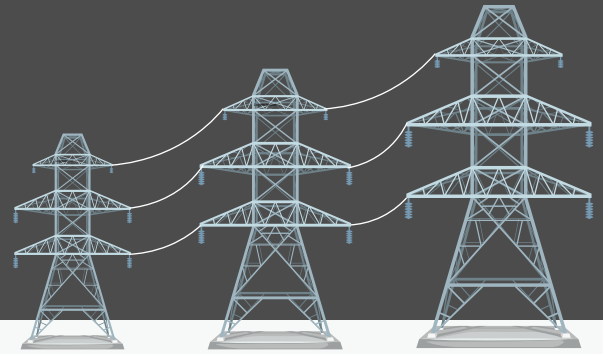


# VOLTAGES AND FREQUENCIES BY COUNTRY



The variations around the world in the standards for electricity voltage and frequency find their origins in the days of Tesla and Edison in the late 1800s. With that kind of history behind it, it shouldn't be surprising that these differences are by now ingrained and not likely to go away anytime soon. And that could be a problem if you ever find yourself abroad in need of a power charge.

Below you'll find listings for the standards of dozens of countries around the world as it concerns:

- single-phase voltage (e.g. in homes and hotels)
- three-phase voltage (heavy-duty/industrial settings)
- frequency (in Hertz)
- the number of wires for each given voltage (not including ground)\*
- plug type (aka the type of converter needed to use an outlet in a given country)\*

For example, **the U.S. and Canada standards are 60Hz and 120 / 240V single-phase in homes and 277 / 480V three-phase in commercial or industrial buildings with large loads.** However, most countries use 50Hz, such as Australia, China, and Germany.

\*Note that the number of wires and plugs shown in the chart are only a general reference, as these may change over time from country to country.

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Abu Dhabi	230 V	400 V	50 Hz	3, 4	G
Afghanistan	220 V	380 V	50 Hz	4	C/F
Albania	230 V	400 V	50 Hz	4	C/F
Algeria	230 V	400 V	50 Hz	4	C/F
American Samoa	120 V	208 V	60 Hz	3, 4	A/B/F/I
Andorra	230 V	400 V	50 Hz	3, 4	C/F
Angola	220 V	380 V	50 Hz	4	C/F
Anguilla	110 V	120/208 V / 127/220 V / 240/415 V	60 Hz	3, 4	A/B
Antigua and Barbuda	230 V	400 V	60 Hz	3, 4	A/B
Argentina	220 V	380 V	50 Hz	3, 4	C/I

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Armenia	230 V	400 V	50 Hz	4	C/F
Aruba	120 V	220 V	60 Hz	3, 4	A/B/F/I
Australia	230 V	400 V	50 Hz	3, 4	I
Austria	230 V	400 V	50 Hz	3, 4	C/F
Azerbaijan	220 V	380 V	50 Hz	4	C/F
Azores	230 V	400 V	50 Hz	3, 4	B/C/F
Bahamas	120 V	208 V	60 Hz	3, 4	A/B
Bahrain	230 V	400 V	50 Hz	3, 4	G
Balearic Islands	230 V	400 V	50 Hz	3, 4	C/F
Bangladesh	220 V	380 V	50 Hz	3, 4	A/C/D/G/K
Barbados	115 V	200 V	50 Hz	3, 4	A/B
Belarus	220 V	380 V	50 Hz	4	C/F
Belgium	230 V	400 V	50 Hz	3, 4	C/E
Belize	110 V / 220 V	190 V / 380 V	60 Hz	3, 4	A/B/G
Benin	220 V	380 V	50 Hz	4	C/E
Bermuda	120 V	208 V	60 Hz	3, 4	A/B
Bhutan	230 V	400 V	50 Hz	4	C/D/G
Bolivia	230 V	400 V	50 Hz	4	A/C
Bonaire	127 V	220 V	50 Hz	3, 4	A/C
Bosnia & Herzegovina	230 V	400 V	50 Hz	4	C/F
Botswana	230 V	400 V	50 Hz	4	D/G
Brazil	127 V / 220 V	220 V / 380 V	60 Hz	3, 4	C/N
British Virgin Islands	110 V	190 V	60 Hz	3, 4	A/B
Brunei	240 V	415 V	50 Hz	4	G
Bulgaria	230 V	400 V	50 Hz	4	C/F
Burkina Faso	220 V	380 V	50 Hz	4	C/E
Burma (officially Myanmar)	230 V	400 V	50 Hz	4	A/C/D/G/I
Burundi	220 V	380 V	50 Hz	4	C/E
Cambodia	230 V	400 V	50 Hz	4	A/C/G
Cameroon	220 V	380 V	50 Hz	4	C/E

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Canada	120 V	120/208 V / 240 V / 480 V / 347/600 V	60 Hz	3, 4	A/B
Canary Islands	230 V	400 V	50 Hz	3, 4	C/E/F
Cape Verde	230 V	400 V	50 Hz	3, 4	C/F
Cayman Islands	120 V	240 V	60 Hz	3	A/B
Central African Republic	220 V	380 V	50 Hz	4	C/E
Chad	220 V	380 V	50 Hz	4	C/D/E/F
Channel Islands (Guernsey & Jersey)	230 V	415 V	50 Hz	4	C/G
Chile	220 V	380 V	50 Hz	3, 4	C/L
China	220 V	380 V	50 Hz	3, 4	A/C/I
Colombia	110 V	220 V / 440 V	60 Hz	3, 4	A/B
Comoros	220 V	380 V	50 Hz	4	C/E
Congo, Democratic Republic of	220 V	380 V	50 Hz	3, 4	C/D/E
Congo, People's Republic of	230 V	400 V	50 Hz	3, 4	C/E
Cook Islands	240 V	415 V	50 Hz	3, 4	I
Costa Rica	120 V	240 V	60 Hz	3, 4	A/B
Croatia	230 V	400 V	50 Hz	4	C/E
Cuba	110 V / 220 V	190 V	60 Hz	3	A/B/C/L
Curaçao	127 V	220 V / 380 V	50 Hz	3, 4	A/B
Cyprus	230 V	400 V	50 Hz	4	G
Czech Republic	230 V	400 V	50 Hz	3, 4	C/E
Côte d'Ivoire (Ivory Coast)	220 V	380 V	50 Hz	3, 4	C/E
Denmark	230 V	400 V	50 Hz	3, 4	C/E/F/K
Djibouti	220 V	380 V	50 Hz	4	C/E
Dominica	230 V	400 V	50 Hz	4	D/G
Dominican Republic	120 V	120/208 V/277/480 V	60 Hz	3, 4	A/B
Dubai	230 V	400 V	50 Hz	3, 4	G
East Timor (Timor-Leste)	220 V	380 V	50 Hz	4	C/E/F/I

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Ecuador	120 V	208 V	60 Hz	3, 4	A/B
Egypt	220 V	380 V	50 Hz	3, 4	C/F
El Salvador	120 V	200 V	60 Hz	3	A/B
England	230 V	415 V	50 Hz	4	G
Equatorial Guinea	220 V	[unavailable]	[unavailable]	[unavailable]	C/E
Eritrea	230 V	400 V	50 Hz	4	C/L
Estonia	230 V	400 V	50 Hz	4	C/F
Ethiopia	220 V	380 V	50 Hz	4	C/F
Faeroe Islands	230 V	400 V	50 Hz	3, 4	C/E/F/K
Falkland Islands	240 V	415 V	50 Hz	4	G
Fiji	240 V	415 V	50 Hz	3, 4	I
Finland	230 V	400 V	50 Hz	3, 4	C/F
France	230 V	400 V	50 Hz	4	C/E
French Guiana	220 V	380 V	50 Hz	3, 4	C/D/E
Gabon (Gabonese Republic)	220 V	380 V	50 Hz	4	C
Gambia	230 V	400 V	50 Hz	4	G
Gaza	230 V	400 V	50 Hz	4	C/H
Georgia	220 V	380 V	50 Hz	4	C/F
Germany	230 V	400 V	50 Hz	4	C/F
Ghana	230 V	400 V	50 Hz	3, 4	D/G
Gibraltar	230 V	400 V	50 Hz	4	G
Great Britain (GB)	230 V	415 V	50 Hz	4	G
Greece	230 V	400 V	50 Hz	4	C/F
Greenland	230 V	400 V	50 Hz	3, 4	C/E/F/K
Grenada	230 V	400 V	50 Hz	4	G
Guadeloupe	230 V	400 V	50 Hz	3, 4	C/E
Guam	110 V	190 V	60 Hz	3, 4	A/B
Guatemala	120 V	208 V	60 Hz	3, 4	A/B
Guinea	220 V	380 V	50 Hz	3, 4	C/F/K
Guinea-Bissau	220 V	380 V	50 Hz	3, 4	C

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Guyana	120 V / 240 V	190 V	60 Hz	3, 4	A/B/D/G
Haiti	110 V	190 V	60 Hz	3, 4	A/B
Holland (officially the Netherlands)	230 V	400 V	50 Hz	3, 4	C/F
Honduras	120 V	208 V / 230 V / 240 V / 460 V / 480 V	60 Hz	3, 4	A/B
Hong Kong	220 V	380 V	50 Hz	3, 4	G
Hungary	230 V	400 V	50 Hz	3, 4	C/F
Iceland	230 V	400 V	50 Hz	3, 4	C/F
India	230 V	400 V	50 Hz	4	C/D/M
Indonesia	230 V	400 V	50 Hz	4	C/F
Iran	230 V	400 V	50 Hz	3, 4	C/F
Iraq	230 V	400 V	50 Hz	4	C/D/G
Ireland (Eire)	230 V	415 V	50 Hz	4	G
Ireland, Northern	230 V	415 V	50 Hz	4	G
Isle of Man	230 V	415 V	50 Hz	4	C/G
Israel	230 V	400 V	50 Hz	4	C/H
Italy	230 V	400 V	50 Hz	4	C/F/L
Jamaica	110 V	190 V	50 Hz	3, 4	A/B
Japan	100 V	200 V	50 / 60 Hz	3	A/B
Jordan	230 V	400 V	50 Hz	3, 4	C/D/F/G/J
Kazakhstan	220 V	380 V	50 Hz	3, 4	C/F
Kenya	240 V	415 V	50 Hz	4	G
Kiribati	240 V	[unavailable]	[unavailable]	[unavailable]	I
Korea, North	220 V	380 V	50 Hz	3, 4	C
Korea, South	220 V	380 V	60 Hz	4	C/F
Kosovo	230 V	230 V / 400 V	50 Hz	3	C/F
Kuwait	240 V	415 V	50 Hz	4	G
Kyrgyzstan	220 V	380 V	50 Hz	3, 4	C/F
Laos	230 V	400 V	50 Hz	4	A/B/C/E/F
Latvia	230 V	400 V	50 Hz	4	C/F

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Lebanon	230 V	400 V	50 Hz	4	C/D/G
Lesotho	220 V	380 V	50 Hz	4	M
Liberia	120 V	208 V	60 Hz	3, 4	A/B
Libya	230 V	400 V	50 Hz	4	C/L
Liechtenstein	230 V	400 V	50 Hz	4	C/J
Lithuania	230 V	400 V	50 Hz	4	C/F
Luxembourg	230 V	400 V	50 Hz	4	C/F
Macau	220 V	380 V	50 Hz	3	G
Macedonia	230 V	400 V	50 Hz	4	C/F
Madagascar	220 V	380 V	50 Hz	3, 4	C/E
Madeira	230 V	400 V	50 Hz	3, 4	C/F
Malawi	230 V	400 V	50 Hz	3, 4	G
Malaysia	240 V	415 V	50 Hz	4	G
Maldives	230 V	400 V	50 Hz	4	C/D/G/J/K/L
Mali	220 V	380 V	50 Hz	3, 4	C/E
Malta	230 V	400 V	50 Hz	4	G
Marshall Islands	120 V	[unavailable]	[unavailable]	[unavailable]	A/B
Martinique	220 V	380 V	50 Hz	3, 4	C/D/E
Mauritania	220 V	220 V	50 Hz	3, 4	C
Mauritius	230 V	400 V	50 Hz	4	C/G
Mayotte	230 V	[unavailable]	[unavailable]	[unavailable]	C/E
Mexico	127 V	220 V / 480 V	60 Hz	3, 4	A/B
Micronesia, Federated States of	120 V	[unavailable]	[unavailable]	[unavailable]	A/B
Moldova	230 V	400 V	50 Hz	4	C/F
Monaco	230 V	400 V	50 Hz	4	C/E/F
Mongolia	230 V	400 V	50 Hz	4	C/E
Montenegro	230 V	400 V	50 Hz	3, 4	C/F
Montserrat	230 V	400 V	60 Hz	4	A/B
Morocco	220 V	380 V	50 Hz	4	C/E
Mozambique	220 V	380 V	50 Hz	4	C/F/M

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Myanmar (formerly Burma)	230 V	400 V	50 Hz	4	A/C/D/G/I
Namibia	220 V	380 V	50 Hz	4	D/M
Nauru	240 V	415 V	50 Hz	4	I
Nepal	230 V	400 V	50 Hz	4	C/D/M
Netherlands	230 V	400 V	50 Hz	3, 4	C/F
New Caledonia	220 V	380 V	50 Hz	3, 4	C/F
New Zealand	230 V	400 V	50 Hz	3, 4	I
Nicaragua	120 V	208 V	60 Hz	3, 4	A/B
Niger	220 V	380 V	50 Hz	4	C/D/E/F
Nigeria	230 V	415 V	50 Hz	4	D/G
North Korea	220 V	380 V	50 Hz	3, 4	C
Northern Ireland	230 V	415 V	50 Hz	4	G
Norway	230 V	230 V / 400 V	50 Hz	3, 4	C/F
Oman	240 V	415 V	50 Hz	4	G
Pakistan	230 V	400 V	50 Hz	3	C/D
Palau	120 V	208 V	60 Hz	3	A/B
Panama	120 V	240 V	60 Hz	3	A/B
Papua New Guinea	240 V	415 V	50 Hz	4	I
Paraguay	220 V	380 V	50 Hz	4	C
Peru	220 V	220 V	60 Hz	3	A/C
Philippines	220 V	380 V	60 Hz	3	A/B/C
Pitcairn Islands	230 V	[unavailable]	[unavailable]	[unavailable]	I
Poland	230 V	400 V	50 Hz	4	C/E
Portugal	230 V	400 V	50 Hz	3, 4	C/F
Puerto Rico	120 V	480 V	60 Hz	3, 4	A/B
Qatar	240 V	415 V	50 Hz	3, 4	G
Romania	230 V	400 V	50 Hz	4	C/F
Russia (officially the Russian Federation)	220 V	380 V	50 Hz	4	C/F
Rwanda	230 V	400 V	50 Hz	4	C/J

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Réunion	230 V	400 V	50 Hz	4	C/E
Saba	110 V	[unavailable]	[unavailable]	[unavailable]	A/B
Saint Barthélemy (informally also referred to as Saint Barth's or Saint Barts)	230 V	[unavailable]	[unavailable]	[unavailable]	C/E
Saint Helena	230 V	[unavailable]	[unavailable]	[unavailable]	G
Saint Kitts and Nevis (officially the Federation of Saint Christopher and Nevis)	230 V	400 V	60 Hz	4	D/G
Saint Lucia	230 V	400 V	50 Hz	4	G
Saint Martin	220 V	[unavailable]	[unavailable]	[unavailable]	C/E
Saint Vincent and the Grenadines	110 V / 230 V	400 V	50 Hz	4	A/B/G
Samoa	230 V	400 V	50 Hz	3, 4	I
San Marino	230 V	400 V	50 Hz	4	C/F/L
Saudi Arabia	230 V	400 V	60 Hz	4	G
Scotland	230 V	415 V	50 Hz	4	G
Senegal	230 V	400 V	50 Hz	3, 4	C/D/E/K
Serbia	230 V	400 V	50 Hz	3, 4	C/F
Seychelles	240 V	240 V	50 Hz	3	G
Sierra Leone	230 V	400 V	50 Hz	4	D/G
Singapore	230 V	400 V	50 Hz	4	G
Sint Eustatius	110 V / 220 V	220 V	60 Hz	3, 4	A/B/C/F
Sint Maarten	110 V	220 V	60 Hz	3, 4	A/B
Slovakia	230 V	400 V	50 Hz	4	C/E
Slovenia	230 V	400 V	50 Hz	3, 4	C/F
Solomon Islands	230 V	[unavailable]	[unavailable]	[unavailable]	G/I
Somalia	220 V	380 V	50 Hz	3, 4	C
Somaliland	220 V	380 V	50 Hz	3, 4	C
South Africa	230 V	400 V	50 Hz	3, 4	C/D/M/N
South Korea	220 V	380 V	60 Hz	4	C/F
South Sudan	230 V	400 V	50 Hz	4	C/D
Spain	230 V	400 V	50 Hz	3, 4	C/F

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Sri Lanka	230 V	400 V	50 Hz	4	D/G
Sudan	230 V	400 V	50 Hz	4	C/D
Suriname	127 V / 230 V	220 V / 400 V	60 Hz	3, 4	A/B/C/F
Swaziland	230 V	400 V	50 Hz	4	M
Sweden	230 V	400 V	50 Hz	3, 4	C/F
Switzerland	230 V	400 V	50 Hz	3, 4	C/J
Syria	220 V	380 V	50 Hz	3	C/E/L
São Tomé and Príncipe	230 V	400 V	50 Hz	3, 4	C/F
Tahiti	220 V	380 V	50 / 60 Hz	3, 4	C/E
Taiwan	110 V	220 V	60 Hz	4	A/B
Tajikistan	220 V	380 V	50 Hz	3	C/F
Tanzania	230 V	415 V	50 Hz	3, 4	D/G
Thailand	230 V	400 V	50 Hz	3, 4	A/B/C/O
Togo	220 V	380 V	50 Hz	4	C
Tonga	240 V	415 V	50 Hz	3, 4	I
Trinidad & Tobago	115 V	115/230 V / 230/400 V	60 Hz	4	A/B
Tunisia	230 V	400 V	50 Hz	4	C/E
Turkey	230 V	400 V	50 Hz	3, 4	C/F
Turkmenistan	220 V	380 V	50 Hz	3	C/F
Turks and Caicos Islands	120 V	240 V	60 Hz	4	A/B
Uganda	240 V	415 V	50 Hz	4	G
Ukraine	230 V	400 V	50 Hz	4	C/F
United Arab Emirates (UAE)	230 V	400 V	50 Hz	3, 4	G
United Kingdom (UK)	230 V	415 V	50 Hz	4	G
United States of America (USA)	120 V	120/208 V / 277/480 V / 120/240 V / 240 V / 480 V	60 Hz	3, 4	A/B
United States Virgin Islands	110 V	190 V	60 Hz	3, 4	A/B

Country	Single-Phase Voltage (Volts)	Three-Phase Voltage (Volts)	Frequency (Hertz)	Number of Wires (not including ground wire)	Plug Type
Uruguay	220 V	380 V	50 Hz	3	C/F/L
Uzbekistan	220 V	380 V	50 Hz	4	C/F
Vanuatu	230 V	400 V	50 Hz	3, 4	I
Venezuela	120 V	120 V	60 Hz	3, 4	A/B
Vietnam	220 V	380 V	50 Hz	4	A/C/D
Virgin Islands (British)	110 V	190 V	60 Hz	3, 4	A/B
Virgin Islands (USA)	110 V	190 V	60 Hz	3, 4	A/B
Wales	230 V	415 V	50 Hz	4	G
Yemen	230 V	400 V	50 Hz	4	A/D/G
Zambia	230 V	400 V	50 Hz	4	C/D/G
Zimbabwe	240 V	415 V	50 Hz	3, 4	D/G