



### ***Traffic Light Controller Uninterruptible Power Supply***



- ⚡ Pure Sinewave Line Interactive UPS
- ⚡ Digital with Microprocessor Control
- ⚡ Advanced LCD Control Panel
- ⚡ Multi-Functional Outdoor UPS
- ⚡ Long Back Up to Support Traffic Application
- ⚡ Applicable for Traffic Lights & Controllers
- ⚡ Designed to Operate Under Harsh environment
- ⚡ Built-in Solar Cooling Fan Saves Power in Extreme Temperatures.
- ⚡ Protection against Lightings, Surges, Disturbances, Blackouts, etc.
- ⚡ Available with Gel Batteries with 10 Years Life Expectancy.
- ⚡ True RS-232 Communication Interface

### ***EEC-9160***

### **Traffic Signal Controller Uninterruptible Power Supply**

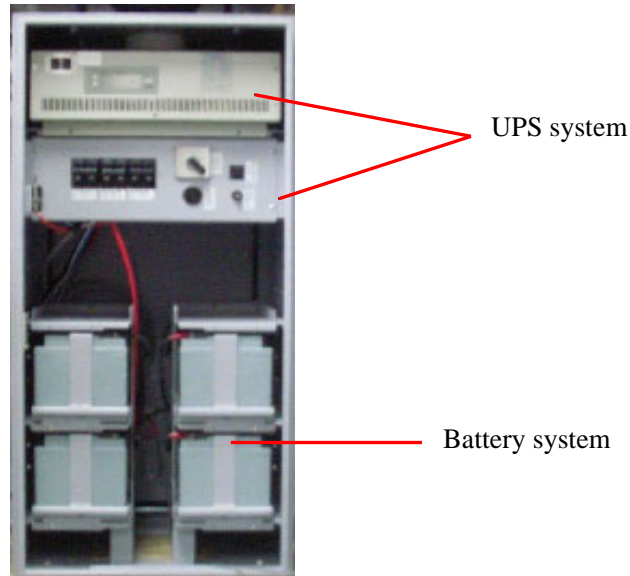
PowerBank EEC-9160 system, the first traffic signal controller UPS in Taiwan, is designed to provide emergency power back-up support at critical intersection to enhance public safety and improve signal controller reliability.

EEC-9160 provides power under very tough and harsh outdoor environment. With the fully controlled microprocessor, it assures flawless operation on reducing equipment failures, maintenance cost, and prolonging life of traffic signal controller.

Intersections with high speed traffic, emergency evacuation routed, potential hazardous, EEC-9160 is your ideal solution.

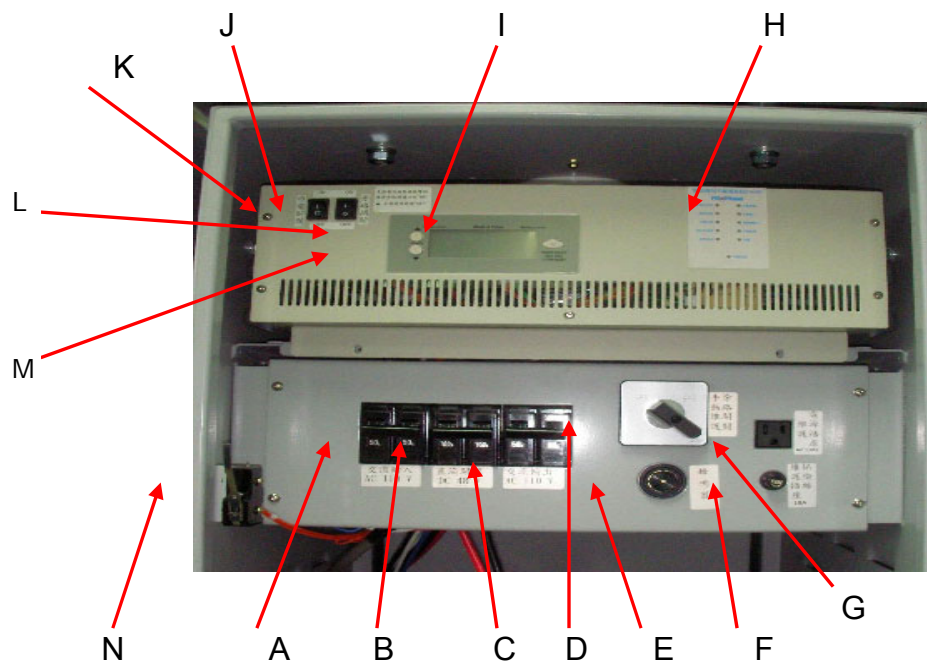


**Traffic Signal Controller UPS (T.S.C.UPS)** is consists of two major parts, which including UPS system and Battery system.



## UPS SYSTEM

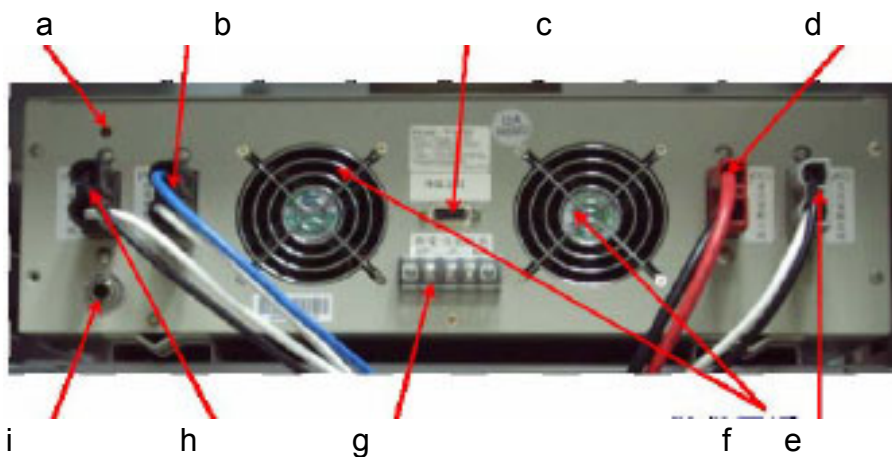
### (1) Front Face



- A. Input Breaker
- B. Battery Breaker
- C. Output Breaker
- D. Maintenance Manual Bypass Switch
- E. Buzzer Alarm
- F. Protective Fuse for Maintenance Socket
- G. Maintenance AC Socket

- H. LED Display
- I. LCD Display
- J. UPS Manual Bypass Switch
- K. AC Switch
- L. LCD Menu Selector (up)
- M. LCD Menu Selector (down)
- N. Alarm Switch

## (2) Back Face



a. L&N reverse warning LED	d. Battery Input Bolt	g. AC Power-failure Signal Terminal
b. Generator Input Bolt	e. AC Output Bolt	h. AC Input Bolt
c. RS-232 Interface	f. Cooling Fan	i. Input Breaker

## (3) Side Face II



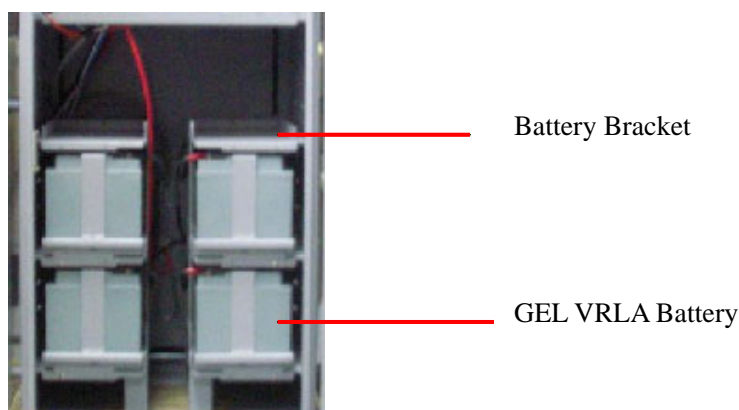
I . Generator Input Bolt

II . Buzzer Switch

I

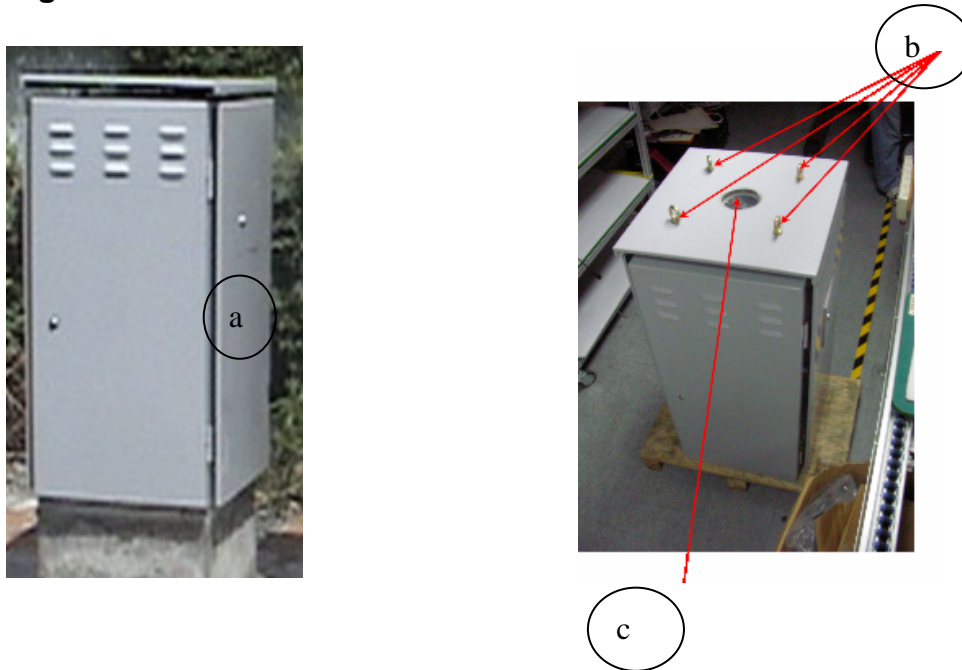
- The UPS switching efficiency not less than 85%
- AC leakage current less than 3.5mA RMS
- Over 80db buzzer warning to safeguard UPS against provoked opening of the cabinet door.
- L&N reverse, LED warning

## Battery System



- Hot-Swappable Battery System assures no disruption of the traffic signal would occur during removing the UPS or battery for maintenance.
- well mounted battery brackets provide enough space for batteries.
- MTTR(Mean-Time-to-Replace or Repair) shall not exceed 5 min.

## Cabinet Design



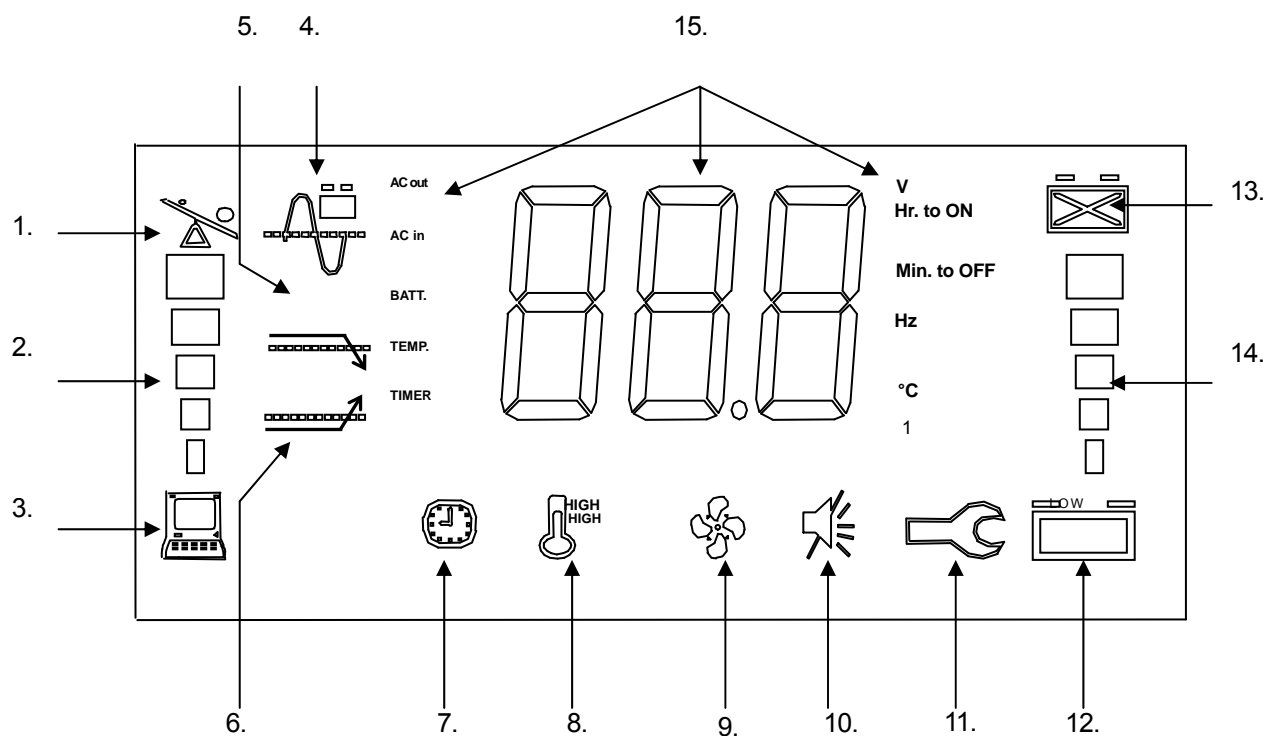
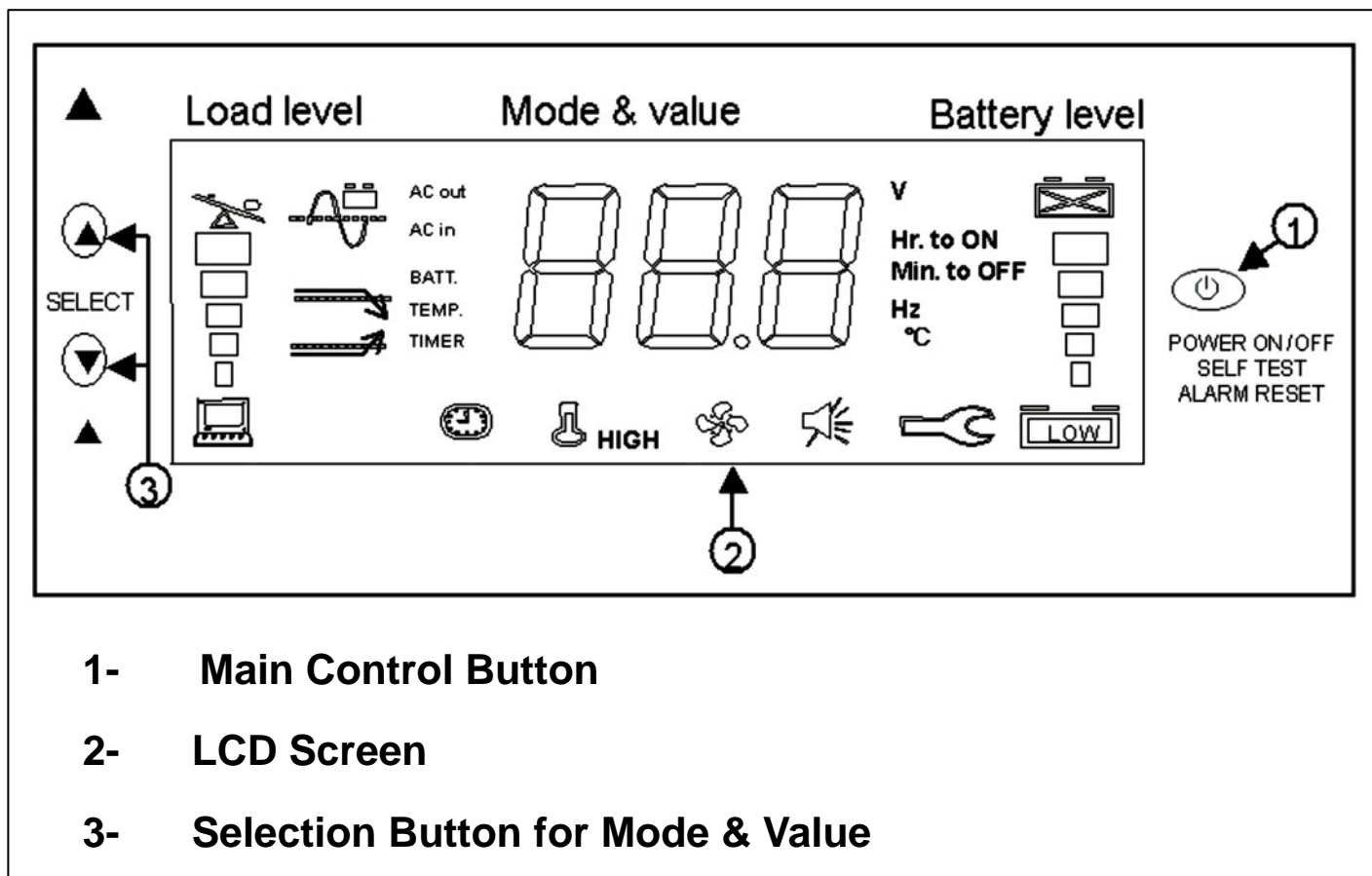
- a. 2.3mm zinc coated steel cabinet with super durability is the very design for harsh outdoor environment
- b. Four lifting rings on top of the cabinet for easy-handling after equipped
- c. Solar Cooling Fan can provide a maximum revolving speed of 1200RPM/Min.








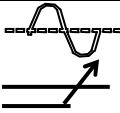


## Machinery Shocking Test








1. Testing Equipment :Ling Electronics 612 Vibration Machine  
DACTRON-LASER shaker system controller
2. Testing Environment  
Temperature:24°C ---28°C  
Relative Humidity: 52% --- 60 % (R.H)
3. Testing Condition:  
Impact Load: 30G  
Time of Impulse: 11 ms  
Three times per surface
4. Testing Results:  
No degradation of performance existed after testing.

**Remarks: Data of Machinery Shocking Test are provided by Electronics Research & Service Organization of Industrial Technology Research Institute, Taiwan.**

## LCD DISPLAY



No.	Symbol	Indication	Description
1.		Over load	The loading exceeds the rating of UPS.
2.		Load level	The higher the loading, the more bars will illuminate.
3.		UPS is loaded	When “Green Mode” is enabled, this symbol will display if the loading is over 30W (approximately), and disappears when it’s under 25W (approximately). Please refer to User’s Manual 4.3. If “Green Mode” is disabled, the symbol will always display.
4.		Normal mode	1) The sine wave symbol will display steadily without battery symbol when UPS is in the normal mode.
		Battery mode	2) The sine wave symbol and battery symbol will blink when the UPS is in back-up (inverter) mode.
		Test mode	3) The sine wave symbol will display steadily with blinking battery symbol when the UPS is in testing mode.
5.		Buck mode	The AVR (Auto Voltage Regulator) is reducing the output voltage of the UPS (when the input voltage is too high), and the sine wave symbol, as mentioned in item 4, will also display steadily to indicate that the output is in the normal mode.
6.		Boost mode	The AVR is increasing the output voltage of the UPS (when the input voltage is too low), and the sine wave symbol, as mentioned in item 4, will display to indicate it’s in the normal mode
7.		Timer is enabled	This symbol will show up in the following situations: 1) A turn-on / turn-off schedule has been set using the monitoring software. Refer to User’s Manual 5.6 and the “Readme” file or “Help” function of the monitoring software. 2) The Green Mode is enabled and the loading is under 25W (approximately). The UPS will turn itself off automatically in 30 seconds. Refer to 4.3 of User’s Manual.
8.		Thermal alarm	The temperature inside the UPS is over 55°C. If the user does not reduce the load, the temperature will continue to rise and the UPS will shut down automatically at 60°C.

9.		Fan is in “High speed”	This symbol is used only for long run series and the 5000VA model. The symbol will display whenever the cooling fan is running in high speed, and will disappear at low speed.
10.		Silence mode	The audible alarm has been silenced. To reset the alarm in Back-up mode, push the control button (not available during low battery level or abnormal condition).
11.		UPS fault	The UPS has failed and must be repaired. Contact a qualified service person.
12.		Battery normal	1) In normal operation, this symbol indicates a charged battery.
		Battery low	2) When the battery charge level is low, the word “LOW” will be added to the symbol.
13.		Battery replacement	The battery has failed and must be replaced. The battery is checked each time the Test Function is executed.
14.		Battery voltage level	1) The higher the battery voltage, the more bars will illuminate. 2) When the UPS is charging the battery, the battery symbol and the level indicator will blink together.
15.	<b>Mode</b>	<b>Value</b>	<b>Description</b>
	AC out	V	AC output voltage.
	AC in	V	AC input voltage.
	AC out	Hz	AC output frequency.
	BATT.	V	DC battery voltage.
	TEMP.	°C	UPS internal temperature.
	TIMER	Min. to off	The UPS will turn off when the displayed value reaches zero. For example, if the timer shows 0.5 Min to off, the UPS will shut down in 30 seconds.
	TIMER	Hr. to on	The UPS will turn on when the displayed value reaches zero. For example, if the timer shows 48 Hr to on, the UPS will turn on in 2 days.
	BATT.	Min. to off	The estimated remaining run time in Back-up mode. The accuracy of the value is influenced by the loading type, ambient temperature and battery condition (old or new).
<p>Selection Button for mode &amp; value.</p> <p>All the operation data will be displayed on LCD screen. By selecting the required mode (upward or downward), the related value will be displayed.</p>			