



International Mains Voltages

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The international low voltages used in industry, business and domestically. Listed in continents and countries.

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The following listing of common low voltages and frequencies used worldwide is designed to provide the export orientated machine-building manufacturer with a survey of common voltages and frequencies. It is intended to encourage manufacturers to inquire about mains conditions and critically check the correctness of any given information.

The listing was made out to the best of our knowledge and with the support of the worldwide SEW organization. Nevertheless, we do not lay claim to completeness and correctness of all particulars.

Please inform us if you have additional information available. We appreciate your assistance.

Explanatory notes on voltages:

- single voltages: in the common three-phase three-wire system
- two voltage system (factor $\sqrt{3}$):
- three-phase four-wire system

- two-voltage system (factor $\sqrt{2}$):
one-phase three-wire system with neutral conductor

In various countries (e.g. USA) distinctions are made between line (mains) voltage and load voltage. In these cases we provide the load voltage.

Example: Instead of 480 V line voltage, 460 V load voltage is listed.

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		3 wire	4 wire	
Algeria	127; 220		127/220; 220/380	50
Angola	220		220/380	50
Benin	220		220/380	50
Cameroon	127; 220		127/220; 220/380	50
Congo	220		220/380	50
Egypt	110; 220	110/220	220/380	50
Ethiopia	220		220/380	50
Gabon	220		220/380	50
Ghana	127; 220		127/220; 220/380	50
Guinea	220		220/380	50
Ivory Coast	220		220/380	50
Kenya	240		240/415	50
Liberia	115; 200; 230		115/220; 115/230	60
Libya	127; 220		127/220; 220/380	50
Madagascar	127; 220		127/220; 220/380	50
Malawi	220		220/380	50
Mali	220		220/380	50
Marocco	115; 200; 127; 220	500	115/200; 127/220; 220/380	50
Mauritius	220		220/380	50
Mozambique	220		220/380	50
Namibia	220		220/380	50
Niger	220		220/380	50
Nigeria	240		240/415	50
Ruanda	220		220/380	50
Senegal	127; 220		127/220; 220/380	50
Sierra Leone	220		220/380	50
Somalia	220	220/440		50
South African Rep.	220	500	220/380; 550/950	50
Sudan	240		240/415	50
Swaziland	220		220/380	50
Tanzania	230		230/400	50
Togo	127; 220		127/220; 220/380	50
Tunisia	115; 220		115/200; 220/380	50
Zaire	220		220/380	50
Zambia	220; 240	550	220/380; 240/415	50
Zimbabwe	220		220/380	50

America

North America

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		3 wire	4 wire	
Canada	110; 115; 200; 230	110/220; 230; 460; 575	115/200; 115/230; 330/575	60
USA	115; 200; 230; 277	115/230; 230; 460; 575	115/200; 115/230; 266/460	60

Central America

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		3 wire	4 wire	
Bahamas	115; 200		115/200	60
Barbados	115; 200		115/200	50
Belize	110; 220	110/220; 220/440		60
Costa Rica	115; 127; 220; 230; 254; 277		115/200; 115/230; 127/220; 254/440; 266/460	60
Cuba	115; 220; 230; 277;	440	115/230; 220/380; 266/460	60
Dominican Republic	115; 200; 230	460	115/200; 115/230	60
Guatemala	115; 127; 200; 220; 230; 277	460; 550	115/200; 115/230; 127/220; 266/460	60
Haiti	220		220/380	50
	110; 220	110/220		60
Honduras	110; 127; 220; 277	110/220	127/220; 266/460	60
Jamaica	110; 220	110/220; 440		50
Mexico	110; 127; 220	110/220; 440	127/220	60
Nicaragua	110; 115; 127; 220; 230; 254	110/220; 220/440	115/230; 127/220; 254/440	60
Panama	115; 254, 277		115/220; 115/230; 254/440; 266/460	60
Puerto Rico	115; 230		115/230	60
El Salvador	110; 115; 127; 200; 220; 230	110/220; 220/440; 230/460	115/220; 127/220; 254/440	60
Trinidad	110; 115; 220; 230	110/220	115/230; 230/400	60

South America

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		3 wire	4 wire	
Argentina	220		220/380	50
Bolivia	110; 220	110/220	220/380	50
	220		220/380	60
Brazil	110; 127; 220	110/220; 220/440	127/220; 220/380	60
Chile	220		380/660	50
Columbia	110; 150; 220; 254	110/220; 440	150/260; 220/380; 254/440	60
Ecuador	110; 115; 127; 200; 220	110/220	115/200; 127/220; 220/380	60
Fr. Guiana	110; 220;	110/220	220/380	50
	110; 220; 230	110/220; 230/460		60
Paraguay	110; 220	110/220; 220/440	220/380	50
Peru	110; 220	110/220; 440	220/380	60
Surinam	110; 115; 127; 220	110/220	115/230; 127/220; 220/380	60
Uruguay	110; 220	110/220	220/380	50
Venezuela	115; 200; 220; 230	220/440; 230/460	115/220	60

Australia / New Zealand

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		3 wire	4 wire	
Australia	240		240/415	50
New Zealand	230; 240		230/400; 240/415	50

Asia

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		Three-phase		
		3 wire	4 wire	
Afghanistan	220		220/380	50
Bahrain	230		230/400	50
	110			60
Bangladesh	230; 240		230/400; 240/415	50
Burma	230; 240		230/400; 240/415	50
Cambodia	115; 200; 220		115/200; 220/380	50
Hong Kong	200; 220		200/346; 220/380	50
India	240		240/415	50
Indonesia	220		220/380	50
Iran	220		220/380	50
Iraq	220		220/380	50
Israel	220		220/380	50
Japan (North) ¹⁾	100; 200	100/200; 400		50
Japan (South) ²⁾	110; 200; 220	110/220; 400; 440		60
Jordan	220		220/380	50
Korea (North)	220		220/380	60
Korea (South)	100; 200; 220	100/200; 440	220/380	60
Kuwait	240		240/415	50
Lebanon	110; 190; 220		110/190; 220/380	50
Malaysia	240		240/415	50
Mongolia	220		220/380	50
Oman	220; 240		220/380; 240/415	50
Pakistan	240		240/415	50
Philippines	110; 220	110/220; 220/440; 440		60
PR China	220		220/380	50
Saudi Arabia	220; 240		220/380; 240/415	50
	127; 220	460	127/220; 220/380	60
Singapore	240		240/415	50
Sri Lanka	240		240/415	50
Syria	115; 200; 220	400	115/200; 220/380	50
Taiwan	110; 220	110/220; 440; 460	220/380	60
Thailand	220		220/380	50
Turkey	110; 190; 220		110/190; 220/380	50
United Arab Emirates	220; 240		220/380; 240/415	50
Vietnam	220		220/380	50
Yemen	230		230/400	50

1) Hokkaido; Tohoku; Kanto

2) Chubu; Kinki; Chugoku; Shigoku, Kyushu

Country	Voltages of typical low voltage mains [V]			Frequency [Hz]
	Single-phase	Load voltage		
		3 wire	4 wire	
Albania	220		220/380	50
Austria	230		230/400	50
Belgium	230		230/400	50
Bulgaria	220		220/380	50
Croatia	220		220/380	50
Cyprus	240		240/415	50
Czech Rep.	220		220/380	50
Denmark	230		230/400	50
Estonia	220		220/380	50
Finland	230	500	230/400; 400/690	50
France	230	500	230/400; 400/690	50
Germany	230	500	230/400	50
Great Britain	240		240/415	50
Greece	127; 220		127/220; 220/380	50
Hungary	220		220/380	50
Iceland	230		230/400	50
Ireland	220		220/380	50
Italy	127; 220		127/220; 220/380	50
Latvia	220		220/380	50
Lithuania	220		220/380	50
Luxembourg	230		230/400	50
Netherlands	230	500	230/400	50
Northern Ireland	220; 230; 240		220/380; 230/400; 240/415	50
Norway	230	230; 500	230/400; 400/690	50
Poland	220		220/380	50
Portugal	220; 230		220/380; 230/400	50
Rumania	220		220/380	50
Russian Fed.	220		220/380	50
Serbia	220		220/380	50
Slovak Rep.	220		220/380	50
Slovenia	220		220/380	50
Spain	127, 220		127/220; 220/380	50
Sweden	230	500	230/400	50
Switzerland	220; 230		220/380; 230/400; 290/500	50
Ukraine	220		220/380	50
White Russia	220		220/380	50

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