UPS Technical Specification
Manufacturer's declaration in accordance with IEC 62040-3

Subclause	*Characteristic of Equipment*	*Manufacturer's Declared Values*
	CONSTRUCTION	
	Model catalogue reference	9155-8I-NC-0 (UPS) 9155-8I-N-xx-32 (UPS + 1 bat part) 9155-8I-N-xx-64 (UPS + 2 bat part) 9155-8I-SC-0 (UPS) 9155-8I-S-xx-32 (UPS + 1 bat part) 9155-8I-S-xx-64 (UPS + 2 bat part)
	Model rating	8 kVA / 7.2 kW; 230 VAC
	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	50 kg (UPS) 65 kg (UPS + 1 bat part) 80 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	155 kg (UPS + 1 bat part) 265 kg (UPS + 2 bat part) 195 kg (2 bat part, external) 310 kg (3 bat part, external)
	ENVIRONMENTAL	
4.1.4	Ambient storage temperature range	-25 to +55ºC in the protective package
4.1.2	Ambient service temperature	Power electronics part: +0 to +45ºC; Battery part: +5 to +25ºC 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 (noiseless room) 53 dBA (ISO7779) 55 dBA
	ELECTRICAL CHARACTERISTICS – INPUT	
5.2.2 and 6.3.2.1	Rated input voltage and voltage tolerance	Rectifier input: 230 V or 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	11.6 A r.m.s (three phase input) 34.8 A r.m.s (single phase input)
5.2.2 and 6.3.9.2	Maximum input current	26 A r.m.s (three phase input) 40 A r.m.s (single 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

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Subclause	*Characteristic of Equipment*	*Manufacturer's Declared Values*
5.2.2	Number of input phases	3 Phases + N (three phase input) 1 Phase + N (single phase input)
	OUTPUT WAVEFORM	
5.3.1.2 5.3.1.2	Waveform – Normal mode Waveform – Stored energy mode	Sine waveform Sine waveform
	Transfer – Normal mode / Stored energy	No break
	Break time / make time	No break
	ELECTRICAL OUTPUT CHARACTERISTICS - STATIC CHARACTERISTICS - NORMAL MODE	
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	8 kVA
	Rated output active power across linear load	7.2 kW
	Rated output active power across a reference (p.f. 0.7) non-linear load	5.6 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	100 A, < 300 ms
5.3.2 and 6.3.5.1	Overload capability	**Without bypass:** 10 min >100…110% load 1 min >110…125% load 5 sec >125…150% load **With bypass:** Continuous >100…125% load 10 min >125…150% load 5 ms 1000% load **Note!** Selected bypass fuses may limit the overload capability.
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)	-
	ELECTRICAL OUTPUT CHARACTERISTICS - DYNAMIC CHARACTERISTICS - NORMAL MODE	
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%

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Subclause	*Characteristic of Equipment*	*Manufacturer's Declared Values*
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
ELECTRICAL OUTPUT CHARACTERISTICS - STATIC CHARACTERISTICS - STORED ENERGY		
5.3.1	Rated output voltage	230 (default), 220, or 240 V r.m.s
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	8 kVA
5.3.2	Rated output active power	7.2 kW
5.3.2	Rated output active power non-linear load	7.2 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	100 A, <300 ms
5.3.2 and 6.3.5.2	Overload capability	10 min >100…110% load 1 min >110…125% load 5 sec >125…150% 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
ELECTRICAL OUTPUT CHARACTERISTICS - DYNAMIC CHARACTERISTICS - STORED ENERGY		
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)
EFFICIENCY		
6.6.11	Efficiency Input / Output	90.5% at 100% rated load 90.0% at 75% rated load 88.0% at 50% rated load 80.5% at 25% rated load
	Heat dissipation	768 W at 100% rated load 527 W at 50% rated load 417 W at 0% rated load
SYNCHRONIZATION (if applicable)		
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

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Subclause	*Characteristic of Equipment*	*Manufacturer's Declared Values*
6.3.6.4	Maximum phase error	8 degrees
5.4 STORED ENERGY MODE OF OPERATION		
	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
6.3.9.2	Restored energy time to 90% charge (for integral batteries) Battery rating and quantity (for integral batterry) 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
5.8 CONTROL AND MONITORING SIGNALS		
5.8	See separate declaration for complete list of indications and remote alarm/monitoring or interface devices	See User's Manual
5.5.2 BYPASS CHARACTERISTICS		
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	50 A
5.5.2	Galvanic isolation fitted	No
5.7 ELECTROMAGNETIC COMPATIBILITY		
	Immunity, see IEC 62040-2	Yes
	Emission, see IEC 62040-2	Yes

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