NETYS RT

SUPERIOR

Unrivalled power performance

1 to 10 kVA

RoHS COMPLIANT

3 LEVEL TECHNOLOGY

95% EFFICIENCY

socomec

Innovative Power Solutions

OBJECTIVES

The aim of these specifications is to provide:

- the information required to choose the correct uninterruptible power supply for a specific application.
- the information required to prepare the system and installation site.

The specifications are intended for:

- installation engineers.
- design engineers.
- engineering consultants.

INSTALLATION REQUIREMENTS AND PROTECTION

Connection to the mains power supply and load(s) must be implemented using cables of suitable size, in accordance with current standards. If not already present, an electrical control station which can isolate the network upstream of the UPS must be installed. This electrical control station must be equipped with a circuit breaker (or two, if there is a separate bypass line) of an appropriate rating for the power drawn at full load.

If an external manual bypass is required, only the model supplied by the manufacturer must be installed.

We recommend fitting two metres of unanchored flexible cable between the UPS terminals and the cable anchor (wall or cabinet). This makes it possible to move and service the UPS.

For detailed information, see the installation and operating manual.

1. ARCHITECTURE

1.1 RANGE

NETYS RT is a full range of high performing UPS systems designed to:

- ensure 24/7/365 availability and business continuity for datacentre infrastructure,
- avoid data losses and downtime of company operations,
- reduce the electrical infrastructure's total cost of ownership,
- adopt a sustainable development approach.

Models								
Rated power (VA)	1000	1500	2000	3000	5000	6000	8500	10000
NETYS RT	•	•	•	•	•	•	•	•
NETYS RT parallel up to 3					•	•	•	•
Matrix table for model and kVA power rating								

Each family has been specifically designed to meet the demands of loads in specific application contexts, in order to optimise product features and facilitate integration within the system.

2. FLEXIBILITY

2.1 PRODUCT DIMENSION FROM 1 TO 10 kVA

Dimensions				
Cabinet type		Width (W) [mm]	Depth (D) [mm]	Height (H) [mm]
	1000 1500	85.5	445	438
	2000 3000	85.5	600	438
	5000 6000 8500 10000 8500 3/1 10000 3/1	86.3	570	438
	**Battery for 1000 1500**	85.5	445	438
	**Battery for 2000, 3000** **Battery for 5000, 6000**	85.5	600	438
	**Battery for 8500, 10000**	129	590	438

The equipment has been designed with a minimum net and gross footprint (the actual space occupied by the unit and the space required around it for maintenance, ventilation and access to operating mechanisms and communication devices).

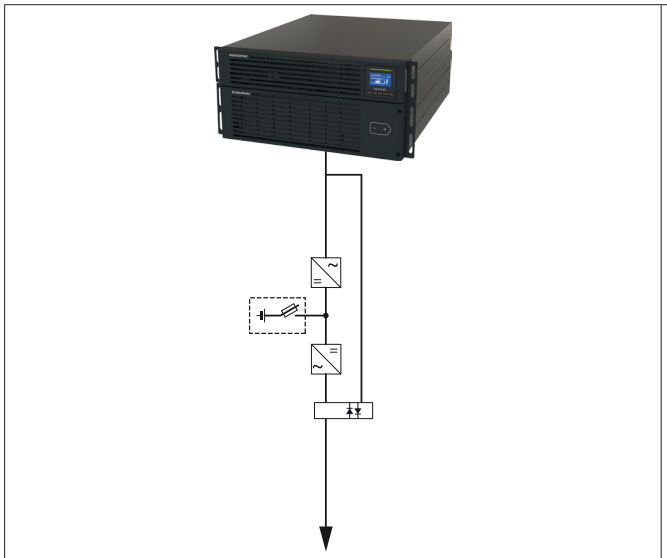
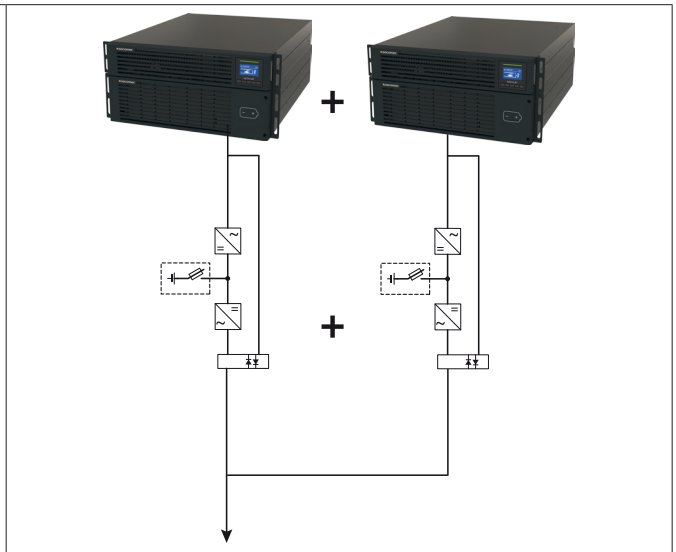
All of the control mechanisms and communication interfaces are located in the upper front section.

The intelligent design also provides easy access for maintenance and installation.

The air inlet is on the front, with outflow to the rear.

2.2 PARALLEL

NETYS RT enables up to 3 parallels and redundant configurations to maximise the availability of critical utilities (up to 30 kVA).

	
Single unit configuration	Parallel UPS configuration (up to 3 units 5/10 kVA only)

2.3 RELIABILITY

Reliability is the most critical factor for any UPS solution designed to protect and manage the continuity of activities and services.

NETYS RT MTBF exceeds the market standard, and Socomec officially declares its MTBF data.

2.4 FLEXIBLE BACK-UP TIME

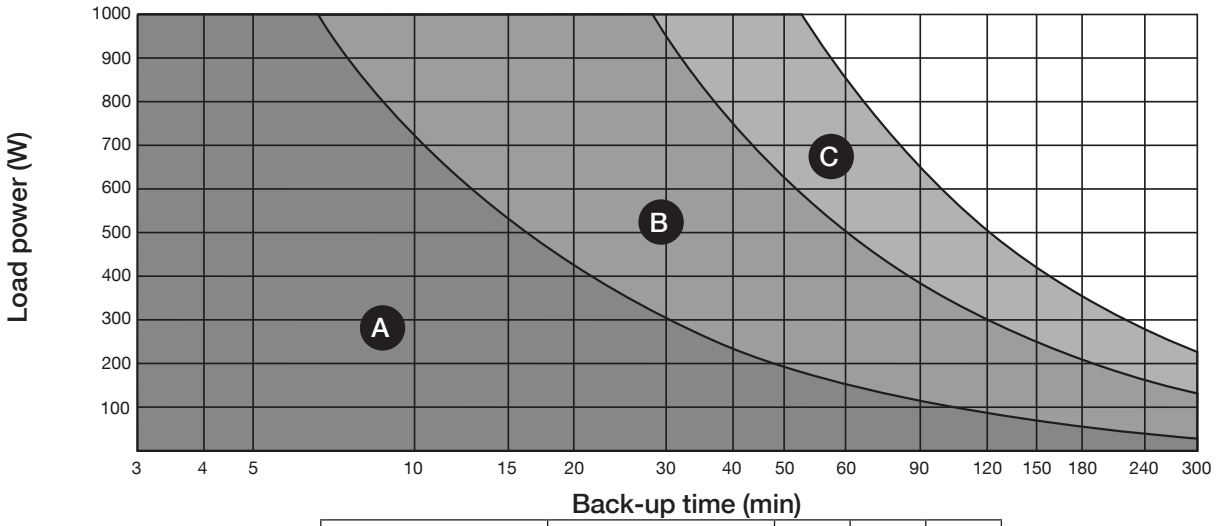
Different back-up times are possible by using models with internal battery or external battery cabinets.

Batteries are installed on acid-proof trays and connected by means of polarised connectors to facilitate their maintenance.

To guarantee maximum back-up time availability and battery life, the NETYS RT series is equipped with an EBS (Expert Battery System).

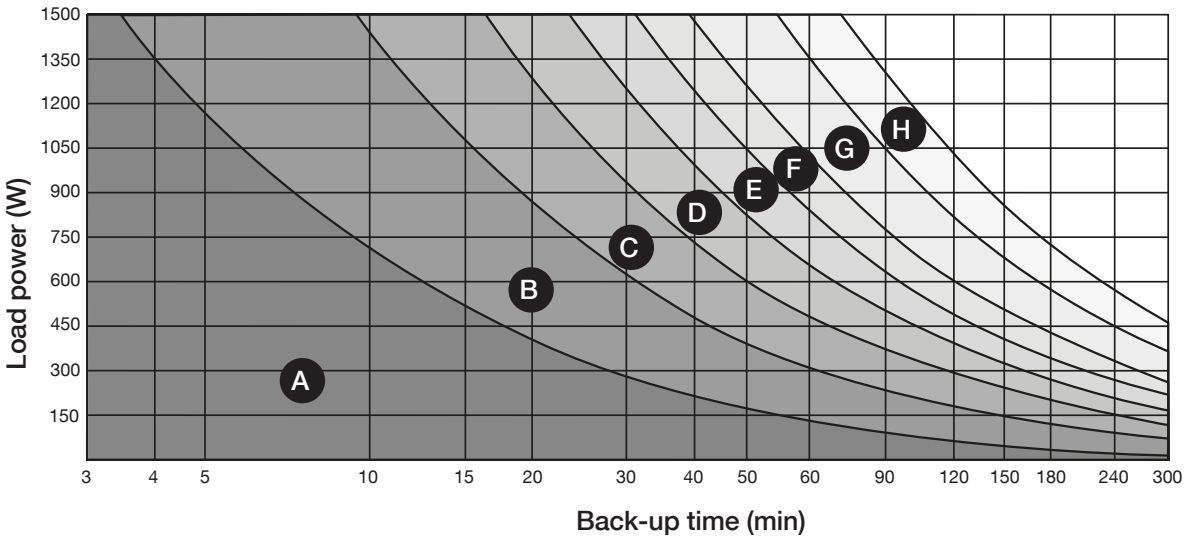
Use the following charts to select the UPS model in relation to power and back-up time.

1000 VA



UPS	BATT	A	B	C
NRT4-U010B		1	1	1
	NRT4-B015		1	2

1500 VA



UPS	BATT	A	B	C	D	E	F	G	H
NRT4-U015B		1		1		1			
NRT4-U015LB			1		1		1	1	1
	NRT4-B015		1	1	2	2	3	4	5

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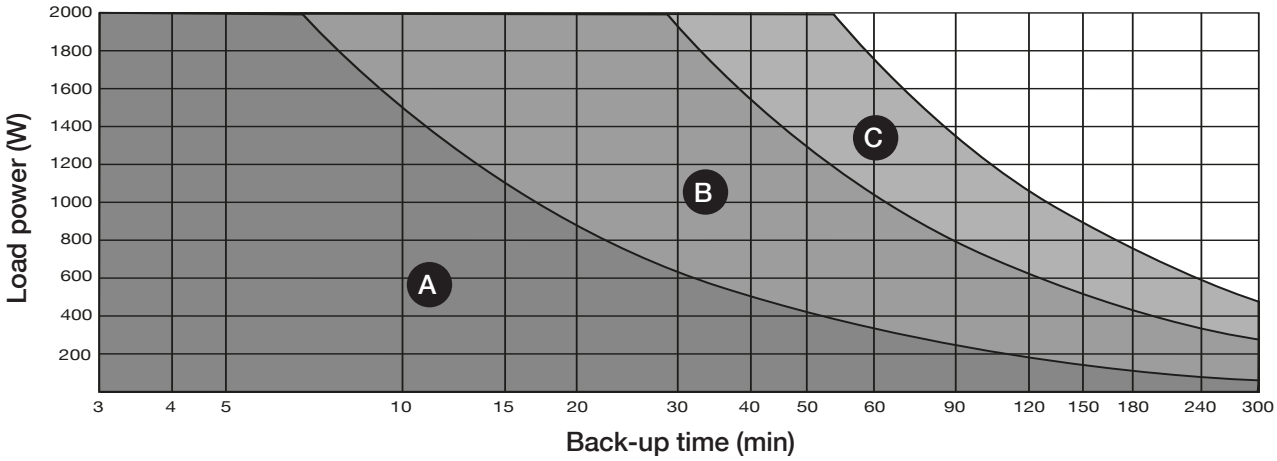
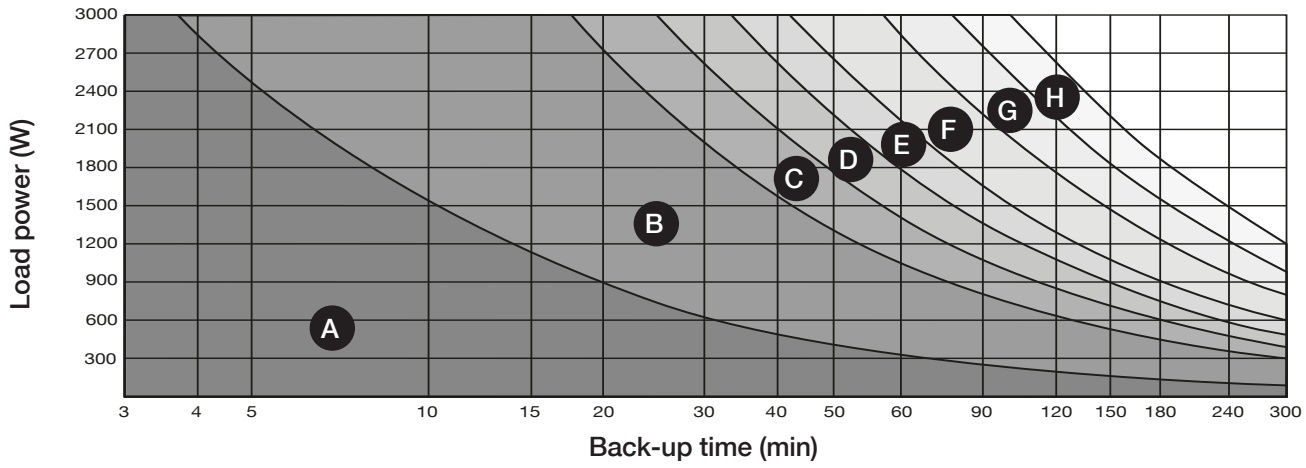
2000 VA



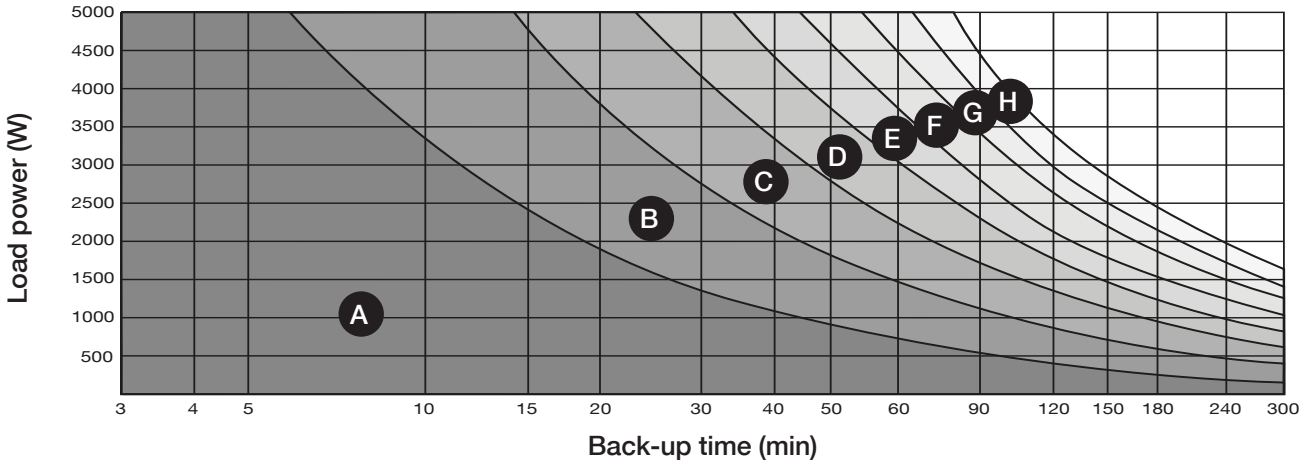
UPS	BATT	A	B	C
NRT4-U020B		1	1	1
	NRT4-B030		1	2

3000 VA



UPS	BATT	A	B	C	D	E	F	G	H
NRT4-U030B		1		1		1			
NRT4-U030LB			1		1		1	1	1
	NRT4-B030		1	1	2	2	3	4	5

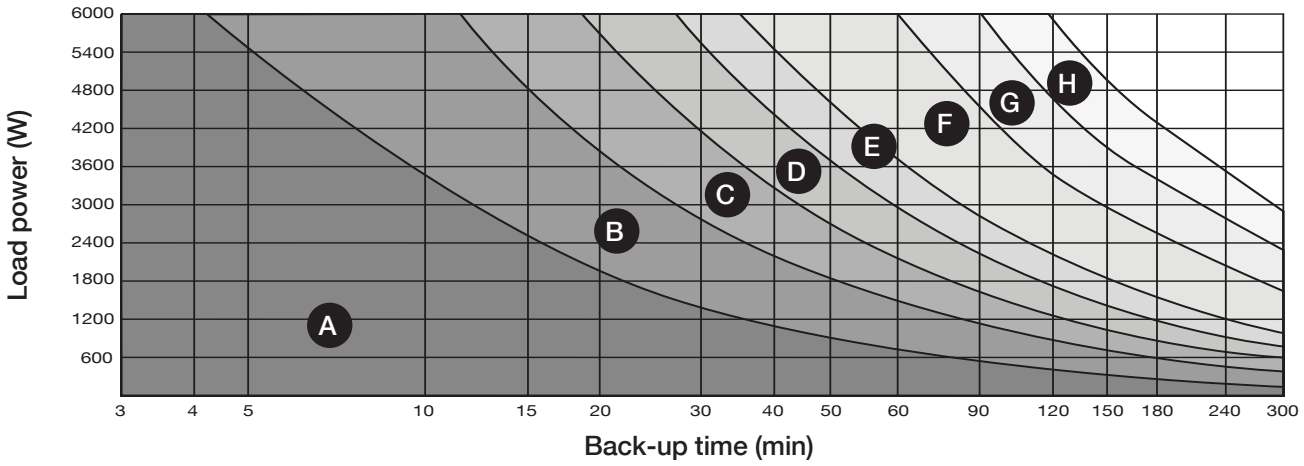
5000 VA



UPS	BATT	A	B	C	D	E	F	G	H
NRT4-U050		1	1	1	1	1	1	1	1
	NRT4-B060	1	2	3	4	5	6	7	8
NRT4-050K		1	1	1	1	1	1	1	1
	NRT4-B060		1	2	3	4	5	6	7

NOTE! The models are not available for all markets. Contact Socomec for further information.

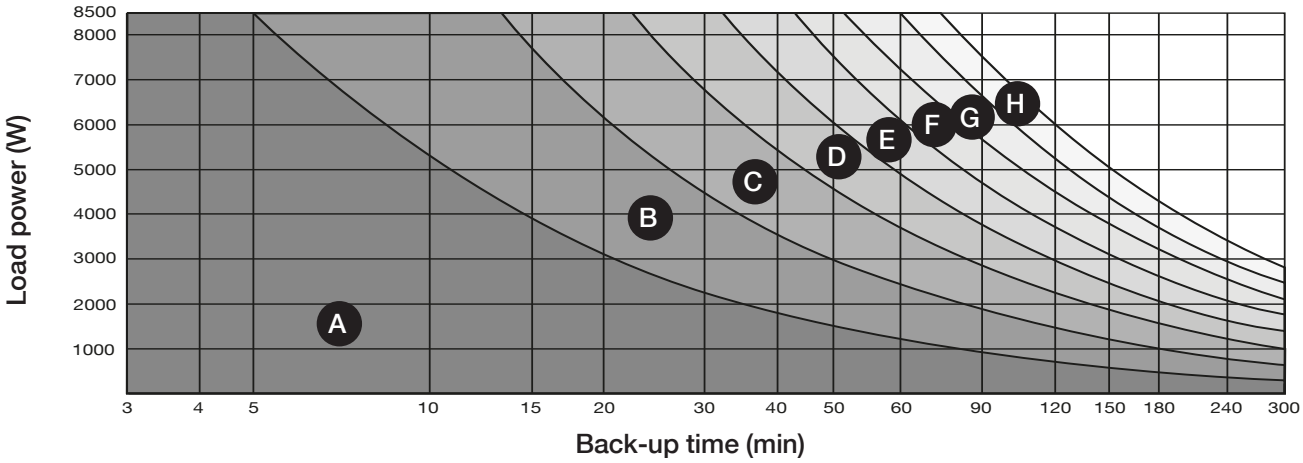
6000 VA



UPS	BATT	A	B	C	D	E	F	G	H
NRT4-U060		1	1	1	1	1	1		
	NRT4-B060	1	2	3	4	5	8		
NRT4-060K		1	1	1	1	1	1		
	NRT4-B060		1	2	3	4	7		
NRT4-U060LB		1	1	1	1	1	1	1	1
	NRT4-B060				4	5	8	11	14

NOTE! The models are not available for all markets. Contact Socomec for further information.

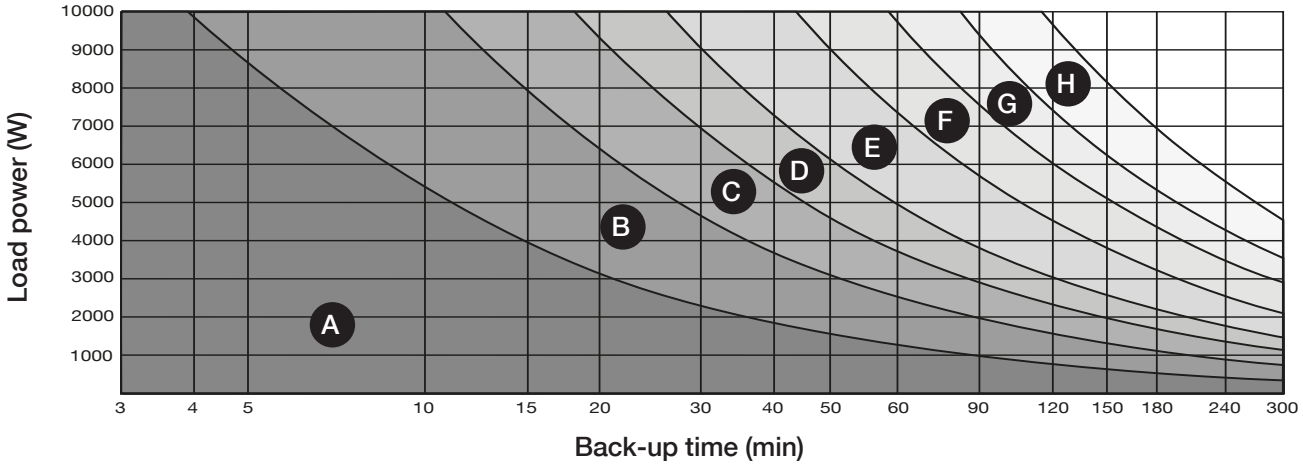
8500 VA



UPS	BATT	A	B	C	D	E	F	G	H
NRT4-U080 or NRT4-U108		1	1	1	1	1	1	1	1
	NRT4-B100	1	2	3	4	5	6	7	8
NRT4-080K or NRT4-108K		1	1	1	1	1	1	1	1
	NRT4-B100		1	2	3	4	5	6	7

NOTE! The models are not available for all markets. Contact Socomec for further information.

10000 VA



UPS	BATT	A	B	C	D	E	F	G	H
NRT4-U100 or NRT4-U110		1	1	1	1	1	1		
	NRT4-B100	1	2	3	4	6	8		
NRT4-100K or NRT4-110K		1	1	1	1	1	1		
	NRT4-B100		1	2	3	5	7		
NRT4-U100LB		1	1	1	1	1	1	1	1
	NRT4-B100			3	4	6	8	10	13

NOTE! The models are not available for all markets. Contact Socomec for further information.

3. STANDARD FEATURES AND OPTIONS

Availability	
●	*Standard feature*
○	*Available as option*

Features	NETYS RT		Notes		Reference
	1000-3000 VA	5000-10000 VA			
Communication Option					
USB port	●	●			
RS 232 port	●	●			
EPO/REPO	●	●			
Dry contact 1 input, 1 output	●	●			
Relay board card 1 input, 5 output programmable relays	○	○	⚠	⊘ Net Vision card	NRT4-OP-ADC
Net Vision card or box *(professional WEB/SNMP interface for UPS monitoring)*	○	○	⚠	⊘ Relay board card (only with NET-VISION8CARD)	NET-VISION8CARD NET-VISION8BOX1
EMD *(Environmental Monitoring Device: temperature, humidity, 2 dry contacts)*	○	○	⚠	! Net Vision card	NET-VISION8-EMD
Electrical Option					
Input Output cable	●				
IEC UK adaptor	○				ADP-IEC-UK-10A
IEC DE adaptor	○				ADP-IEC-DE-10A
USB cable	●	●			
External maintenance bypass	○				MBP-1U-IEC
		○			NRT4-OP-MBP1 NRT4-OP-MBP3
Mechanical Option					
Rail for rack mount	●	●			NRT4-OP-RAIL
Rack brackets	●	●			
Tower stands	●	●			
Cable lockers	●				

! Required option

⊘ Incompatible option

4. SPECIFICATIONS - NETYS RT

4.1 INSTALLATION PARAMETERS

Installation parameters												
Rated power (VA)			1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out			1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Active power		W	1000	1500	2000	3000	5000	6000	8500	10000	8500	10000
Rated/maximum rectifier input current (EN 62040-3)(1)		A	4,6 / 10	7,23 / 10	9,3 / 16	13,99 / 16	23,8 / 29	28,4 / 34	40,2	48,1	1 Ph: 21,3 / 47 3 Ph: L1 = 21,3 / 42 L2 = 21,3 / 16 L3 = 21,3 / 16	1 Ph: 16,1 / 65 3Ph: L1 = 16,1 / 52 L2 =16,1 / 22 L3 = 16,1 / 22
Inverter output current @ 230 V		A	4,2	6,5	8,7	13,2	22,8	27,3	38,7	45,5	38,7	45,5
Sound level		dBA	< 45		< 50				< 55			
Power dissipation in nominal conditions(1)		W	33	48	33	36	51	52	58	61	60	65
		kcal/h	28	42	29	31	44	45	50	52	52	56
		BTU/h	111	115	114	123	174	177	198	208	206	222
Dimensions	Width	mm	438		438		438					
	Depth	mm	445		600		570					
	Height	mm	85.5		85.5		86.3					
Weight without batteries		kg		8.2(3)		10.9(3)	13.7	13.7	15.2	15.3	15.8	15.8
Weight with batteries (depending on number of batteries)		kg	15.5	15.7	25.6	26.1						

(1) Considering nominal input current (230 V, battery charged) and rated output active power.

(2) Considering maximum input current (low input voltage) and rated output active power.

(3) LB models

4.2 ELECTRICAL CHARACTERISTICS

Electrical characteristics - Rectifier Input											
Rated power (VA)		1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out		1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Rated mains supply voltage		230 V 1Ph + N								1Ph = 230 V 1Ph +N 3Ph = 400 V 3Ph + N	
Voltage tolerance (phase to neutral)		110 V to 300 V (160-300 full load at 100 V derating 50% load)						110 V to 276 V (160-276 full load (t 100 V derating 50% load)			
Rated frequency		50 / 60 Hz (selectable)									
Frequency tolerance		From 40 to 70 Hz									
Power factor (input at full load and rated voltage)		≥ 0.99									
Total harmonic distortion (THDi)		< 5% (R and RCD load)				< 3% (R load) < 5% (RCD load)					
Max inrush current at start-up	A	8*Irms									

Electrical characteristics - Bypass											
Rated power (kVA)			1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out			1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Bypass rated voltage (phase to neutral)			187V to 264V									
Bypass rated frequency			50Hz / 60Hz									
Bypass frequency tolerance			±10%									

Electrical characteristics - Inverter											
Rated power (kVA)			1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out			1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Rated output voltage phase neutral (selectable)			200 V / 208 V / 220 V / 230 V (default) / 240 V at 200 V derating to 80%, at 208 derating to 90%									
Output voltage tolerance			± 1%									
Rated output frequency			45 Hz to 55 Hz (at 50Hz) 54 Hz to 66 Hz (at 60 Hz)									
Output frequency tolerance			± 0,1 Hz									
Load crest factor			3:1									
Voltage harmonic distortion (with linear load)			< 1%									
Overload tolerated by the inverter	10 min	W	-				<6250	<7500	<10625	<12500	<10625	<12500
	5 min	W	<1250	<1875	<2500	<3750	-					
	30 sec	W	<1500	<2250	<3000	<4500	<7500	<9000	<12750	<15000	<12750	<15000
	500 ms	W	>1500	>2250	>3000	>4500	>7500	>9000	>12750	>15000	>12750	>15000

Electrical characteristics - Efficiency									
Rated power (kVA)	1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out	1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Double conversion efficiency (normal mode - 230V @ full load)	up to 94,6%				Up to 95.6%					
Efficiency in EcoMode	up to 97%				up to 98%					

Electrical characteristics - Environment										
Rated power (kVA)	1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out	1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Storage temperatures	-5 to +50 °C (15 to 25 °C for better battery life)									
Working temperature	0 °C to 45 °C (40 °C to 45 °C derating 80%)				0 °C to 45 °C					
Maximum relative humidity (non-condensing)	95%									
Maximum altitude without derating	1000 m									
Degree of protection	IP20									
Portability	Better then IATS									
Colour	RAL7016									

Electrical characteristics - Battery											
Rated power (kVA)		1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out		1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Battery internal (pieces)		3		6		-					
Battery external (pieces)		2 x 3		2 x 6		16		20			
Maximum recharge current (A)	A	1,5	1,5 (8[1])	1,5	1,5 (8[1])	4	4 (12[1])	4	4 (12[1])	4	4 (12[1])

(1) LB models

4.3 RECOMMENDED PROTECTION

RECOMMENDED PROTECTION DEVICES - Input[1]										
Rated power (kVA)	1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out	1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
C curve circuit breaker (A)	10	10	16	16	-					
D curve circuit breaker (A)	-				50	63	80			

RECOMMENDED PROTECTION DEVICES - Input residual current circuit breaker[2]										
Rated power (kVA)	1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out	1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Input residual current circuit breaker	0,03A				0,1 Type A					

RECOMMENDED PROTECTION DEVICES - Output[3]										
Model	1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out	1/1									
Short-circuit inverter current (A) (when AUX MAINS is not present)	20	25	36	54	54	54	110	110	110	110
B curve circuit breaker[3] (A)	3	4	6	8	10		20			

CABLES - Maximum cable section										
Model	1000	1500	2000	3000	5000	6000	8500	10000	8500 (x:1)	10000 (x:1)
Phase in/out	1Ph IN / 1Ph OUT								1 or 3 Ph IN / 1 Ph OUT	
Rectifier terminals (flexible cable)/(rigid cable) mm^2	IEC320-C14		IEC320-C20		min 6 max 16		min 10 max 16			
Battery terminals (flexible cable)/(rigid cable) mm^2	connector									
Output terminals (flexible cable)/(rigid cable) mm^2	8xIEC320 C13			8xIEC320 C13 + 1x IEC320 C19	min 6 max 16		min 10 max 16			

(1) Rectifier protection should only be considered in the event of separate inputs. The bypass protection is given by recommendation. When the bypass and rectifier inputs are combined (common input), the general input protection rating must be whichever is the highest (bypass or rectifier).

(2) Must be selective with residual current circuit breakers downstream of the UPS connected to the UPS output. If the bypass network is separate from the rectifier circuit, or in the event of a parallel UPS configuration, use a single residual current circuit breaker upstream of the UPS.

(3) Selectivity of distribution after the UPS with inverter short-circuit current (short-circuit with AUX MAINS not present). The rating of the protection can be increased by "n" times downstream of a parallel UPS system, with "n" equal to the number of parallel modules.

5. REFERENCE STANDARDS AND DIRECTIVES

5.1 OVERVIEW

The equipment, installed, used and serviced in accordance with its intended use, its regulations and standards, its manufacturer instructions and rules, is in compliance with the relevant Union harmonisation legislation:

LVD 2014 / 35 / EU

DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014, on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.

EMC 2014 / 30 / EU

DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014, on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

RoHS 2011/65/EU

Directive 2011/65 of the European parliament and of the council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

5.2 STANDARDS

5.2.1 SAFETY

EN 62040-1 Uninterruptible Power System (UPS) - Part 1: General and safety requirements

IEC 62040-1 Uninterruptible Power System (UPS) - Part 1: Safety requirements (CB scheme by TÜV)

5.2.2 ELECTROMAGNETIC COMPATIBILITY

EN 62040-2 Uninterruptible Power System (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements (tested and verified by third party)

IEC 62040-2 Uninterruptible Power System (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements

5.2.3 TEST AND PERFORMANCE

EN 62040-3 Uninterruptible power systems (UPS). Methods of specifying the performance and test requirements

5.3 SYSTEM AND INSTALLATION GUIDELINES

When carrying out electrical installation, all the above standards must be observed. All national and international standards (e.g IEC60364) applicable to the specific electrical installation including batteries must be observed. For further information refer to 'Technical specifications' chapter in the user manual.

ELITE UPS: a mark of efficiency

Socomec, as CEMEP UPS manufacturer member, has signed a Code of Conduct put forward by the Joint Research Centre of the European Commission (JRC), to ensure the protection of critical applications and processes ensuring 24/7 continuous high quality supply. The JRC commits to mitigating energy losses and gas emissions caused by UPS equipment, therefore maximising UPS efficiency.