



# IPS THREE PHASE SERIES

Interruptible emergency lighting inverter system 4.5KVA-54KVA

## FEATURES

- PWM/Power Mosfet technology
- Self-testing/Self-diagnostic
- User programmable with password protection
- User programmable variable time delay
- Optional 100% normally Off output
- RS485 MODBUS RTU communication port
- Micro-processor controlled
- 30, 60, 90, 120 minutes run times
- Summary alarm form C dry contact
- Generator compatibility
- Electronic and magnetic ballast compatible
- Automatic event, test and alarm log
- LCD display
- Maintenance free standard batteries
- Forced air cooling during emergency and recharge modes only
- Off when on standby

## SYSTEM SPECIFICATIONS

### GENERAL

<b>DESIGN</b>	Stand-by, PWM inverter type utilizing Power Mosfet technology with 500ms transfer time.
<b>CONTROL</b>	Microprocessor controlled, 4 x 20-character display with touch pad controls & functions
<b>METERING</b>	Input & Output Voltage, Battery Voltage, Battery & Output Current, Output VA, Temperature
<b>COMMUNICATIONS</b>	RS-485 MODBUS RTU Port (DB-9) Baud rate 19200 b.p.s

### ELECTRICAL INPUT

<b>VOLTAGE</b>	120/208, 277/480, 347/600VAC 3-phase 4-wire +10% / -15%.
<b>INPUT FREQUENCY</b>	60Hz

### ELECTRICAL OUTPUT

<b>VOLTAGE</b>	120/208, 277/480, 347/600VAC 3-phase 4-wire.
<b>DYNAMIC VOLTAGE</b>	+/-2% for +/-25% load step change, +/-3% for a 50% load step change, recovery within 3 cycles
<b>HARMONIC DISTORTION</b>	<5% THD for linear load
<b>OUTPUT FREQUENCY</b>	60Hz +/- 2Hz during emergency mode
<b>LOAD POWER FACTOR</b>	0.7 lag to 0.9 lead
<b>INVERTER OVERLOAD</b>	120% continuous, 150% for 1 minute and 200% for 10 seconds
<b>PROTECTION</b>	Optional External Distribution Circuit Breaker
<b>CREST FACTOR</b>	3

### ENVIRONMENTAL CONDITIONS

<b>STORAGE/TRANSPORT</b>	32°F to 104°F (0°C to 40°C) without batteries 68°F to 86°F (20°C to 30°C) with batteries <sup>(1)</sup>
<b>OPERATING TEMPERATURE</b>	System operates safely from 32°F to 104°F (0°C to 40°C) but optimum operation is between 68° F and 77°F (20°C to 25°C). Battery performance can be affected by temperature.
<b>ALTITUDE</b>	<10,000 feet (above sea level) without de-rating
<b>RELATIVE HUMIDITY</b>	0 to 95% non-condensing
<b>AUDIBLE NOISE</b>	45 dBA at 1m from surface in emergency mode

(1) - max. 3 months at 77°F-86°F (25°C-30°C)

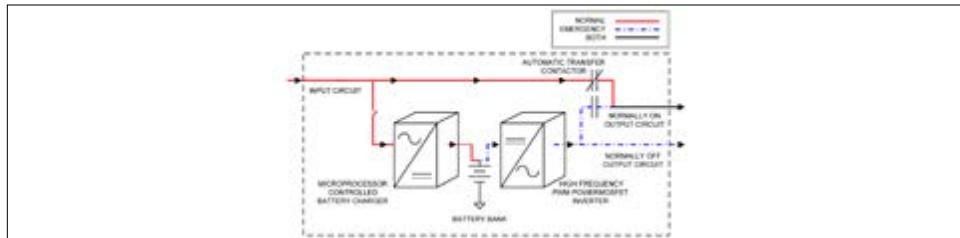
## ELECTRICAL/MECHANICAL CHARACTERISTICS FOR 30 MINUTES BACK-UP TIME

POWER RATING KVA/KW	EFFIC. AT FULL LOAD %	MAX. INPUT CURRENT (A)(1)			HEAT LOSS IN NORMAL MODE (BTU/HR)	BATT. VDC	BATT. ADC	NO. OF BATT. (1)	NO. OF IPS CAB. (1)(2)	IPS CABINET DIMENSIONS			NO. OF 20 BATT. CAB. (1) (2)	BATT. CABINET DIMENSIONS			NO. OF 30 BATT. CAB. (1) (2)	BATT. CABINET DIMENSIONS			TOTAL IPS CABINET WEIGHT KG(1)(2)	TOTAL BATT. CABINET WEIGHT KG (EMPTY)(1)	BATTERY WEIGHT KG(1)	TOTAL SYSTEM WEIGHT KG(1)
		208/120V	480/277V	600/347V						W"	H"	D"		W"	H"	D"		W"	H"	D"				
4.5	98%	29	13	10	546	120	50	20	1	30	71	27	NA	NA	NA	NA	NA	NA	NA	265	NA	210	475	
9.0	98%	42	18	14	546	120	101	10	1	30	71	27	NA	NA	NA	NA	NA	NA	NA	340	NA	372	712	
13.5	98%	54	23	19	546	120	151	20	1	30	77	27	1	30	77	27	NA	NA	NA	415	140	550	1105	
18.0	98%	67	29	23	546	120	202	20	1	30	77	27	1	30	77	27	NA	NA	NA	540	140	744	1424	
22.5	98%	79	34	27	546	120	252	30	1	30	77	27	NA	NA	NA	NA	1	30	71	30	615	165	825	1605
27.0	98%	92	40	32	546	120	303	30	1	30	77	27	NA	NA	NA	NA	1	30	77	30	690	165	1116	1971
31.5	98%	104	45	36	1092	120	353	30	2	30	77	27	1	30	77	27	NA	NA	NA	905	140	1116	2161	
36.0	98%	117	51	40	1092	120	403	40	2	30	77	27	NA	NA	NA	NA	1	30	77	30	1030	165	1488	2683
40.5	98%	129	56	45	1092	120	454	40	2	30	77	27	2	30	77	27	NA	NA	NA	1105	280	1488	2873	
45.0	98%	142	61	49	1092	120	504	50	2	30	77	27	1	30	77	27	1	30	77	30	1180	305	1860	3345
49.5	98%	NA	67	53	1092	120	555	50	2	30	77	27	1	30	77	27	1	30	77	30	1255	305	1860	3420
54.0	98%	NA	73	58	1092	120	605	60	2	30	77	27	NA	NA	NA	NA	2	30	77	30	1380	330	2232	3942

1- For 30 min. discharge time. For other discharge times, consult factory.

2- Batteries are installed in the IPS cabinet for 4.5 to 9.0KVA systems, for 30 minutes only.

## SINGLE LINE DIAGRAM



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### CABINETS

Modular design, freestanding NEMA-1 steel cabinets powder coated for corrosion and scratch resistance. Front access design through hinged lockable doors requires only 42" front, 2" back and side clearance and 12" top clearance without drip shield. Top conduit entry Gland Plate.

### INVERTER

Using Power Mosfet/PWM technology the inverter converts DC voltage supplied by the batteries to AC voltage of a precise stabilized amplitude and frequency, suitable for most sophisticated electrical equipment. True sinusoidal output waveform with very low distortion (less than 5% for linear loads). Overload capability of 120% continuous, 150% for 1 minute and 200% for 10 seconds.

### CHARGER

Fully automatic, temperature compensated, charger recharges fully discharged batteries in maximum 24 hours at nominal AC input voltage. AC input current limiting and over-voltage protection included.

### BATTERY

System is provided standard with 10 year, maintenance free, sealed valve regulated, lead calcium batteries. 30, 60, 90 & 120 min. standard discharge time at full load under normal operating temperature (20°C to 25°C). Low Voltage Disconnect protection included. No special ventilation required.

### SUPERVISION

Automatic self tests consist of a 2-minute monthly, 1/3 discharge at 6 months and full annual discharge. The front-mounted control panel includes, a 4-line 20-character LCD display with a keypad to control and monitor the operation of the system. This allows the operator to easily "watch" system functions as they occur and check on virtually any aspect of the system's operation. Standard RS485 MODBUS RTU diagnostic interface

### ALARMS

Battery High/Low, Low Voltage Disconnect, Battery Disconnect, Maintained Lamp Off, Charger Fail, Supply From Battery, System Inhibit, Circuit Breaker Trip, Module Breaker Trip, Inverter Undervoltage, Inverter Overvoltage, Output Overcurrent, Hi Temp, Over Temp, Unit in Bypass, Inverter Frequency Control Failed, Processor Reset.

### OPTIONAL FEATURES

External Output Circuit Breakers, Output Trip Alarms, Extended Battery Warranty, 12 Hours Fast Recharge, External Maintenance Bypass Switch. Dripshield, Remote Summary Alarm Panel, Normally Off Output, Anchor Mounting Kit, Dry Contact Relay, Bacnet Gateway.

### FACTORY START-UP

Includes one additional year of warranty. See warranty conditions.

### WARRANTY

(Full limited warranty conditions available upon request)

Limited manufacturer warranty is one-year, parts and labour, for system electronics. Battery warranty is one year full plus 9 years pro-rata for a total of 10 years, under normal operating conditions. System must be put in service within 6 months from ship date in order to validate warranty. Consult factory for other battery types.

## ORDERING INFORMATION(1)

SERIES	SYSTEM VOLTAGE	KVA/KW		RUN TIME	EXTERNAL CIRCUIT BREAKER	OPTIONS	
R111= Series	1= 120/208 4 wire 2= 277/480 3= 347/600  Other voltages available using an external transformer (sold separately)	A= 4.5 B= 9 C= 13.5 D= 18 E= 22.5 F= 27 G= 31.5	H= 36 I=40.5 J= 45 <sup>2</sup> K= 49.5 <sup>1</sup> L= 54 <sup>1</sup>	3= 30 minutes 6= 60 minutes 9= 90 minutes 12= 120 minutes	B= no breakers N####= normally on F####= normally off  First two digits= Qty. 01 to 99 max (specify) Last two digits= Amp rating 10, 15, 20, 25... (specify)  Example: N1020	A= fast recovery charge C= remote alarm panel E= output trip alarm G= "inverter on" dry contact H= normally off full capacity output I= extended battery warranty* J= external maintenance bypass	K= anchor mounting kit L= drip shield M= second output terminal block N= normally on & normally off output <sup>1</sup> O= Bacnet Gateway *Consult your sales representative. <sup>1</sup> Full capacity available on either output

EXAMPLE: R111A3N1020