Tray Power Consumption Specifications



Note The fan tray power consumption numbers reflect the power budget for a single fan tray

Table 12: Fan Tray Power Consumption Specifications

Description	Power Consumption
ASR 9010 Fan Tray V1	200 W at 77°F (25°C) 300 W at 104°F (40°C) 600 W at 131°F (55°C)
ASR 9010 Fan Tray V2	240 W at 77°F (25°C) 960 W at 104°F (40°C) 1100 W at 131°F (55°C)
ASR 9006 Fan Tray V2	100 W at 77°F (25°C) 275 W at 104°F (40°C) 375 W at 131°F (55°C)
ASR 9904 Fan Tray V2	100 W at 77°F (25°C) 360 W at 104°F (40°C) 605 W at 131°F (55°C)
ASR 9922 Fan Tray V2	200 W at 77°F (25°C) 870 W at 104°F (40°C) 1000 W at 131°F (55°C)

Description	Power Consumption
ASR 9922 Fan Tray V3	500 W at 77°F (25°C) 1200 W at 104°F (40°C) 2800 W at 131°F (55°C)
ASR 9912 Fan Tray V2	290 W at 77°F (25°C) 900 W at 104°F (40°C) 1800 W at 131°F (55°C)
ASR 9910 Fan Tray	450 W at 77°F (25°C) 900 W at 104°F (40°C) 3000 W at 131°F (55°C)
ASR 9906 Fan Tray	50 W at 77°F (25°C) 300 W at 104°F (40°C) 750 W at 131°F (55°C)