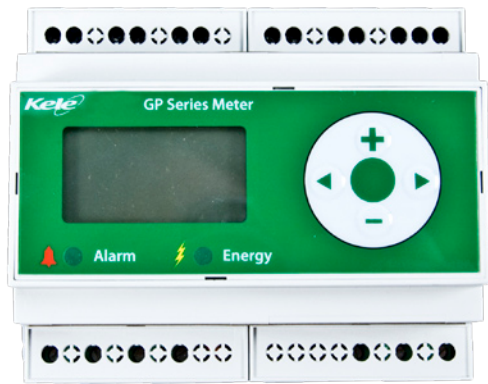


GP Series

Compact Power and Energy Meter

Quick Install Guide
Z205793-0A
09101



⚠ DANGER ⚠

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment before working on or inside the equipment.
- Any covers that may be displaced during the installation must be reinstalled before powering the unit.
- Use a properly rated voltage sensing device to confirm power is off. **DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION**

Failure to follow these instructions will result in death or serious injury.

NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- The installer is responsible for conformance to all applicable codes.
- Mount this product inside a suitable fire and electrical enclosure.

Provide a disconnect device to disconnect the GP9 from the supply source. Place this device in close proximity to the equipment and within easy reach of the operator, and mark it as the disconnecting device. The disconnecting device shall meet the relevant requirements of IEC 60947-1 and IEC 60947-3 and shall be suitable for the application. In the US and Canada, disconnecting fuse holders can be used. Provide overcurrent protection and disconnecting device for supply conductors with approved current limiting devices suitable for protecting the wiring. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the device may be impaired.

FCC PART 15 INFORMATION
NOTE: This equipment has been tested by the manufacturer and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications to this product without the express authorization of Veris Industries nullify this statement.

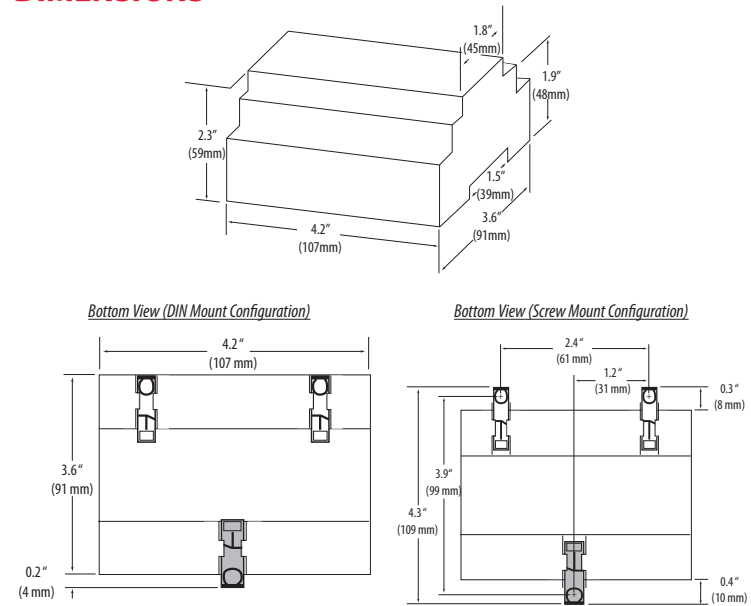
⚡ This symbol indicates an electrical shock hazard exists. **ⓘ** Documentation must be consulted where this symbol is used on the product.

For use in a Pollution Degree 2 or better environment only. A Pollution Degree 2 environment must control conductive pollution and the possibility of condensation or high humidity. Consider the enclosure, the correct use of ventilation, thermal properties of the equipment, and the relationship with the environment. Installation category: CAT II or CAT III

SPECIFICATIONS

Measurement Accuracy:	IEC 62053-22 Class 0.5S, ANSI C12.20 0.5%	
Real Power and Energy		
Input Voltage Characteristics:	UL: 90V (L-N) to 600VAC (L-L); CE: 90V (L-N) to 300VAC (L-N)	
Measured Voltage	2.5 MΩ (L-N)/5 MΩ (L-L)	
Impedance	45 to 65 Hz	
Frequency Range		
Input Current Characteristics:	0 to 0.333VAC or 0 to 1.0VAC (+20% over-range)	
Measurement Input Range	10.6kΩ (1/3 V mode) or 32.1kΩ (1 V mode)	
Impedance		
Control Power:	5VA max.; UL: 90V (L-N) to 600V (L-L) AC; CE: 90V (L-N) to 300V (L-N) AC	
AC	3W max.; UL and CE: 125 to 300VDC	
DC	100 msec at 120VAC	
Ride Through Time		
Mechanical Characteristics:	IP40 front display; IP20 Meter	
IP Degree of Protection (IEC 60529)	0.37 ft-lb (0.5 N-m) nominal/0.44 ft-lb (0.6 N-m) max.	
Terminal Block Screw Torque	26 to 14 AWG (0.13 to 2.08 mm ²)	
Terminal Block Wire Size	T35 (35mm) DIN Rail per EN50022	
Rail		
Environmental Conditions:	Meter: -30° to 70°C; Display: 0° to 50°C	
Operating Temperature	Meter: -40° to 85°C; Display: -10° to 60°C	
Storage Temperature	<95% RH (non-condensing)	
Humidity Range	3 km max.	
Altitude of Operation		
Metering Category:	CAT III; for distribution systems up to 347 V L-N/600VAC L-L	
North America	CAT III; for distribution systems up to 300 V L-N/480VAC L-L	
CE	Per UL 508, EN61010	
Dielectric Withstand	FCC part 15 Class B, EN55011/EN61000 Class B (residential and light industrial)	
Conducted and Radiated Emissions	EN61000 Class A (heavy industrial)	
Conducted and Radiated Immunity		
Safety:	UL508 (open type device)/CSA 22.2 No. 14-05	
North America (cULus)	EN61010-1:2001	
Europe (CE)		

DIMENSIONS



INSTALLATION

⚡ Disconnect power prior to installation.

⚠ Any covers that may be displaced during the installation must be reinstalled before powering the unit.

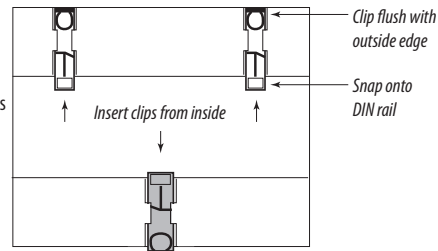
Mount the meter in an appropriate electrical enclosure near equipment to be monitored.

Exposure to VFD harmonics may cause permanent damage to this device.

The meter can be mounted in two ways: on standard 35 mm DIN rail or screw-mounted to the back of the enclosure.

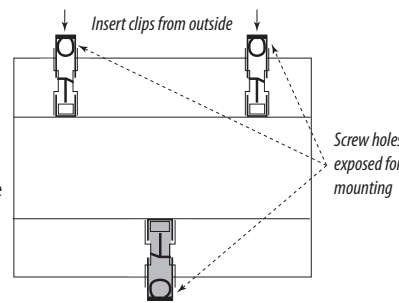
A. DIN Rail Mounting

- Attach the mounting clips to the underside of the housing by sliding them into the slots from the inside. The stopping pegs must face the housing, and the outside edge of the clip must be flush with the outside edge of the housing.
- Snap the clips onto the DIN rail. See diagram at right.
- To prevent horizontal shifting across the DIN rail, use two Veris AV02 end stop clips.



B. Screw Mounting

- Attach the mounting clips to the underside of the housing by sliding them into the slots from the outside. The stopping pegs must face the housing, and the screw hole must be exposed on the outside of the housing.
- Use three #8 screws (not supplied) to mount the housing to the back of the enclosure. See diagram at right.



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SUPPORTED SYSTEM TYPES

Power and Energy Meters have a number of different possible system wiring configurations (see Wiring Diagrams, page 9-10). To configure the meter, set the System Type via the User Interface or Modbus register 130 (if so equipped). The System Type tells the meter which of its current and voltage inputs are valid, which are to be ignored, and if neutral is connected. Setting the correct System Type prevents unwanted energy accumulation on unused inputs, selects the formula to calculate the Theoretical Maximum System Power, and determines which phase loss algorithm is to be used. The phase loss algorithm is configured as a percent of the Line-to-Line System Voltage (except when in System Type 10) and also calculates the expected Line to Neutral voltages for system types that have Neutral (12 & 40). Values that are not valid in a particular System Type will display as "----" on the User Interface or as QNAN in the Modbus registers.

Number of wires	Qty	ID	CTs		Voltage Connections		System Type		Phase Loss Measurements			Wiring Diagram
			Qty	ID	Type	Modbus Register 130	User Interface: SETUP>S SYS	VLL	VLN	Balance	Diagram number	
Single-Phase Wiring												
2	1	A	2	A, N	L-N	10	1L + 1n		AN			1
2	1	A	2	A, B	L-L	11	2L	AB				2
3	2	A, B	3	A, B, N	L-L with N	12	2L + 1n	AB	AN, BN	AN-BN		3
Three-Phase Wiring												
3	3	A, B, C	3	A, B, C	Delta	31	3L	AB, BC, CA		AB-BC-CA		4
4	3	A, B, C	4	A, B, C, N	Grounded Wye	40	3L + 1n	AB, BC, CA	AN, BN, CN	AN-BN-CN & AB-BC-CA		5, 6

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To avoid distortion, use parallel wires for control power and voltage inputs.

The following symbols are used in the wiring diagrams on the following pages.

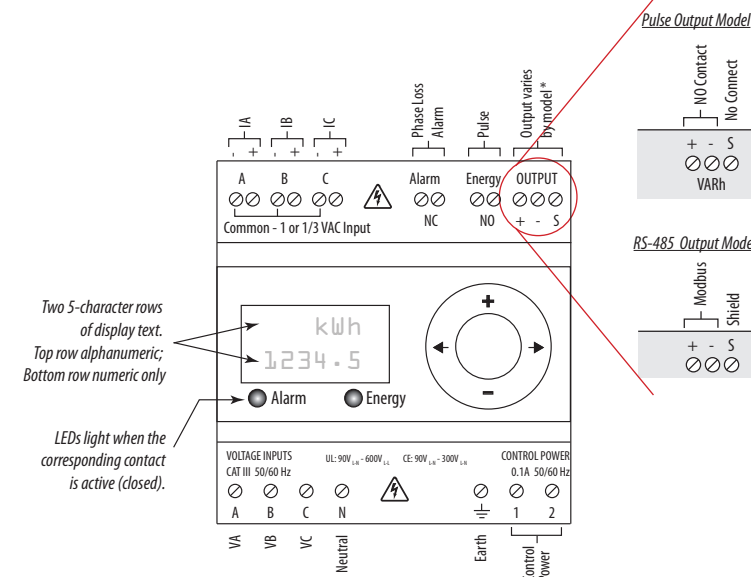
Symbol	Description
	Voltage Disconnect Switch
	Fuse (installer is responsible for ensuring compliance with local requirements. No fuses are included with the device.)
	Earth ground
	Current Transducer
	Potential Transformer
	Protection containing a voltage disconnect switch with a fuse or disconnect circuit breaker. The protection device must be rated for the available short-circuit current at the connection point.

CAUTION

- RISK OF EQUIPMENT DAMAGE**
- This product is designed only for use with 1V or 0.33V current transducers (CTs).
 - DO NOT USE CURRENT OUTPUT (e.g. 5A) CTs ON THIS PRODUCT.
 - Failure to follow these instructions can result in overheating and permanent equipment damage.

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PRODUCT DIAGRAM

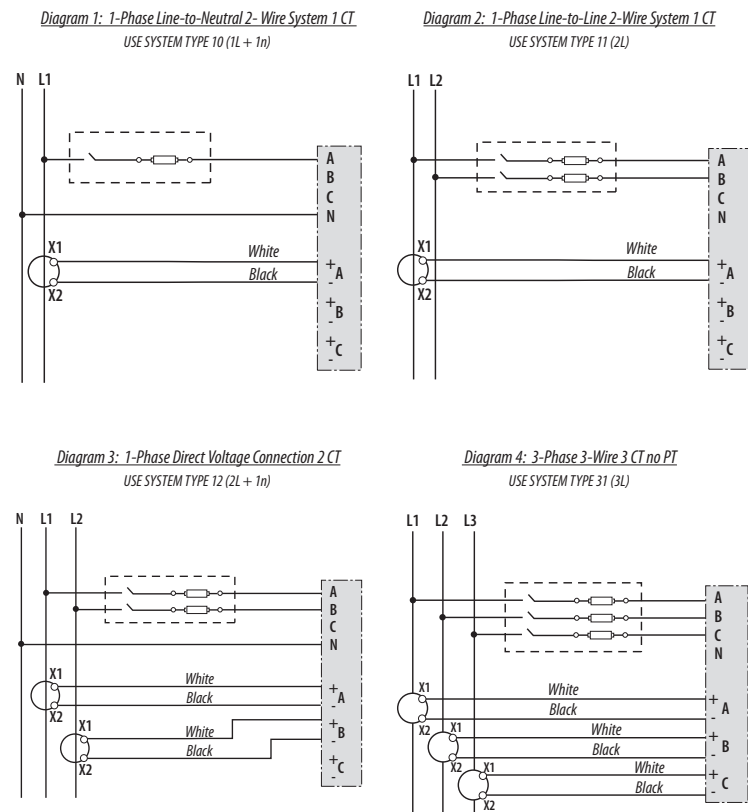


Two 5-character rows of display text. Top row alphanumeric; Bottom row numeric only.

LEDs light when the corresponding contact is active (closed).

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WIRING DIAGRAMS

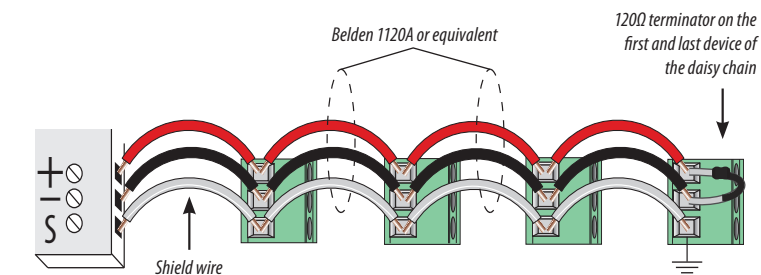


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RS-485 COMMUNICATIONS (MODBUS DEVICES ONLY)

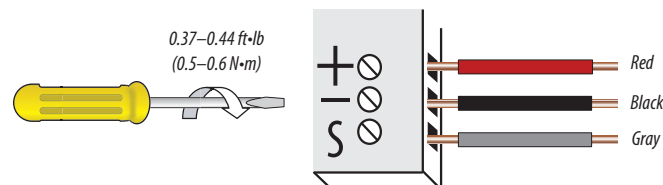
Daisy-chaining Devices to the Power Meter

The RS-485 slave port allows the power meter to be connected in a daisy chain with up to 63 2-wire devices. In this bulletin, communications link refers to a chain of devices that are connected by a communications cable.



NOTES:

- The terminal's voltage and current ratings are compliant with the requirements of the EIA RS-485 communications standard.
- The RS-485 transceivers are 1/4 unit load or less.
- RS-485+ has a 47 kΩ pull up to +5V, and RS-485- has a 47 kΩ pull down to Shield (RS-485 signal ground).
- Wire the RS-485 bus as a daisy chain from device to device, without any stubs. Use 120 Ω termination resistors at each end of the bus (not included).
- Shield is not internally connected to Earth Ground.
- Connect Shield to Earth Ground somewhere on the RS-485 bus.
- When tightening terminals, ensure that the correct torque is applied: 0.37-0.44 ft-lb (0.5-0.6 N-m).



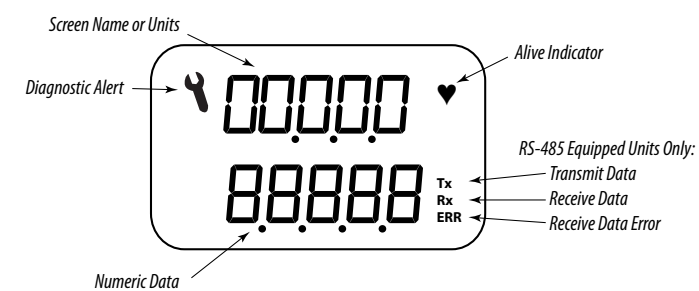
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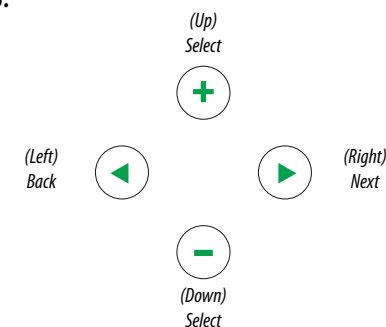
Warning: CT terminals are referenced to the meter's neutral (N) and may be elevated from ground.

DISPLAY SCREEN DIAGRAM

LCD Screen:

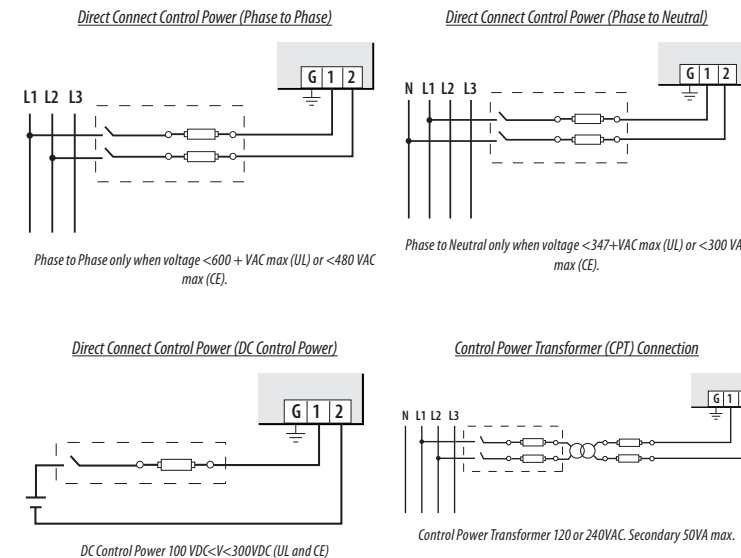
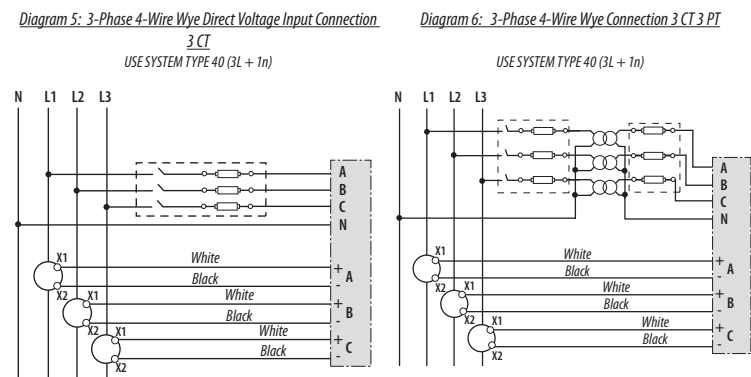


Buttons:



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CONTROL POWER



Fuse Recommendations:

Keep the fuses close to the power source (obey local and national code requirements).

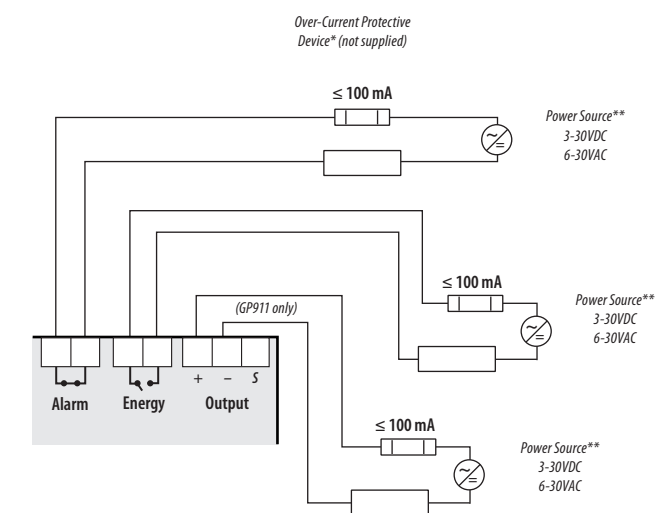
For selecting fuses and circuit breakers, use the following criteria:

- Current interrupt capacity should be selected based on the installation category and fault current capability.
- Over-current protection should be selected with a time delay.
- The voltage rating should be sufficient for the input voltage applied.
- Provide overcurrent protection and disconnecting devices appropriate for the wiring.
- The earth connection is required for electromagnetic compatibility (EMC) and is not a protective earth ground.

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SOLID-STATE PULSE OUTPUT

The meter has one normally open (NO) KZ Form A output and one normally closed (NC) KY solid-state output. One is dedicated to energy (Wh), and the other to Alarm. The GP911 also provides an additional NO reactive energy (VARh) contact. See the Setup section for configuration information.



The solid state pulse outputs are rated for 30VAC/DC max.

Maximum load current is 100mA at 25°C. Derate 0.56mA per °C above 25°C (e.g. 86mA@50°C).

* The over-current protective device must be rated for the short circuit current at the connection point.

** All pulse outputs and communication circuits are only intended to be connected to non-hazardous voltage circuits (SELV or Class 2). Do not connect to hazardous voltages.

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SETUP INSTRUCTIONS

These instructions assume the meter is set to factory defaults. If it has been previously configured, all optional values should be checked.

- Press the (+) or (-) button repeatedly until SETUP screen appears.
- Press (→) to the PPSWD screen.
- Press (→) through the digits. Use the (+) or (-) buttons to select the password (the default is 00000). Exit the screen to the right.
- Use the (+) or (-) buttons to select the parameter to configure (← works best).
- If the unit has an RS-485 interface, the first Setup screen is S ECOM (set communications).
 - Press (→) to the ADDR screen and through the address digits. Use the (+) or (-) buttons to select the Modbus address.
 - Press (→) to the BAUD screen. Use the (+) or (-) buttons to select the baud rate.
 - Press (→) to the PRR screen. Use the (+) or (-) buttons to select the parity.
 - Press (→) back to the S ECOM screen.
- Press (→) to the S CT (Set Current Transducer) screen. If this unit does not have an RS-485 port, this will be the first screen.
 - Press (→) to the CT V screen. Use the (+) or (-) buttons to select the voltage mode Current Transducer output voltage.
 - Press (→) to the CT SZ screen and through the digits. Use the (+) or (-) buttons to select the CT size in amps.
 - Press (→) back to the S CT screen.
- Press (→) to the S SYS (Set System) screen.
 - Press (→) to the SYSTEM screen. Use the (+) or (-) buttons to select the System Type (see wiring diagrams).
 - Press (→) back to the S SYS screen.
- (Optional) Press (→) to the S PT (Set Potential Transformer) screen. If PTs are not used, then skip this step.
 - Press (→) to the PPT screen and through the digits. Use the (+) or (-) buttons to select the Potential Transformer step down ratio.
 - Press (→) back to the S PT screen.
- Press (→) to the S V (Set System Voltage) screen.
 - Press (→) to the VLL (or VLN if system is 1L-1n) screen and through the digits. Use the (+) or (-) buttons to select the Line to Line System Voltage.
 - Press (→) back to the S V screen.



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CHINA ROHS COMPLIANCE INFORMATION (EFUP TABLE)

部件名称	产品中有毒有害物质或元素的名称及含量Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电子线路板	X	0	0	0	0	0

0 = 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
X = 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

Z000057-0A

For technical support, contact Kele at 888-357-5353 (toll free USA) or via email at info@kele.com.

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