DCL-CONS-340075400 2011-09-20

GALAXY 5000

Technical data sheets: manufacturer's declaration according to IEC 62040-3

by Schneider Electric

GALAXY 5000
IEC 62040-3
Technical data sheets - Manufacturer declaration

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
	Construction			
	Model catalogue reference		Galaxy 5000 20 to 120kVA	
	Model rating	VA or W	20kVA / 16kW 30kVA / 24kW 40kVA / 32kW 60kVA / 48kW 80kVA / 64kW 100kVA / 80kW 120kVA / 96kW	If details, to specify them in the separate declaration
	Topology		double conversion with bypass	
	Dimensions L x D x H	mm	See separate declaration (paragraph 1)	If details, to specify them in the separate declaration
	Weight	Kg	See separate declaration (paragraph 1)	If details, to specify them in the separate declaration
	Weight with batteries if integrated	kg	See separate declaration (paragraph 1)	If details, to specify them in the separate declaration
	Environmental			
4.1.4	Ambient storage temperature range	°C	-20 °C / +40 °C with batteries -25 °C / 55 °C without batteries	- 25°C / +55°C For Altitude < 1000m and moisture 20 to 95% T°specified, equipment with and without batteries
4.1.2	Ambient service temperature	°C	0°C / +40°C	Range for operation 0℃ with 40℃ But if ASI in a room, range +10°C to +35°C
4.1.1	Maximum service altitude	m	1000m and for 1500 to 5000m, derating from 0,95 to 0,67	Until 1000m included For 1500 to 5000m, coefficient of downgrading from 0,95 to 0,67
4.1.3	Relative humidity range	%	5 to 95%	20% à 80% (without condensation)
	Degree of protection in accordance with IEC 60529	IP	20	IP XX first X (/ foreign body) 2nd X (/ water)
7.3	Acoustic noise at 1m - Normal mode - Stored energy mode	 dBA dBA	 60kVA / 66dBA 120kVA / 62dBA 60kVA / 66dBA 120kVA / 62dBA	Measurements in accordance with standard ISO 7779 (0,15m < d < 8m according to dimensions of the source of noise, with, preference 1m).

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
	Electrical characteristics – Input			
5.2.2 and 6.3.2.1	Rated input voltage and Voltage tolerance	nominal V	400v 342V at 470V at output nominal power 250V at 342V at 75% of nominal output power	Nominal value of input voltage, and thresholds of passage in stored energy mode by input voltage exceeding the tolerance To specify : if there is no a change of mode to stored energy mode by U + 10% or if the thresholds depend on the load use Minimal value of input voltage allowing the refill battery during normal operation UPS
5.2.2 and 6.3.2.2	Rated input frequency and frequency tolerance	Hz	From 45Hz to 65Hz ± 2%	Nominal value of input frequency and thresholds of a change of mode to stored energy mode of the UPS, by input frequency exceeding the tolerance If it there not a change of mode to stored energy mode, to specify the minimum and maximum frequency possible for the UPS
5.2.2 and 6.3.10	Rated input current	A RMS Linear load Non linear load	20kVA / 28 A 30kVA / 40 A 40kVA / 51 A 60kVA / 77 A 80kVA / 102 A 100kVA / 127 A 120kVA / 152 A	Input steady current with ,100% rated VA and W, on linear and non linear load
5.2.2 and 6.3.9.2	Maximum input current	A RMS On line R load	20kVA / 30 A 30kVA / 42 A 40kVA / 53 A 60kVA / 80 A 80kVA / 106 A 100kVA / 137 A 120kVA / 158 A	UPS with nominal rated VA and W and maximum input current at the beginning of refilling batteries after an stored energy mode
5.2.2	Input current distortion at rated input current	% TDH Linear load Non linear load	 < 3% < 5%	
5.2.2 and 6.3.10	Input power factor		1	With input current at 100% rated VA and W on linear load and non linear load
5.2.2 and 6.3.3	Inrush current	% of the rated current value	< 100% of rated input current	Maximum peak value of current measured after mains power down of 1 second and 5 minutes (if the disturbance < 1 ms it is not retained)
5.2.2	Number of phases	Phase(s)	3	

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
	Output waveform			
5.3.1.2 5.3.1.2	Waveform - Normal mode Waveform - Stores energy mode		Sinusoidal Sinusoidal	Sinusoidal or non sinusoidal Sinusoidal or non sinusoidal
	Transfer - Normal mode / Stored energy	Break No break	No break	
	Break time / Make time (if applicable)	ms	No break	Transfer transients and times measured at the time of transfer load from UPS to an alternative source and return, by command or defect of switches of coupling and bypass
	Electrical output characteristics - Static characteristics - Normal mode			
5.3.2	Rated output voltage	V RMS	380V / 400V / 415V	
	Output voltage variation	V RMS	± 1 %	Output voltage measured at the two ends of the range of rated power factor and with nominal rated voltage Voltage variation = maximum and minimum measured value
	Output frequency (nominal)	Hz	50 / 60 Hz	
6.3.2.2	Output frequency variation (synchronized if applicable)	Hz	On mains 50 /60 Hz ± 4 % (± 0,5 ; 1 ;2 ; 8% to select)	Thresholds of maximum frequency for which the UPS remains synchronized with the mains To specify also ,UPS frequency variation with stored energy mode
6.3.6.3	Output frequency synchronized phase error at change of mode	Degrees	< 3°	*On line* : if non transfer by a change of mode to stored energy mode, to note 0 *Off line* : To note the measurements of dephasing compared with the fundamental, at the time of the transfer of source when the mains return
	Rated output apparent power	VA	See declared values on Construction paragraph	
	Rated output active power across a linear load	W	See declared values on Construction paragraph	
	Rated output active power across a reference non linear load	W	See declared values on Construction paragraph	
6.3.4.2	Total voltage distortion across a linear load	%	< 1%	UPS mode with nominal rated output power VA
6.3.8.1	Total voltage distortion across a reference non linear load	%	< 3%	UPS mode with nominal rated output power VA and dc voltage load capacitor ≤ 1.22 x of UPS output voltage
6.3.4.2	Individual harmonics voltage		See separate declaration (paragraph 2)	Measurements with nominal rated power VA

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
5.3.2 and 6.3.5.3	Short-circuit capability		See separate declaration (paragraph 2)	Short circuit applied on the output terminals of the UPS when the UPS is in normal mode at no load For three phase outputs, Ph /Ph et Ph/N , if a neutral is provided
5.3.2 and 6.3.5.1	Overload capability		See separate declaration (paragraph 2)	Overload applied on the output terminals of the UPS when the UPS is in normal mode at resistive load Measurements of the time duration during which the output voltage remains in the rated range
5.3.2 and 6.3.4	Range of load power factor permitted - linear load		From 0,9 lead to 0,8 lag	
	Number of phases	Phase(s)	3 phases and Neutral	
5.3.2 et 6.3.4.5	Output voltage unbalance at reference unbalance load (multiphase only)	%	0,8%	2 phases with nominal linear load and the other phase at no load
5.3.2 et 6.3.4.5	Maximum phase angle variation (multiphase only)	Degrees	3°	
6.3.4.6	Output voltage dc component - Linear load	%	< ± 30 mV	Average value of the output voltage, during 10 s, lower than 0,1% of RMS voltage value.
	Electrical output characteristics - Dynamic characteristics – Normal mode			
5.3.2 , 6.3.6.1 and 6.3.6.2	Output voltage dynamic variation during transfer normal/stored energy mode of operation and vice versa		Complies with figure 1	To note Fig 1, 2 or 3 and specified UPS Performance with nominal power W and resistive linear load - mains voltage stopped with 0 and maximum of sinusoid , during t > 1s _ 3 times minimum, to ensure itself of the repetitivity, during t > 1s - Return mains voltage to all angular positions of the sinusoid
6.3.7.1 and 6.3.8.4	Output voltage dynamic variation due to load changes		Complies with figure 1	To note Fig 1, 2 or 3 to specify the performance and to announce if the performances are > - Linear load P (W) : measurements UPS peak voltage, for variation 0% to 100% then 100% to 20% of nP - Non linear load P (VA) : UPS < 4KVA, measurement of the transitory variation of U, for variation 25% to 100% then 100% to 25% of nP UPS > 4KVA, measurement of the transitory variation of U, for variation 33% to 66% then 66% to 99% then 99% to 66% then 66% to 33% of nP
	Maximum rate of change of output frequency	Hz/s	2 Hz/s (1 Hz/s available)	

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
	Electrical output characteristics - Static characteristics – Stored energy mode			
5.3.1	Rated output voltage	V RMS	380 V / 400 V / 415 V	
6.3.4.4	Output voltage variation	V RMS	± 1%	Measurements of the regulated voltage, at the 2 ends of the range of FP, to the nominal FP, UPS functioning with nominal linear load , from there, of beginning of stored energy mode until end of stored energy mode
6.3.4.3	Rated peak output voltage	V	Rated output voltage x $\sqrt{2}$	Measurements of the regulated voltage, UPS functioning with stored energy mode , at no load
6.3.4.4	Rated peak output voltage variation	V	± 1%	Measurements of the regulated voltage, at the 2 ends of the range of FP, to the nominal FP, UPS functioning with nominal linear load , from there, of beginning of stored energy mode until end of stored energy mode
5.3.1.2	Non sinusoidal voltage rise time 0.1 to 0.9 peak (if waveform exceeds 0.5V/µs)	V/µs	/	With nominal rated output power W dV / dt ≤ 10V/µs
5.3.2	Output frequency	Hz	50 /60 Hz	
5.3.2	Output frequency variation	Hz	50 / 60 Hz ± 0.5%	Range of the frequency regulation
5.3.2	Rated output apparent power	VA	See declared values on Construction paragraph	
5.3.2	Rated output active power	W	See declared values on Construction paragraph	
5.3.2	Rated output active power non linear load	W	See declared values on Construction paragraph	
6.3.4.4	Total output voltage distortion	% THD	5%	Measurements, with UPS with rated nominal power (VA)
6.3.4.4	Individual harmonic voltage linear load		See separate declaration (paragraph 3)	Measurements, with UPS with rated nominal power (VA)
5.3.2 et 6.3.8.2	Individual harmonic voltage non linear load		See separate declaration (paragraph 3)	Measurements, with UPS with rated and fitted nominal power (VA) Dc voltage of capacitor of reference load remaining at 1,22% of UPS output voltage
5.3.2 et 6.3.5.4	Short-circuit capability		See separate declaration (paragraph 3)	Short circuit applied on the output terminals of the UPS with stored energy mode at no load For three phase outputs, Ph /Ph et Ph/N , if a neutral is provided
5.3.2 et 6.3.5.2	Overload capability		See separate declaration (paragraph 3)	Overload applied on the output terminals of the UPS with stored energy mode at resistive load Measurements of the time duration during which the output voltage remains in the rated range

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
5.3.2	Range of load power factor permitted		From 0,9 lead to 0,8 lag	
5.3.2	Number of output phases (multiphase only)	Phase(s)	3	
	Electrical characteristics - Dynamic characteristics - Stored energy mode			
6.3.6.1	Output voltage dynamic variation during transfer from stored energy mode to normal mode		Complies with figure 1	The same conditions as UPS in normal mode
6.3.7.1	Output voltage dynamic variation due to load changes		Complies with figure 1	The same conditions as UPS in normal mode
	Efficiency			
6.6.11	Efficiency input / output	%	Up to 93% See separate declaration (paragraph 4)	UPS in normal mode with nominal power
	Synchronization (if applicable)			
6.3.6.4	Acceptable voltage difference	%	± 10%	
6.3.2.2	Range of frequency synchronization	Hz	50 /60 Hz (± 0,5% ; 1% ; 2% ; 4% ; 8% to select)	
6.3.6.4	Maximum phase error	degrees	3°	
5.4	**Stored energy mode of operation**			
	Duration of maximum permitted stored energy time at rated load	Min	According to the battery	Normal temperature of test 25°C
6.3.9.1	Store energy time (for integral batteries) at rated load	min	According to the battery	Normal temperature of test 25°C
6.3.9.2	Restored energy time to 90% charge (for integral batteries) Batteries rating and quantity (for integral batteries) Batteries recharge profile	h Ah and units	According to the battery According to the battery Constant current charge, and after, constant voltage charge	Normal temperature of test 25°C To specify ,if batteries recharge with constant limiting current
6.3.9.1	Battery cut-off voltage	V With no load	1,65V to 1,9V (according to the battery)	Normal temperature of test 25°C

UPS tests reference only	Characteristic of equipment	Units and/or information	Manufacturer's declared values	Minimum performance requirements, methods and references
5.8	**Control and monitoring signals**			
	Separate declaration for complete list of indications and remote alarm/monitoring or interface devices		Optional See separate declaration (paragraph 5)	
5.5.2	**Bypass characteristics**			
	Type of bypass	Manuel Automatic	 Automatic	
	Mechanical / Static	Mechanical Static	Static switch	
	No break transfer / Break transfer	No break Break	No Break	No break if recovering UPS / CS
	Break time / make time	ms	Break time setting from 13 ms to 1000 ms Default value is 100ms	If mains HT
	Maintenance Bypass	Yes No	Yes	
	Bypass protection fuse or circuit-breaker rating	A	No	
	Galvanic isolation fitted	Yes No	No	
5.7	**Electromagnetic compatibility**			
	Immunity see IEC 62040-2 or EN 50091-2		See separate declaration (paragraph 6)	- Immunity to electrostatic discharges - Immunity to radiated
	Emission see IEC 62040-2 or EN 50091-2 Individual input harmonics current		See separate declaration (paragraph 6) See separate declaration (paragraph 7)	- conducted ac mains - conducted ac output - Radiated - electric field - Radiated - magnetic field

Galaxy 5000 20kVA to 120kVA / CEI 62040-3
Technical data sheets - Separate declaration

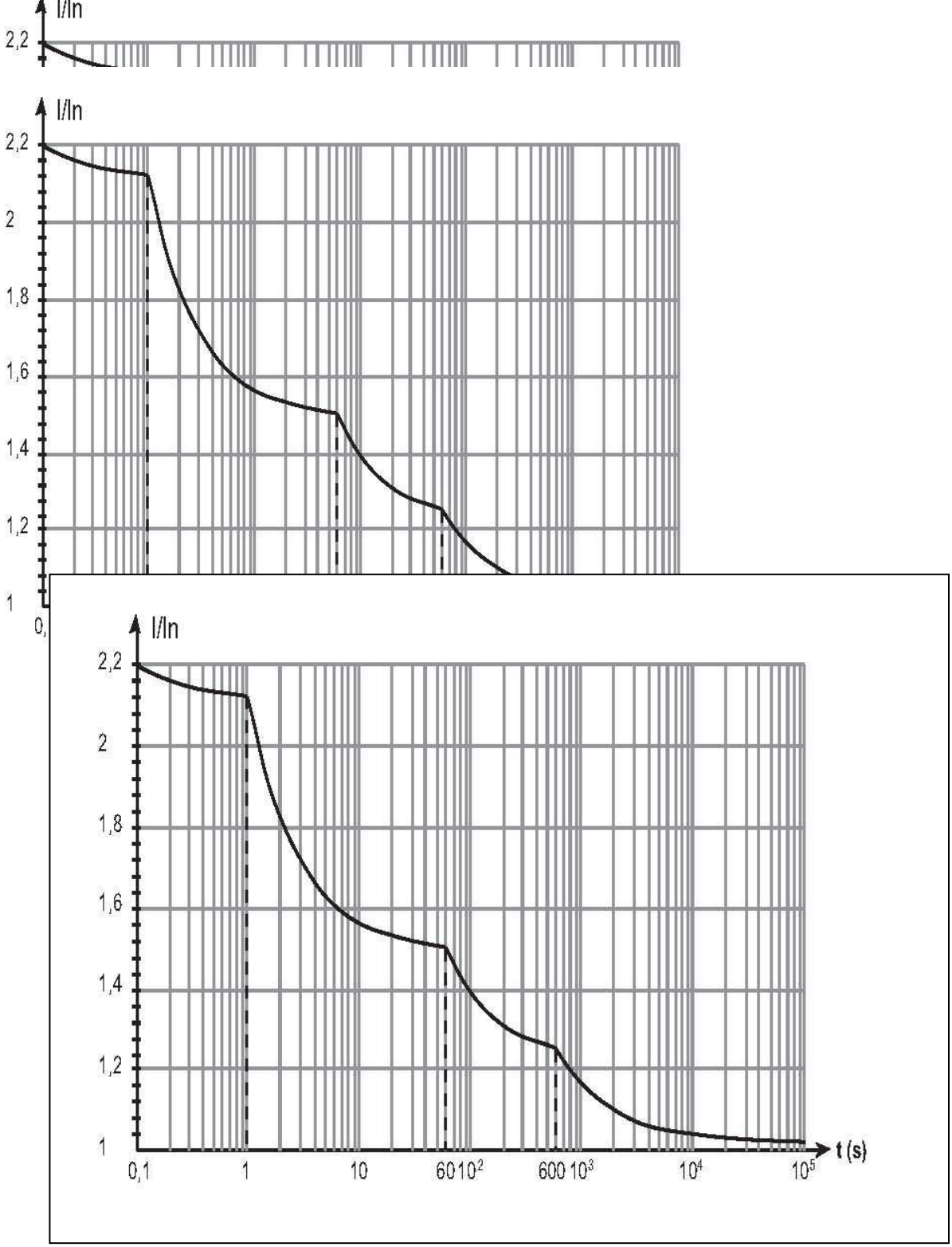
1. Dimensions and weight of equipment :

UPS	20kVA to 60kVA without internal batteries	80kVA to 120kVA without internal batteries	20kVA to 80kVA with internal batteries
High (mm)	1900	1900	1900
Wide (mm)	712	712	1112
Longer (mm)	848	848	848
Weight (kg)	400	520	See below

weight (kg) of UPS with internal batteries :

Backup time	5 min	10 min	15 min	30 min
20kVA to 30kVA	738	738	888	975
40kVA	738	888	975	
60kVA	888	975		
80kVA	1050			

2. Electrical Output characteristics - Static characteristics - Normal Mode



Output short-circuit capability

Power	20kVA	30kVA	40 kVA	60 kVA	80 kVA	100 kVA	120 kVA
Short-circuit capacity (x In)	45	29	22	15	29	23	19

3. Electrical Output characteristics - Static characteristics - Stored energy mode

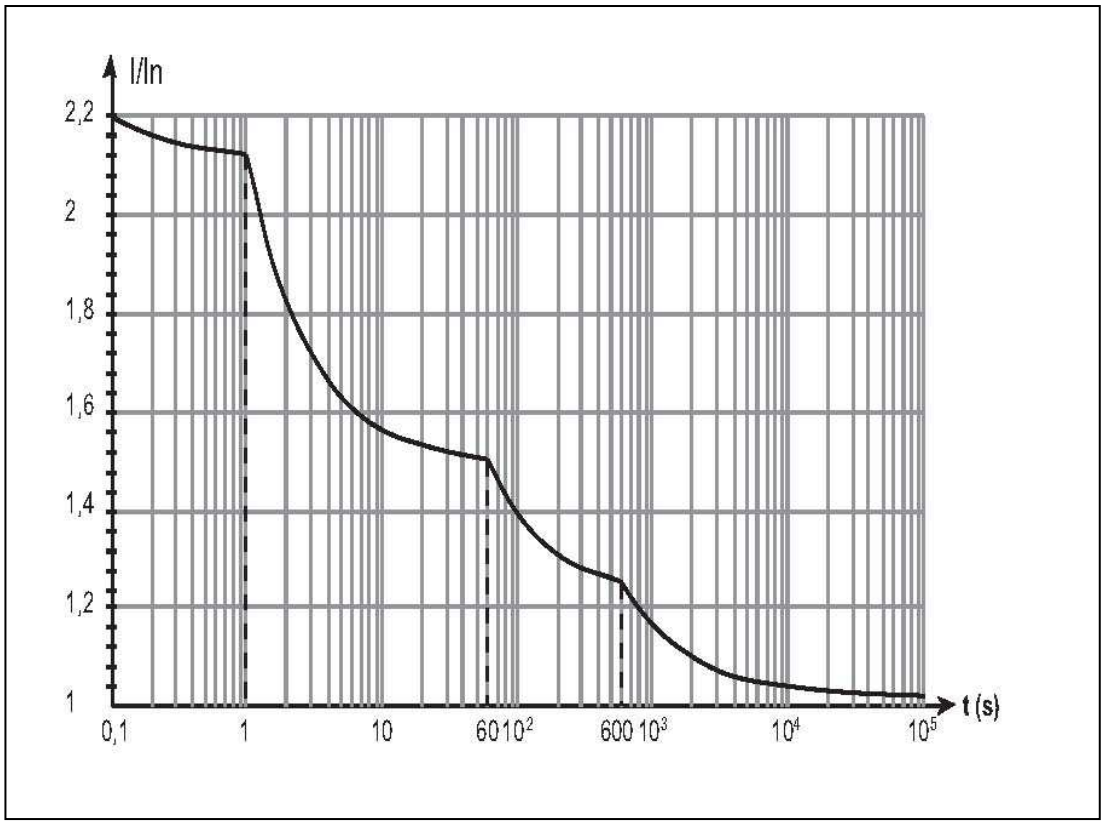
Individual harmonic voltages linear load

Harmonic	ph/N	ph/ph
H3	0,391 %	0,391 %
H5	0,014 %	0,014 %
H7	0,025 %	0,025 %
H9	0,036 %	0,036 %

Individual harmonic voltages non-linear load

Harmonic	ph/N	ph/ph
H3	2,342 %	2,342 %
H5	1,962 %	1,962 %
H7	0,787 %	0,787 %
H9	0,127 %	0,127 %

Output overload capability



Output short-circuit capability (stored energy mode, AC N out ot tolerance, AC BP in tolerance)

Power	20kVA	30kVA	40 kVA	60 kVA	80 kVA	100 kVA	120 kVA
Short-circuit capacity (x In)	45	29	22	15	29	23	19

4. Efficiency

On Normal mode :

Power	20kVA	30kVA	40 kVA	60 kVA	80 kVA	100 kVA	120 kVA
Efficiency at Pn	86	89	90,1	91,5	92,4	92,6	92,8

On Eco mode :

Power	20kVA	30kVA	40 kVA	60 kVA	80 kVA	100 kVA	120 kVA
Efficiency at	97	97	97	97	97	97	97

5. Control and monitoring signals

List of indications and remote alarms, monitoring or interface device.

Outputs : volt-free contacts (250V / 5A max), configurable inside the list below :

- **global alarm** **(factory settings)**
- **battery fault** **(factory settings)**
- **load on inverter** **(factory settings)**
- **load on automatic static switch** **(factory settings)**
- **load on battery** **(factory settings)**
- **battery low level** **(factory settings)**
- overload
- PFC fault
- Inverter fault
- Charger fault
- Automatic static switch fault
- ACBP voltage out of tolerance
- Battery temperature fault
- Ventilation fault
- Emergency power off activated
- Battery circuit breaker open
- Phase rotation fault (ACN or ACBP)
- Fuse blown
- Forbidden transfer to bypass
- Eco mode
- Load on manual bypass

Inputs : configurable inside the list below :

- **inverter on** **(factory settings)**
- **inverter off** **(factory settings)**
- room temperature fault
- prohibited transfer on ACBP
- prohibited transfer on ACBP if ACBP is out of tolerance
- inverter/ACBP desynchronized

6. Electromagnetic compatibility

Emission : complies with 62040-2 C3 category
- input conducted
- output conducted
- radiated

Conducted immunity : CEI 61000-4-6 => level 3

Radiated immunity : CEI 61000-4-3 => level 3

Electrostatic discharges : CEI 61000-4-2 => level 4

Burst : CEI 61000-4-4 => level 4

Surge : CEI 61000-4-5 => level 3 (Common mode)

7. Individual input harmonic current

% of current distorsion (with input voltage distorsion <1%)							
Harmonic range	**20kVA**	**30kVA**	**40kVA**	**60kVA**	**80kVA**	**100kVA**	**120kVA**
H3 %	0,222	0,511	0,356	0,051	0,170	0,103	0,128
H5 %	1,001	0,533	0,470	0,765	0,768	0,962	1,055
H7 %	1,428	0,618	0,211	0,179	0,427	0,193	0,286
H9 %	0,196	0,487	0,146	0,102	0,569	0,300	0,110
H11 %	0,047	0,210	0,456	0,211	0,529	0,338	0,216
H13 %	0,239	0,168	0,212	0,143	0,258	0,229	0,249
H15 %	0,327	0,298	0,082	0,222	0,055	0,183	0,182
H17 %	0,243	0,160	0,109	0,162	0,206	0,081	0,168
Total distorsion %	5,41	4,07	3,16	2,33	2,91	2,41	2,06