ULTIMATE

Fault tolerant power
without compromise

MODULYS RM GP

Rack-mounted modular UPS system

Green Power 2.0 range

up to 4 x 25 kVA/kW

19" | 3 LEVEL TECHNOLOGY | 96.5% EFFICIENCY | kW = kVA

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OBJECTIVES

The aim of these specifications is to provide the information required to prepare the system and installation site.
The specifications are intended for:

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

Please contact us for further information, or if you would like to receive a full documentation package for detailed product know-how, including schematics, integration instructions, technical data sheets, user's manual, etc.

1. ARCHITECTURE

1.1 RANGE AND FLEXIBILITY

MODULYS RM GP is a 3-phase modular UPS system designed for 19” rack integration. The product is easy to integrate and install, as well as being very simple to operate and maintain. It provides maximum power availability and protection in a compact design that leaves free space for other rack mounted devices.

MODULYS RM GP:

- provides easy and fully-assured rack integration to meet all requirement across multiple applications, even for existing installations ;
- simplifies and optimises every step of the integration process - from sizing to installation, including the logistics, making project management easy, risk-free and economic ;
- provides reliable power whilst ensuring optimum load protection even during power upgrades or maintenance procedures.

Pre-cabled rack with maintenance bypass

M4-R-075-82B0	15U rack, 4 slots
M4-R-050-82B0	9U rack, 2 slots

Plug-in boards

1C-CP-OP-ADC+SL	Programmable IN / OUT dry contact + serial link
1C-CP-OP-MODTCP	MODBUS TCP interface
NET-VISION7CARD	NET VISION card, WEB / SNMP interface IPV4 / IPV6

Other options

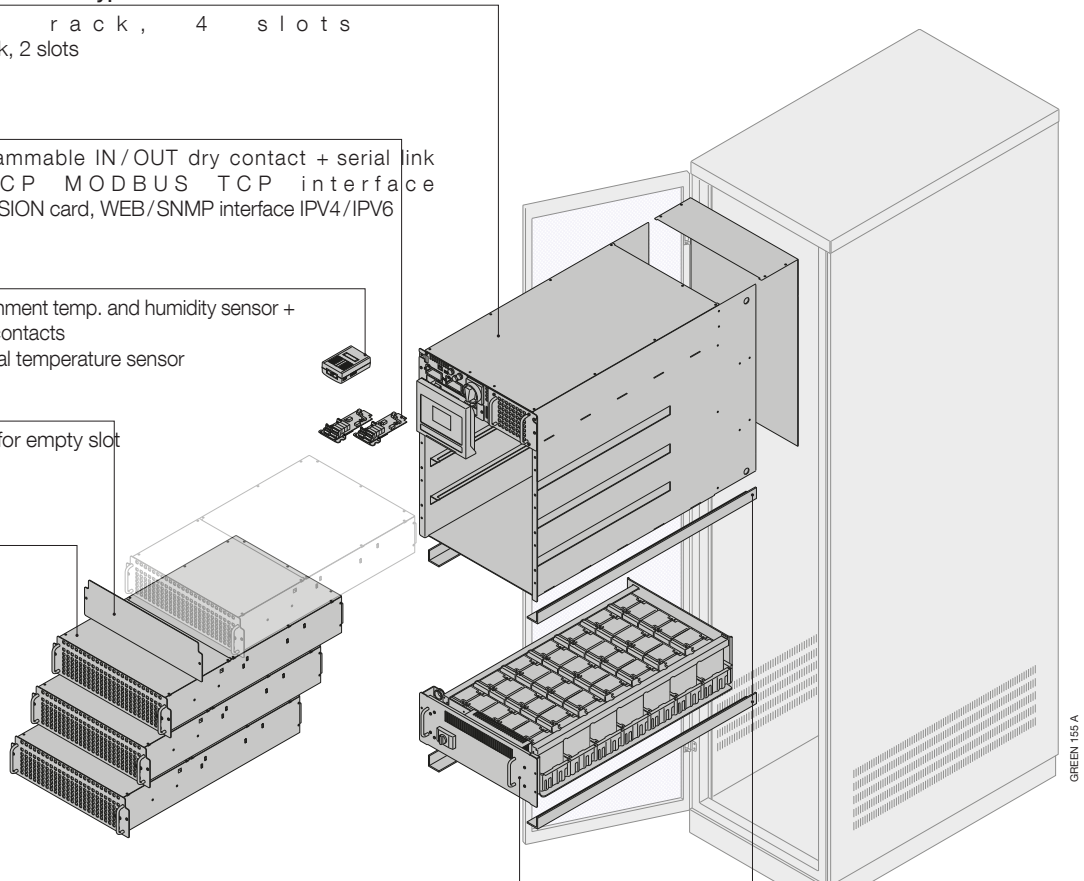
NET-VISION-EMD	Environment temp. and humidity sensor + 4 dry contacts
1C-OP-P-TEMP	External temperature sensor

Blank panel

M4-OP-SSC	Cover for empty slot

Power module - 25 kW

M4-RI-25

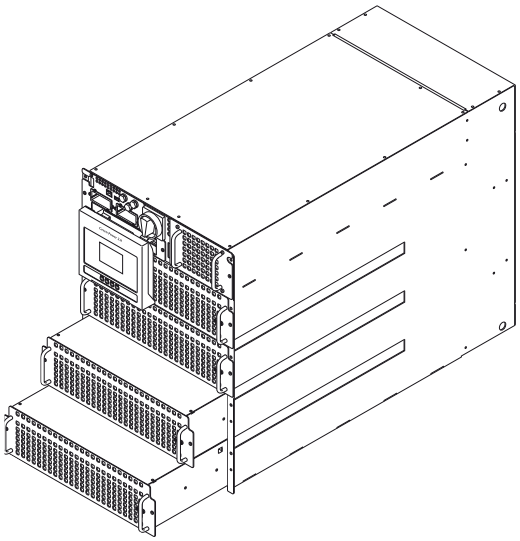


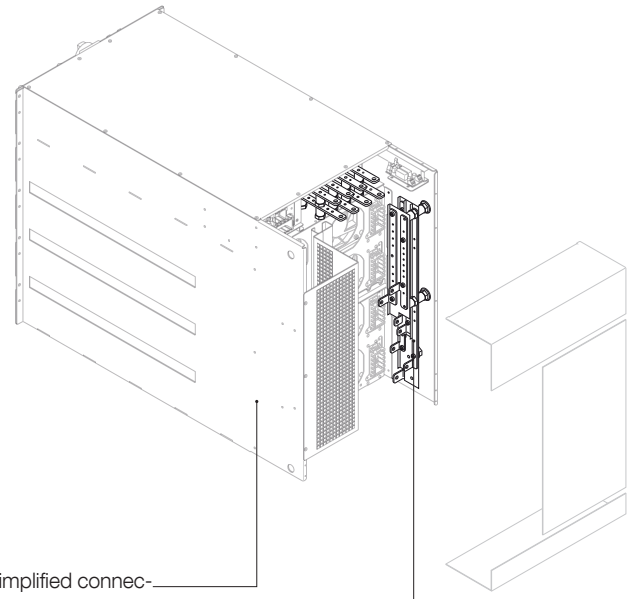
4U battery rack

M4-BR-009L	With 42 x 9Ah batteries, fuse and switch
M4-BR-009L-B	Empty, for 42 x 9Ah batteries, including interconnections, fuses and switch

Mounting accessories

M4-RI-OP-RAIL	Adjustable rails for rack mounting support





Pre-cabled system for simplified connections

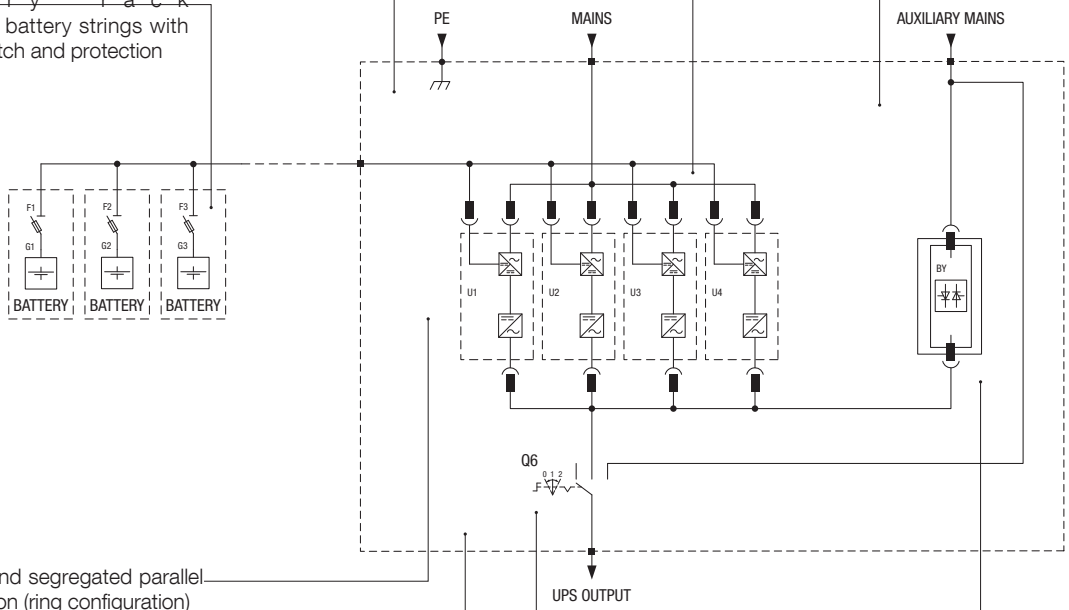
Flexible cabling management for top, bottom and mixed top / bottom entry cable

No centralised control for parallel and load sharing management

Totally independent and self-sufficient hot-swap power modules

Electronics-free (failure-free) sub-rack enclosure

Battery rack
Independent battery strings with individual switch and protection



Redundant and segregated parallel bus connection (ring configuration)

No single point of failure

Embedded manual bypass

Totally segregated, fully sized and centralised hot-swap auxiliary mains bypass

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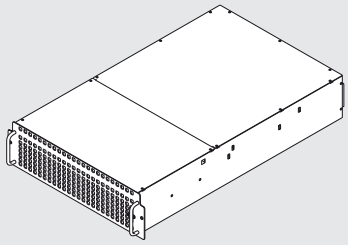
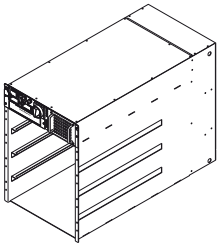
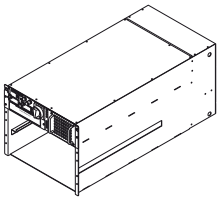
Configurations and rated power (kW)					
					
		M4-RI-25			
		Number of power modules			
		1	2	3	4
 M4-R-075-82B0	N configuration	25	50	75	-
	N+1 redundancy	-	25	50	75
 M4-R-050-82B0	N configuration	25	50	-	-
	1+1 redundancy	-	25	-	-

1.2 FLEXIBLE BACK-UP TIME

Different extended back-up times are possible by using: (1) 4U rack-mounted battery modules; (2) a modular battery cabinet; (3) a high capacity battery cabinet.

Each battery pack comprises an acid-proof container designed to prevent damage in case of acid leakage.

Each Power Module has a powerful embedded battery charger able to provide up to 8 A (without power derating).

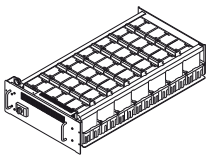
A special Power Module with extra battery charger inside is available when very long back-up times are required.

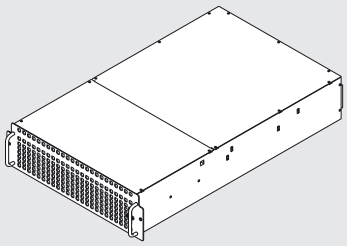
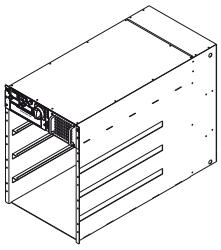
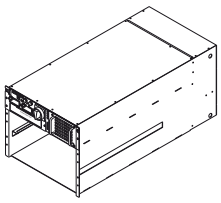
MODULYS RM GP is compatible with different battery technologies.

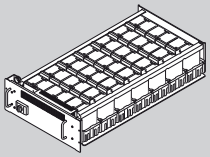
Battery block dynamics[1]		
Sealed lead-acid	Min	108 + 108
	Max	144 + 144
Open vented (flooded lead-acid)	Min	108 + 108
	Max	144 + 144
Nickel Cadmium	Min	180 + 180
	Max	228 + 228

2 strings/3 cables configuration (+ N -).

1.2.1 4U RACK-MOUNTED BATTERY MODULES

Dimensions and weight		
	Height (mm)	175
	Depth (mm)	920
	Width (mm)	442 (482)
	Weight - empty (kg)	23
M4-BR-009L	Weight - with batteries (kg)	136

4U rack-mounted battery modules Back up times in minutes at rated load				
				
		M4-RI-25		
		Number of power modules		
	Without redundancy	1	2	3
M4-R-075-82B0	N+1 redundancy	2	3	4
	Without redundancy	1	2	-
M4-R-050-82B0	1+1 redundancy	2	-	-

	Load power (kW)			5	10	15	18	20	25	30	36	40	50	54	60	75
	Number of battery racks	1	Cumulative Ah	9	25	11	6	4	3	-	-	-	-	-	-	-
		2		18	62	26	17	13	11	8	6	4	3	-	-	-
		3		27	100	44	26	22	19	15	11	8	7	5	4	3	-
		4		36	138	64	40	31	26	20	17	13	11	8	7	6	4
		5		45	176	84	51	41	37	26	21	17	15	11	9	8	6
M4-BR-009L		> 5		consult us												

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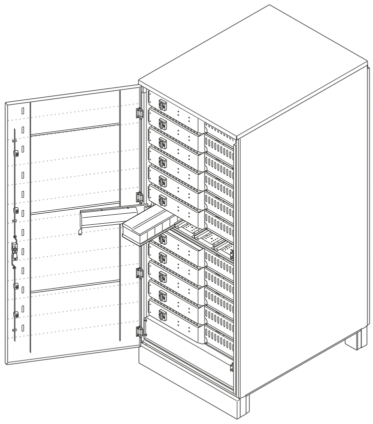
1.2.2 MODULAR HOT-SWAP BATTERY CABINET

The modular battery system is based on vertical and horizontal modularity thanks to independent battery strings connected in parallel, each string comprising hot-swap long life battery packs.

Each battery string has its own independent protection and its own independent switch for fast and safe maintenance.

Modular hot-swap battery cabinet



Number of strings	Item code
0 (empty cabinet)	M4-BH-00S-009L
1	M4-BH-01S-009L
2	M4-BH-02S-009L
3	M4-BH-03S-009L
4	M4-BH-04S-009L
5	M4-BH-05S-009L
6	M4-BH-06S-009L
7	M4-BH-07S-009L
8	M4-BH-08S-009L
9	M4-BH-09S-009L
10	M4-BH-10S-009L
11	M4-BH-11S-009L
12	M4-BH-12S-009L

Dimensions and weight

	Number of battery cabinets																																				
	1												2												3												
	Number of strings																																				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Height (mm)	1990																																				
Depth (mm)	950																																				
Width (mm)	810													1620												2430											
Weight (kg)	260	384	508	632	756	880	1004	1128	1252	1376	1500	1624	1748	2132	2256	2380	2504	2628	2752	2876	3000	3124	3248	3372	3496	3880	4004	4128	4252	4376	4500	4624	4748	4872	4996	5120	5244

Modular hot-swap battery cabinet Back up times in minutes @ 75 % of rated load

						Number of power modules		
Without redundancy						1	2	3
N+1 redundancy						2	3	4
Number of battery cabinets	1	Number of strings	1	Cumulative Ah	9	5	-	-
			2		18	15	5	-
			3		27	23	9	5
			4		36	34	15	8
			5		45	44	19	11
			6		54	57	23	15
			7		63	68	28	18
			8		72	80	34	20
			9		81	92	40	23
			10		90	103	44	26
			11		99	116	51	30
			12		108	129	57	34
	2		13		117	141	63	38
			14		126	151	68	41
			15		135	163	73	44
			16		144	177	80	48
			17		153	190	86	53
			18		162	206	92	57
			19		171	221	98	61
			20		180	235	103	65
			21		189	249	109	68
			22		198	261	116	71
			23		207	272	123	75
			24		216	282	129	80
	3		25		225	294	135	84
			26		234	310	141	88
			27		243	326	146	92
			28		252	341	151	96
			29		261	354	156	99
			30		270	367	163	103
			31		279	383	170	107
			32		288	402	177	111
			33		297	419	183	116
			34		306	436	190	120
			35		315	451	197	125
			36		324	466	206	129

						Number of power modules	
Without redundancy						1	2
1+1 redundancy						2	-
Number of battery cabinets	1	Number of strings	1	Cumulative Ah	9	5	-
			2		18	15	5
			3		27	23	9
			4		36	34	15
			5		45	44	19
			6		54	57	23
			7		63	68	28
			8		72	80	34
			9		81	92	40
			10		90	103	44
			11		99	116	51
			12		108	129	57
	2		13		117	141	63
			14		126	151	68
			15		135	163	73
			16		144	177	80
			17		153	190	86
			18		162	206	92
			19		171	221	98
			20		180	235	103
			21		189	249	109
			22		198	261	116
			23		207	272	123
			24		216	282	129
	3		25		225	294	135
			26		234	310	141
			27		243	326	146
			28		252	341	151
			29		261	354	156
			30		270	367	163
			31		279	383	170
			32		288	402	177
			33		297	419	183
			34		306	436	190
			35		315	451	197
			36		324	466	206

For very long BUT, it is recommended to use the power module with 16 A charging current (refer to page 14).

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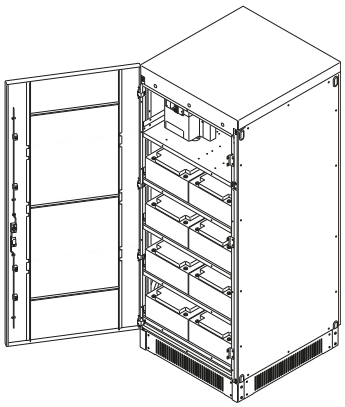
1.2.3 MODULAR BATTERY CABINET - HIGH CAPACITY

Modular hot-swap battery cabinet



M4-BC-01S-92L

Dimensions and weight		
	Number of strings	
	0	1
Height (mm)	1990	
Depth (mm)	890	
Width (mm)	810	
Weight (kg)	220	1792

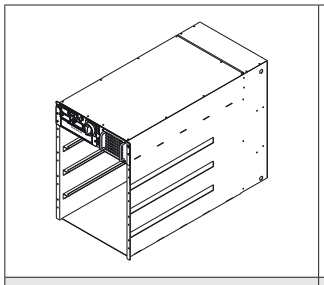
Modular battery cabinet Back up times in minutes @ 75 % of rated load								
						Number of power modules		
Without redundancy						1	2	3
N+1 redundancy						2	3	4
Number of battery cabinets	1	Number of battery racks	1	Cumulative Ah	92	119	56	33
			2		184	279	119	75
			3		276	447	201	119
			4		368	654	279	170
			5		460	-	378	226
			6		552	-	-	279

Modular battery cabinet Back up times in minutes @ 75 % of rated load							
						Number of power modules	
Without redundancy						1	2
1+1 redundancy						2	-
Number of battery cabinets	1	Number of battery racks	1	Cumulative Ah	92	119	56
			2		184	279	119
			3		276	447	201
			4		368	654	279
			5		460	-	378

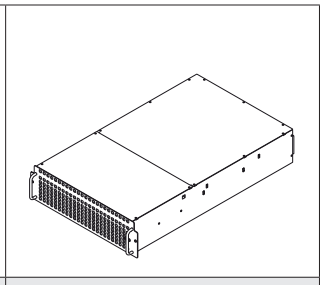
For very long BUT, it is recommended to use the power module with 16 A charging current (refer to page 14).

2. SPECIFICATIONS

2.1 INSTALLATION PARAMETERS



M4-R-075-82B0

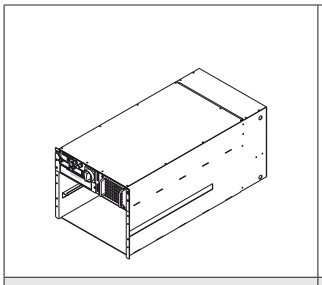


M4-RI-25

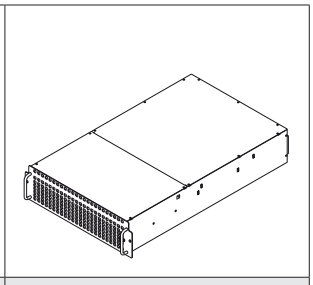
Configurations and rated power (kW)				
	Number of power modules			
	1	2	3	4
N configuration	25	50	75	-
N+1 redundancy	-	25	50	75

Rated current and max current			
	Number of power modules		
Without redundancy	1	2	3
N+1 redundancy	2	3	4
Rated rectifier input current (A) (EN 62040-3)	37.7	75	113
Max rectifier input current (A) (EN 62040-3)	45.0	90	135
Rated inverter output current (A)	36.2	72	109
Maximum bypass input current (A) (EN 62040-3)	120		
Max battery current (A)	80	160	240

Cooling				
		Number of power modules		
Without redundancy		1	2	3
N+1 redundancy		2	3	4
Maximum air flow	m^3/h	400	800	1200
Max dissipation in nominal conditions(1)	W	1140	2280	3420
	kcal/h	980	1961	2941
	BTU/h	3891	7782	11672
Max dissipation in worst conditions(2)	W	1350	2650	3950
	kcal/h	1161	2279	3397
	BTU/h	4608	9044	13481



M4-R-050-82B0



M4-RI-25

Configurations and rated power (kW)		
	Number of power modules	
	1	2
N configuration	25	50
1+1 redundancy	-	25

Rated current and max current		
	Number of power modules	
Without redundancy	1	2
1+1 redundancy	2	-
Rated rectifier input current (A) (EN 62040-3)	37.7	75
Max rectifier input current (A) (EN 62040-3)	45.0	90
Rated inverter output current (A)	36.2	72
Maximum bypass input current (A) (EN 62040-3)	120	
Max battery current (A)	80	160

Cooling			
		Number of power modules	
Without redundancy		1	2
1+1 redundancy		2	-
Maximum air flow	m^3/h	400	800
Max dissipation in nominal conditions(1)	W	1140	2280
	kcal/h	980	1961
	BTU/h	3891	7782
Max dissipation in worst conditions(2)	W	1350	2650
	kcal/h	1161	2279
	BTU/h	4608	9044

(1) Nominal input voltage and rated output active power (PF1).
(2) Low input voltage, battery recharge and rated output active power (PF1).

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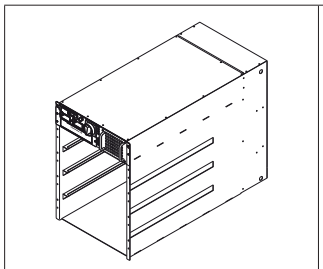
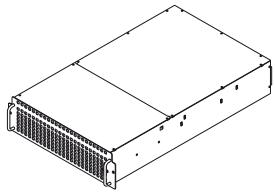
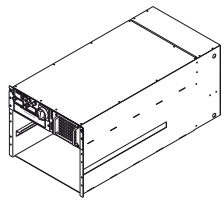
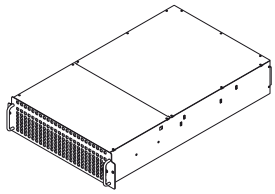
				
M4-R-075-82B0	M4-RI-25		M4-R-050-82B0	M4-RI-25

Acoustic noise			
	Number of power modules		
Without redundancy	1	2	3
N+1 redundancy	2	3	4
Acoustic noise at 1 m (dBA)(1)	51	53	54

Acoustic noise		
	Number of power modules	
Without redundancy	1	2
1+1 redundancy	2	-
Acoustic noise at 1 m (dBA)(1)	51	53

(1) 75 % of nominal load.

Dimensions and weight				
	Number of power modules			
	1	2	3	4
Height (mm)	664			
Depth (mm)	920			
Width (mm)	442 (482)			
Weight - sub-rack (kg)	49			
Weight (kg)	82	115	148	181

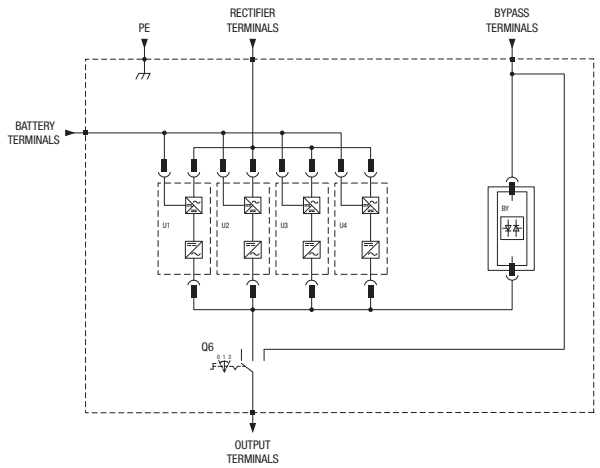
Dimensions and weight		
	Number of power modules	
	1	2
Height (mm)	397	
Depth (mm)	920	
Width (mm)	442 (482)	
Weight - sub-rack (kg)	43	
Weight (kg)	76	109

Environment	
Storage temperature	-5 to +50 °C
Operating temperature	0 to 40 °C(1)(2)
Maximum relative humidity	95 % condensation-free
Degree of protection	IP20

Environment	
Storage temperature	-5 to +50 °C
Operating temperature	0 to 40 °C(1)(2)
Maximum relative humidity	95 % condensation-free
Degree of protection	IP20

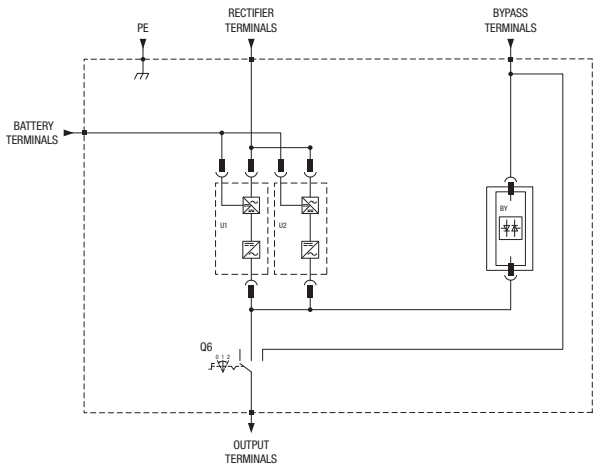
(1) According to EN 62040-3.
(2) For optimum battery lifetime the ideal temperature range is 15 °C - 25 °C

Cabling system and max cable section



		Number of power modules			
		1	2	3	4
Rectifier terminals (mm^2)	Flexible	50			
	Rigid	50			
Bypass terminals (mm^2)	Flexible	50			
	Rigid	50			
Battery terminals (mm^2)	Flexible	70			
	Rigid	70			
Output terminals (mm^2)	Flexible	50			
	Rigid	50			

Cabling system and max cable section



		Number of power modules	
		1	2
Rectifier terminals (mm^2)	Flexible	35	
	Rigid	35	
Bypass terminals (mm^2)	Flexible	35	
	Rigid	35	
Battery terminals (mm^2)	Flexible	35	
	Rigid	35	
Output terminals (mm^2)	Flexible	35	
	Rigid	35	

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2.2 ELECTRICAL CHARACTERISTICS

2.2.1 ELECTRICAL CHARACTERISTICS INDEPENDENT OF THE NUMBER OF MODULES

Electrical characteristics - Input	
Rated mains supply voltage (V)	400 V 3-phase+N
Voltage tolerance at full load	340 V to 480 V (+20/-15 %)
Voltage tolerance at derated load	up to 240 V @ 50 % of nominal load (linear decrease)
Rated frequency (Hz)	50/60 ±10 %
Power factor	> 0.99(1)
Total harmonic input current distortion (THDi)	≤ 3 % (@: Pn, Resistive load, Mains THDv ≤ 1 %)
Max inrush current at start-up	Power walk-in/Soft-start (selectable parameters)

(1) Pout ≥ 50 % Sn.

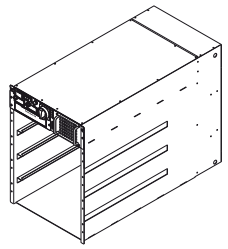
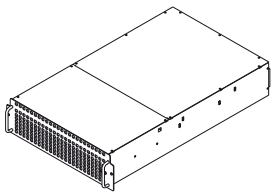
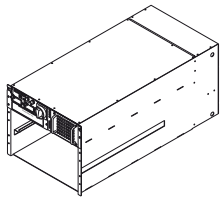
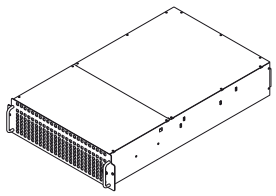
Electrical characteristics - Bypass	
Bypass rated voltage (V)	Nominal output voltage ±15 % (±20% if GENSET is used)
Bypass rated frequency (Hz)	50/60
Bypass frequency tolerance (Hz)	±2 % selectable (±8% if GENSET is used)
Bypass frequency variation speed	50/60 ±10 %

Electrical characteristics - Inverter	
Rated output voltage (V)	(3ph + N) 380/400/415 selectable
Output voltage tolerance (Hz)	±1
Rated output frequency (Hz)	50/60 (selectable)
Output frequency tolerance	±0.05 % (on battery mode)
Load crest factor	≥ 2.7:1
Total output voltage distortion (THDv)	≤ 1 % (Ph/Ph); ≤ 2 % (Ph/N) (@: Pn, Resistive load)

Electrical characteristics - Stored energy operating mode	
Number of battery blocks (VRLA)	From 18+18 to 24+24

Electrical characteristics - Efficiency	
Efficiency (on-line mode)	up to 96.5 %
Efficiency (eco-mode)	up to 99.3 %

2.2.2 ELECTRICAL CHARACTERISTICS DEPENDENT OF THE NUMBER OF MODULES

				
M4-R-075-82B0	M4-RI-25		M4-R-050-82B0	M4-RI-25

Electrical characteristics - Inverter overload

		Number of power modules		
		1	2	3-4
Inverter overload (kW)(1)	10 min	31.2	62.4	94
	5 min	33.3	66.5	100
	1 min	37.5	75.0	113

		Number of power modules	
		1	2
Inverter overload (kW)(1)	10 min	31.2	62.4
	5 min	33.3	66.5
	1 min	37.5	75.0

(1) Initial condition Pout ≤ 80 % Pn.

Electrical characteristics - Inverter short-circuit

		Number of power modules			
		1	2	3	4
Inverter short-circuit (A) Ik1 = Ik2 = Ik3	40 ms	100	200	300	400
	40 to 80 ms	80	160	240	320

		Number of power modules	
		1	2
Inverter short-circuit (A) Ik1 = Ik2 = Ik3	40 ms	100	200
	40 to 80 ms	80	160

Electrical characteristics - Bypass overload and short-circuit

		Number of power modules			
		1	2	3	4
Bypass overload (A)	Nominal	109			
	Continuous	120			
	30 min	136			
	10 min	163			
	1 sec	> 190			
Bypass I^2t (A^2s)		130000			
Bypass Max Peak Current (A)		5000			

		Number of power modules	
		1	2
Bypass overload (A)	Nominal	73	
	Continuous	80	
	30 min	91	
	10 min	109	
	1 sec	> 127	
Bypass I^2t (A^2s)		130000	
Bypass Max Peak Current (A)		5000	

Electrical characteristics - Battery charger max current

	Number of power modules			
	1	2	3	4
Standard max. current (A) M4-RI-25	8	16	24	32
Enhanced battery charger max. current (A) M4-RI-25+CH	16	32	48	64

	Number of power modules	
	1	2
Standard max. current (A) M4-RI-25	8	16
Enhanced battery charger max. current (A) M4-RI-25+CH	16	32

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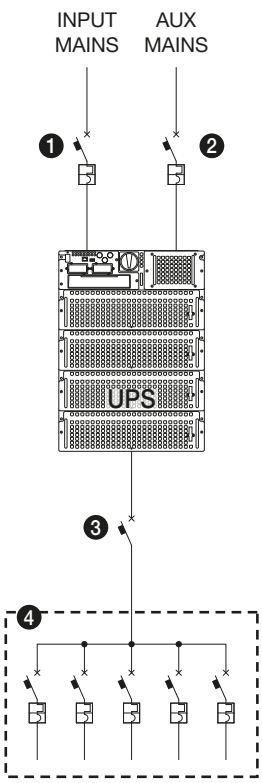
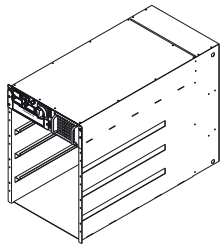
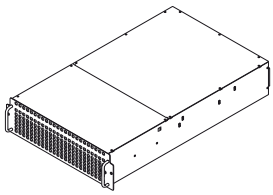
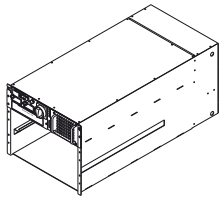
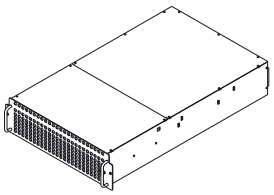
2.3 RECOMMENDED PROTECTION DEVICES



Key

1. *Input mains magneto-thermal switch*
2. *Auxiliary mains magneto-thermal switch*
3. *System shutdown switch*
4. *Distribution*

The installation and system should comply with national plant regulations.
The electrical distribution panel should have a sectioning and protection system installed for input and auxiliary mains.

			
M4-R-075-82B0	M4-RI-25	M4-R-050-82B0	M4-RI-25

Recommended protection devices - Rectifier

		Number of power modules		
Without redundancy		1	2	3-4
N+1 redundancy		2	3	4
C curve circuit breaker (A)	Min	50	100	160
	Max	160		
Gg fuse (A)	Min	50	100	160
	Max	160		

		Number of power modules	
Without redundancy		1	2
1+1 redundancy		2	-
C curve circuit breaker (A)	Min	50	100
	Max	160	
Gg fuse (A)	Min	50	100
	Max	100	

A circuit breaker switch is recommended with a magnetic tripping threshold of ≥ 10 In (curve C). A D curve selective breaker should be fitted if an optional external transformer is used.

The minimum value depends on the size of the power cables in the installation, while the maximum value is limited by the UPS cabinet.

The system can accept the max. value of protection, whatever the number of modules installed, in order to allow future scalability, while the min. value depends on the size of the power cables in the installation. A value of protection less than the recommended Max shall be used when the mains network structure cannot support the full power load, and shall be chosen between max. and min. values (as per the table below) according to the mains network design.

Rectifier protection should be taken into account in the event of separate inputs; when the auxiliary mains and rectifier inputs are combined (common input), the general input protection rating should be higher than both (auxiliary mains or rectifier).

Recommended protection devices - Auxiliary mains					
		Number of power modules			
		1	2	3	4
C curve circuit breaker (A)	Min	50	100	160	200
	Max	200			
Gg fuse (A)	Min	50	100	160	200
	Max	200			

If an optional external transformer is used, a D curve selective breaker should be used.

Auxiliary mains protection should be taken into account in the event of separate inputs; when the auxiliary mains and rectifier inputs are combined (common input), the general input protection rating should be higher than both (auxiliary mains or rectifier).

Recommended protection devices - Input residual current circuit breaker				
	Number of power modules			
	1	2	3	4
Input residual current circuit breaker (A)	0.5			

An RCD is not necessary when the UPS is installed in TN-S system. RCDs are not allowed on TN-C systems. If an RCD is required, a B type should be used.

Caution!

Use four-pole selective (S) residual current detectors (RCDs). Load leakage currents are to be added to those generated by the UPS and during transitory phases (power failures and power returns) short current peaks may occur. If loads with high leakage current are present, adjust the residual current protection. It is advisable in all cases to carry out a preliminary check on the earth current leakage with the UPS installed and operating with the definitive load, so as to prevent the sudden activation of the RCD switch.

Output selectivity on battery mode (Aux mains not present)				
	Number of power modules			
	1	2	3	4
B curve circuit breaker (A)	≤ 20	≤ 40	≤ 50	≤ 80
C curve circuit breaker (A)	≤ 10	≤ 20	≤ 25	≤ 40

Selectivity of distribution downstream of UPS with downstream short-circuit (AUX MAINS not present).

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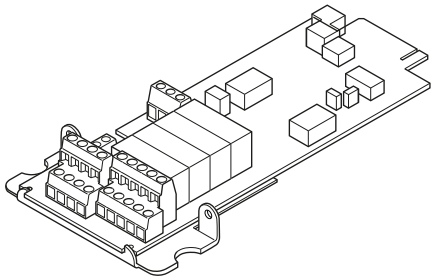
2.4 COMMUNICATION OPTIONS

2.4.1 PROGRAMMABLE IN/OUT DRY CONTACT CARD WITH SERIAL LINK

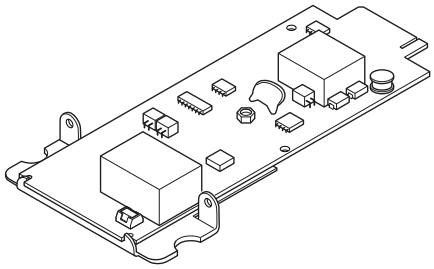
The board is plug&play: the UPS is able to recognize its presence and configuration.

Up to 4 standard operating modes can be selected simply using two jumpers; the selected operating mode manages the ADC outputs and the inputs accordingly.

It is also possible to create a custom operation mode (consult us).

Programmable in/out dry contact card with serial link	
	
CP-OP-ADC+SL	
• *4 relays for external device activation (can be set as normally closed or normally open)*	- general alarm, - back-up operation, - bypass operation, - preventive maintenance request.
• *3 free inputs to report external contacts to UPS*	- emergency stop devices (ESD), - operation with generating set, - battery protection status.
• *1 connector for external temperature sensor (optional)* • *RS485 insulated serial link providing MODBUS RTU protocol* • *2 LEDs to display the board status*	

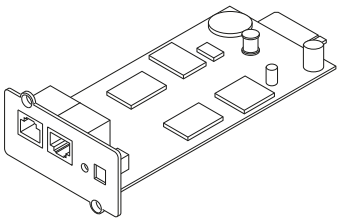
2.4.2 MODBUS TCP CARD FOR CONNECTION WITH BMS SYSTEM

MODBUS TCP – IDA interface (MODBUS TCP card)

CP-OP-MODTCP
Detailed information on the MODBUS protocol serial link or Ethernet network for MODULYS RM GP is available in the Modbus TCP User Manual.

2.4.3 NET VISION CARD FOR INTERFACE WITH IT INFRASTRUCTURE

Net Vision is a network adapter for the professional monitoring and remote control of MODULYS RM GP. The Net Vision network adaptor allows the UPS to be connected directly to the Ethernet network allowing secure management of the UPS over the network using a web browser, a TELNET interface or NMS application via SNMP. The protocols used for connection are independent of the platform and operating system, therefore Net Vision is extremely flexible and suitable for all systems. In addition to monitoring and control, the Net Vision interface is able to provide a high level of protection for servers powered by the UPS. In critical conditions, up to 250 devices powered by the UPS can be switched off in an orderly sequence whilst ensuring data integrity. The remote shutdown is provided by a client shutdown to be installed on all computers that require this automatic function. Some clients for Net Vision are native to certain operating systems, otherwise a universal shutdown client (JNC) can be used.

NET VISION



NET-VISIONxCARD

NET VISION FUNCTIONS

- UPS monitoring via HTML pages and synoptic
- UPS control
- UPS event notification via email
- SNMP TRAP notification to NMS system (NET VISION and RFC1628 TRAP from version 6.1 and above)
- Server Shutdown (using JNC and VIRTUAL-JNC software agent on servers)
- Events and measurements log
- Multi-language capabilities

2.4.4 EMD (Environment Monitoring Device)

The EMD monitors temperature, humidity and other conditions in the room's environment and also offers 2 digital input connections for external dry contacts to monitor water, fire and smoke security alarms. All information is processed by MODULYS RM GP for a complete monitoring of external conditions and alarms. Easy connection to Net Vision card using standard CAT5 cables with straight through wiring.

EMD (Environment Monitoring Device)

Net Vision EMD

EMD FUNCTIONS

- External temperature monitoring
- External humidity monitoring
- 2 digital input connections for external dry contacts (for instance to monitor security alarms like fire, smoke, etc.)

2.4.5 EXTERNAL TEMPERATURE SENSOR

The temperature sensor can be used to monitor the battery temperature should the battery cabinet be provided by another supplier by Socomec (all battery cabinets provided by Socomec are fitted with the temperature sensor as standard). The sensor should be connected to the ADC-SL board, using the relative connector. MODULYS RM GP uses the temperature measured by this sensor to correctly set the battery charge profile.

3. REFERENCE STANDARDS AND DIRECTIVES

3.1 OVERVIEW

The construction of the equipment and choice of materials and components comply with all laws, decrees, directives and standards currently in force. In particular, the equipment is fully compliant with all European Directives concerning CE marking.

2006/95/EC

Council Directive 2006/95/EC, dated 16 February 2007, on the reconciliation of legislation within Member States regarding electrical materials for use within specific voltage ranges.

2004/108/EC

On the approximation of the laws of the Member States relating to electromagnetic compatibility.

3.2 STANDARDS - TESTS, VERIFICATIONS AND CERTIFICATIONS

	Standards	
Safety	IEC 62040-1	
EMC	IEC 62040-2 (C2)	
Performance(1)	IEC 62040-3 (VFI-SS-111)	
Power module efficiency(2)	IEC 62040-3	up to 96,5 %
Power module MTBF(3)	IEC 62380	1.000.000 h
Degree of protection	IEC 60529	IP20
Product certification	CE	

(1) EMC performances are tested and verified by CREI VEN.

(2) Power module efficiency is tested and verified by TÜV SÜD.

(3) Power Module MTBF is calculated and tested by SERMA ELECTRONICS.

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.

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