Small DC Power Systems

BULLETIN: 02.210/a
MARCH 2001

-48 VDC 3 TO 21 AMP MODULAR POWER SYSTEM

127NM
23" Rack Mount System

Model No. **Spec. No.**
127NM **438127NM**

- MODULAR "HOT INSERTABLE" RECTIFIERS
- ONE TO SEVEN 3 AMP RECTIFIERS
- "A" & "B" OUTPUT DISTRIBUTION
- DUAL 115 OR 230 VAC, 50 OR 60 HZ INPUTS
- +65°C OPERATION
- TOTAL FRONT ACCESS
- WALL, 19" or 23" RACK MOUNTING
- RELAY LOOP-CLOSURE ALARMS
- BATTERY & BATTERYLESS OPERATION
- 2 YEAR WARRANTY
- UL LISTED - CE CERTIFIED
- NEBS LEVEL 3 COMPLIANT
- LOW VOLTAGE DISCONNECT
- INTEGRATED BATTERY PACKS*
- BATTERY TEMPERATURE VOLTAGE COMPENSATION*
- BATTERY MIDPOINT VOLTAGE MONITORING*

*OPTIONAL

DESCRIPTION: The PECO II 127Nm -48VDC, 3 to 21 Amp Power Systems operate from a 115 or 230 VAC, 50 or 60 Hz source to produce -48 VDC power in increments of one to seven 3 Amp Rectifiers. The rectifiers are paralleled for increased power and redundancy and are capable of "Hot Insertion". The power systems provide output distribution, low voltage disconnect, alarms, and optional features including battery packs, battery temperature compensation, and midpoint voltage monitoring. The 127NM power systems are available in 19" and 23" rack or wall mounting configurations. The 19" can accommodate five (5) rectifier modules and the 23" can accommodate seven (7) rectifier modules.

TECHNICAL SPECIFICATIONS

INPUT

Voltage: 90 to 137 VAC
180 to 264 VAC (Selectable)
45 to 70 Hz

Current: 1.9 Amps @ 115 VAC per rectifier
1.0 Amps @ 230 VAC per rectifier

OUTPUT

Voltage: 50.00 to 60.00 VDC
54.00 VDC Factory Set

Regulation: ± 1.0 % (Includes Output Orring Diode)

Overvoltage: 50.00 to 60.00 VDC
58.50 VDC Factory Set
"RED" [RFA] LED Indication
Defective Rectifier Shuts Down

Noise: < 32 dBrnC (Voice Frequency)
< 100 millivolts-RMS (Wide Band)
< 250 millivolts peak-to-peak

Current: 3.0 Amperes/Rectifier under all listed input, output, and thermal conditions.

Current Limit: 3.0 to 3.2 Amperes/Rectifier

Paralleling & Hot Insertion:
Each Rectifier Module has an output orring diode in the -48 VDC lead for the purpose of paralleling and hot insertion in a working system.

RECTIFIER FEATURES

Indicators: PWR Green LED
RFA Red LED

Adjustments: Output Voltage
High Voltage Shutdown

Switches: AC Input Select Jumper (115 or 230 VAC)

AC Input: Two (2) standard 115/230 VAC, 15 Amp International IEC32U-C14 male connectors are provided with each plant. Rectifiers are configured for "A" & "B" AC Input. Each AC Input is Monitored & Alarmed.

ENVIRONMENTAL SPECIFICATIONS

Natural convection cooling
-40° to 65°Ambient Operating Environment
Zone 4 Earthquake Design
NEBS GR63, GR1089(mech. elect.)
Fee docket 20780, Subpart J, Class A

CLICK TO EXIT

PECO II, Inc.
P.O. Box 910 • 1376 State Route 598 • Galion, Ohio 44833 • (419) 468-7600 • FAX (419) 468-1587 • www.peco2.com

pecosales@peco2.com

PLANT FEATURES

Low Voltage Disconnect:

Drop-Out:	39.8 or 42.0 ±1.0 VDC (Selectable)
Pick-Up:	51.0 ±1.0 VDC

Battery On Discharge Alarm:

Setpoint:	50.6 ±1.0 VDC
Alarm:	Separate Relay Loop Closure

Low Voltage Alarm:

Setpoint:	47.0 ±1.0 VDC
Alarm:	Minor

Note: Low Voltage Disconnect contactor located in optional battery box

Alarms:

The following Alarms are extended as Isolated Relay Form-C Closures:

Abbreviation		Description	Cause
	PMN	Power Minor	(1) Rectifier Fail Battery String Mid-Point *>0.5V for 20 Minutes* Low Voltage <47V
	PMJ	Power Major	(2 or more) Rectifier Fail(s) LVD Temp. Probe Fault Temp. > 50°C Mid-Point (>1.0V) BTCM Failure
	FA	Fuse Alm	Dist. Fuse Alarm
either	HT	High Bat Temp	Battery Temp. > 50°C
or	BD	Bat On Dschg	Battery on Discharge <50V

Alarm Module Indicators

Alarm	Color
PMN	Amber
PMJ	Red
BD	Amber
DO	Amber
PU	Red

BTCM Module Indicators

Alarm	Color
NULL	Green
PMN	Amber
PMJ	Red
HT	Amber

AC Input Module Indicators

Alarm	Color
AC Fail	Red

DC Dist. Module Indicators

Alarm	Color
Fuse Fail	Red

DC DISTRIBUTION

DC Distribution consists of (8) GMT fuses (4A and 4B) and (8) Ground returns. In the 19" configuration, Rectifiers 1–2 are assigned to "Bus A" and Rectifiers 3-5 to "Bus B". In the 23" configuration, Rectifiers 1-3 are assigned to "Bus A" and Rectifiers 4-7 to "Bus B". The buses can be separate or common. Access to connections is from the top front for ease of wiring.

SYSTEM CONFIGURATION

The power plant is capable of being configured to satisfy many different applications. Both AC Input and DC Output can be configured in the factory or in the field to meet your needs.

BASIC PLANT (List 2 &3)

The Basic Power Plant is available in 19" and 23" rack and wall mount versions. The height is 5 1/4". The 19", 23" plants can accommodate five (5) and seven (7) 3 Amp rectifiers respectively.

Included with the basic plant are the AC Input, Alarm, and DC Distribution Modules.

The AC Input Module provides connections for two AC plug-in cables. AC monitoring of each input is also provided with Form-C relay contacts provided.

The Alarm Module monitors the plant voltage and provides Battery on Discharge (BD) as a separate alarm, and Low Voltage (LV) as a Minor (PMN) Alarm. Rectifier failures are monitored with one (1) failure as a Minor (PMN) and two (2) failures as a Major (PMJ) Alarm. The module also controls the Low Voltage Disconnect located in optional battery box, with separate Drop-Out and Pick-Up setpoints.

The DC Distribution Module provides two groups (A & B) of (4) GMT fuses (5 Amp fuses max.) and a means to common the buses. It provides terminations for Distribution, Ground, and Alarms (Form-C contacts).

RECTIFIER MODULE (List 7)

The Rectifier modules convert 115 or 230 VAC, 50/60 Hz into 48 VDC @ 3 Amperes. Each rectifier has its own internal High Voltage Shutdown and Rectifier Fail circuits to protect the load and provide status information. The rectifiers are "Hot Insertable" allowing them to be added or removed without powering down the system.

BATTERY TEMPERATURE COMPENSATOR & MONITOR MODULE (List 8)

The Battery Temperature Compensator Module (BTCM) automatically adjusts the output voltage of rectifiers inversely proportional to the temperature of a pilot cell in a battery string or the ambient in the vicinity of the batteries. By lowering the voltage at higher temperatures, the dryout rate of batteries can be reduced, thereby extending their life, and can help prevent thermal runaway.

Voltage compensation is continuous for temperatures from 45°F to 177°F. Voltage clamps limit the compensation swing to 1 volt greater than and 2 volts less than normal operation.

AC INPUT LINE CORDS (List 10 - 13)

Standard 115 VAC, 15 Amp line cords with right angle connectors (female end - IEC-320-C13) are available in 6'-7" and 9'-10" lengths. The AC Input Module provides cable restraint for the power plant end.

AC INPUT ALARM CABLE (List 14)

A 6'-0" cable is provided with a male DB9 connector on one end, for connecting to the AC Alarm circuit, and a female DB9 connector on the other end for customer terminations.

DC ALARM CABLE (List 15)

A 6'-0" cable is provided with a male DB25 connector on one end, for connecting to the DC Alarm circuits, and a female DB25 connector on the other end for customer terminations.

INSTALLATION KIT (List 16)

Two 6'-7" 115 VAC, 15 Amp line cords (see List 10) with right angle connectors (female end), AC Input Alarm and DC Alarm cables (see Lists 14 & 15) are provided along with two (2) 1-1/3 Amp, two (2) 3 Amp & four (4) 5 Amp GMT distribution fuses, and sixteen (16) DC distribution lugs for #18 to #20 AWG wire.

BATTERY BOX (List 20 - 26)

The Battery Box has the same physical footprint as the power plant when either rack or wall mounted and provides front access to batteries with 12 Ampere-Hour ratings (contact factory for different battery ratings). The battery box can mount

directly below the power system or within 15' with the optional Battery Cable Assemblies. All ventilation required by either the batteries or power system is provided by the battery box. Up to three Battery Boxes can be added in parallel for increased reserve times. Protection is provided by a battery disconnect circuit breaker in each Battery Box. A Low Voltage Disconnect is provided in the Main Battery Box and receives its signals from the Alarm Module.

Recessed connectors are provided for terminating Power, Alarm (Battery Circuit Breaker Trip), Voltage Midpoint, and Temperature Probe cables from the power system. Non-fused battery leads (i.e., Midpoint Monitor) are protected with PTC's.

Batteries ordered separately.

BATTERY BOX CABLE ASSEMBLIES (List 28 - 33)

Power and Temperature Probe cable assemblies are available in 5, 10 & 15 foot lengths. A single list number provides both cables of the same length. The cables are connectorized.

PHYSICAL SIZE

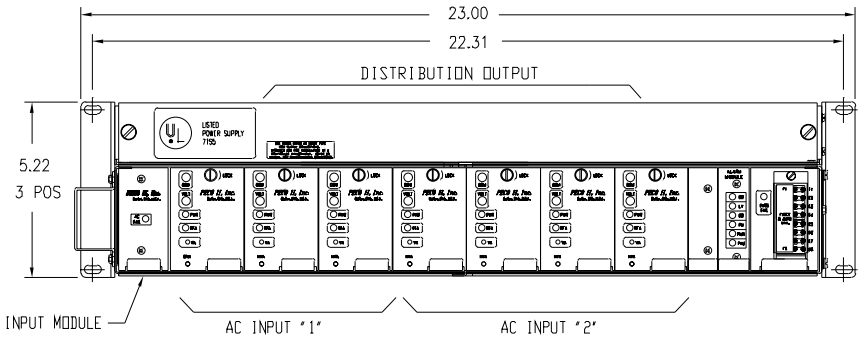
The power plants are capable of wall mounting with optional wall mounting brackets.

WEIGHT

System w/o Rectifier Modules: 11 lbs.
Rectifier Modules: 2 lbs.

Specifications are subject to change without notice.
Please contact our website for the latest version.

OUTLINE DRAWING



FRONT VIEW
23" CAGE ASSEMBLY
SHOWING TYPICAL PLANT CONFIGURATION