



ИБП Eaton Powerware 9155 - Техническая спецификация Eaton 9155-12

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## UPS Technical Specification

### Manufacturer's declaration in accordance with IEC 62040-3

Subclause	Characteristic of Equipment	Manufacturer's Declared Values
<b>CONSTRUCTION</b>		
	Model catalogue reference	9155-12I-NC-0 (UPS) 9155-12I-N-xx-32 (UPS + 1 bat part) 9155-12I-N-xx-64 (UPS + 2 bat part)
	Model rating	12 kVA / 10.8 kW; 230V
	Classification	VFI-SS-111
MIL 217	MTBF	150 000 h
	Dimensions length x depth x height	305 x 702 x 420 mm (UPS) 305 x 702 x 817 mm (UPS + 1 bat part) 305 x 702 x 1214 mm (UPS + 2 bat part)
	Weight without batteries	55 kg (UPS) 70 kg (UPS + 1 bat part) 85 kg (UPS + 2 bat part) +15 kg (MBS option if selected) 60 kg (2 bat part, external) 90 kg (3 bat part, external)
	Weight with batteries if integrated	160 kg (UPS + 1 bat part) 270 kg (UPS + 2 bat part) 195 kg (2 bat part, external) 310 kg (3 bat part, external)
<b>ENVIRONMENTAL</b>		
4.1.4	Ambient storage temperature range	-25 to +55°C in the protective package
4.1.2	Ambient service temperature	Power electronics part: +0 to +45°C; Battery part: +5 to +25°C without reducing the life time;
4.1.1	Maximum service altitude	1000 m (3300 ft) above sea level, max. 2000 m (6600 ft) with 1% derating per +100 m (330 ft)
4.1.3	Relative humidity range	5 to 95%, no condensation allowed
EN 60529	Degree of protection	IP20
7.3	Acoustic noise at 1 m - Normal mode - Stored energy	50 dBA 55 dBA
<b>ELECTRICAL CHARACTERISTICS – INPUT</b>		
5.2.2 and 6.3.2.1	Rated input voltage and voltage tolerance	Rectifier input: 3x230/400 V Tolerance: 175/305-276/480 (±20%) at 100% load 115/200-276/480 (-50%, +20%) at 50% load Bypass input: 230 V Tolerance: 196/340-253/438 V (-15%, +10%)
5.2.2 and 6.3.2.2	Rated input frequency and frequency tolerance	50 or 60 Hz, tolerance 45-65 Hz
5.2.2 and 6.3.10	Rated input current	17.4 A r.m.s (three phase input)
5.2.2 and 6.3.9.2	Maximum input current	29 A r.m.s (three phase input)
5.2.2	Input current distortion at rated input current	< 5% THD
5.2.2 and 6.3.10	Input power factor	0.99
5.2.2 and 6.3.3	Inrush current	<100% of rated current
5.2.2	Number of input phases	3 Phases + N (three phase input)
<b>OUTPUT WAVEFORM</b>		
5.3.1.2	Waveform – Normal mode	Sine waveform
5.3.1.2	Waveform – Stored energy mode	Sine waveform

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	Transfer – Normal mode / Stored energy	No break
	Break time / make time	No break
<b>ELECTRICAL OUTPUT CHARACTERISTICS - STATIC CHARACTERISTICS - NORMAL MODE</b>		
5.3.2	Rated output voltage	230 (default), 220, or 240 V r.m.s
	Output voltage variation	±3 V r.m.s
	Rated output frequency (nominal)	50 (default) or 60 Hz
6.3.2.2	Output frequency variation (synchronised if applicable)	±2 (default), ±0.5, or ±1 Hz with slew rate 1 Hz/s (default), 7 Hz/s, 3 Hz/s, 2 Hz/s, or ±0.5 Hz/s
6.3.2.3	Output frequency synchronised phase error at change of mode	Max. 8 degrees
	Rated output apparent power	12 kVA
	Rated output active power across linear load	10.8 kW
	Rated output active power across a reference (p.f. 0.7) non-linear load	8.4 kW
6.3.4.2	Total voltage distortion across a linear load	3%
6.3.8.1	Total voltage distortion across a reference non-linear load	5%
6.3.4.2	Individual harmonics voltage	See separate declaration
5.3.2 and 6.3.5.3	Short circuit capability	144 A, < 300 ms
5.3.2 and 6.3.5.1	Overload capability	<p><b>Without bypass:</b></p> <p>10 min &gt;100...110% (11.9 kW) load  1 min &gt;110...125% (13.5 kW) load  5 sec &gt;125...150% (16.2 kW) load</p> <p><b>With bypass:</b></p> <p>Continuous &gt;100...125% load  10 min &gt;125...150% load  5 ms 1000% load</p> <p><b>Note!</b>  Selected bypass fuses may limit the overload capability.</p>
5.3.2 and 6.3.4	Range of load power factor permitted - linear load	0.7 lagging – 0.9 leading
	Number of output phases	1 Phase
5.3.2 and 6.3.4.5	Output voltage unbalance at reference unbalance load (multiphase only)	-
5.3.2 and 6.3.4.5	Maximum phase angle variation (multiphase only)	-
<b>ELECTRICAL OUTPUT CHARACTERISTICS - DYNAMIC CHARACTERISTICS - NORMAL MODE</b>		
5.3.2 and 6.3.6.1 and 6.3.6.2	Output voltage dynamic variation during transfer normal/stored energy mode of operation and vice versa	0%
6.3.7.1 and 6.3.8.4	Output voltage dynamic variation due to load changes	± 5% with 1 ms recovery (from 10% to 90% load step)
	Maximum rate of change of output frequency	0.5 (default), 2.5, or 7.5 Hz/s
<b>ELECTRICAL OUTPUT CHARACTERISTICS - STATIC CHARACTERISTICS - STORED ENERGY</b>		
5.3.1	Rated output voltage	230 (default), 220, or 240 V r.m.s

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<b>Subclause</b>	<b>Characteristic of Equipment</b>	<b>Manufacturer's Declared Values</b>
6.3.4.4	Output voltage variation	±3 V r.m.s
6.3.4.3	Rated peak output voltage	325 V
6.3.4.4	Rated peak output voltage variation	±20 V
5.3.1.2	Non-sinusoidal voltage rise time 0,1 to 0,9 peak (if waveform exceeds 0,5 V/μs)	-
5.3.2	Output frequency	50 Hz (default) or 60 Hz
5.3.2	Output frequency variation	±0,005 Hz (single), ±0,07 Hz (parallel)
5.3.2	Rated output apparent power	12 kVA
5.3.2	Rated output active power	10.8 kW
5.3.2	Rated output active power non-linear load	10.8 kW
6.3.4.4	Total output voltage distortion	5% THD
6.3.4.4	Individual harmonic voltages - linear load	-
6.3.2 and 6.3.8.2	Individual harmonic voltages - non-linear load	-
5.3.2 and 6.3.5.4	Short circuit capability	144 A, <300 ms
5.3.2 and 6.3.5.2	Overload capability	10 min >100...110% (11.9 kW) load 1 min >110...125% (13.5 kW) load 5 sec >125...150% (16.2 kW) load 300 ms >150% load
5.3.2	Range of load power factors permitted	0.7 lagging – 0.9 leading
5.3.2	Number of output phase (multiphase only)	1 Phase
<b>ELECTRICAL OUTPUT CHARACTERISTICS - DYNAMIC CHARACTERISTICS - STORED ENERGY</b>		
6.3.6.1	Output voltage dynamic variation during transfer from stored energy mode to normal mode	0%
6.3.7.1	Output voltage dynamic variation due to load changes	±5% with 1 ms recovery (from 10% to 90% load step)
<b>EFFICIENCY</b>		
6.6.11	Efficiency Input / Output	91.0% at 100% rated load 90.5% at 75% rated load 89.0% at 50% rated load 84.0% at 25% rated load
	Heat dissipation	1085 W at 100% rated load 635 W at 50% rated load 417 W at 0% rated load
<b>SYNCHRONIZATION (if applicable)</b>		
6.3.6.4	Acceptable voltage difference	±25%
6.3.2.2	Range of frequency synch	±2 (default), ±0.5, or ±1 Hz with slew rate 1 Hz/s (default), 7 Hz/s, 3 Hz/s, 2 Hz/s, or ±0.5 Hz/s
6.3.6.4	Maximum phase error	8 degrees
<b>5.4 STORED ENERGY MODE OF OPERATION</b>		
	Duration of maximum permitted stored energy time at rated load	No limit.
6.3.9.1	Stored energy time (for integral batteries) at rated load	See separate declaration

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<b>Subclause</b>	<b>Characteristic of Equipment</b>	<b>Manufacturer's Declared Values</b>
6.3.9.2	Restored energy time to 90% charge (for integral batteries) Battery rating and quantity (for integral battery) Battery recharge profile	Max. 10 h recommended  7 Ah and 32 units (VRLA), max. battery voltage 192*2.35V = 455V  ABM = 90% resting, 10% float charging
6.3.9.1	Battery cut-off voltage	1.75 / 1.67 VPC
<b>5.8 CONTROL AND MONITORING SIGNALS</b>		
5.8	See separate declaration for complete list of indications and remote alarm/monitoring or interface devices	See User's Manual
<b>5.5.2 BYPASS CHARACTERISTICS</b>		
5.5.2	Type of bypass	Manual and Automatic
5.5.2	Mechanical/static	Mechanical Static
5.5.2	No break transfer / break transfer	No break
5.5.2	Break time / make time	No break
5.5.2	Maintenance bypass	Yes (optional without)
5.5.2	Bypass protection fuse or circuit-breaker rating	63 A
5.5.2	Galvanic isolation fitted	No
<b>5.7 ELECTROMAGNETIC COMPATIBILITY</b>		
	Immunity, see IEC 62040-2	Yes
	Emission, see IEC 62040-2	Yes