



## **Home Appliance & Lighting UPS**

# **HI800SQ**

### **Installation Guide and User's Manual**

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Thank you for purchasing APC's Home Appliance & Lighting UPS. Please fill out the enclosed Warranty Registration Card, or register your purchase on-line at: [www.apc.com/support](http://www.apc.com/support) or call **BSNL Toll Free** : 1800 4254 272 / 1800 4254 877 or **Reliance** : Your City Code + 39022272

## Overview

APC's **Home UPS** (Figure 1) is designed for years of trouble-free use. The **Home UPS** is a squarewave back-up power supply intended to serve house loads. It is rated for 800 VA/500W at 230 Vac, 50-Hz, and operates on a wide range of input voltages (100 - 270V). If the input voltage goes out of range (less than 100V or more than 270V), the utility is isolated and the UPS supplies power to the load from an externally connected battery (may be purchased from APC, or from the supplier of your choice). The UPS can serve inductive loads (fluorescent lamps, ceiling and table fans), resistive loads (incandescent lamps), and Switch mode power supply (SMPS) loads (television).

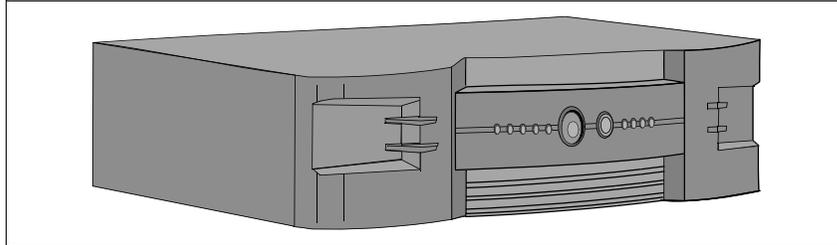


Figure 1. APC Home UPS

## Checklist:

Depending on what the customer has ordered, ensure the following items have been delivered:

- Home UPS
- Wiring Kit

## Section 1. Unpacking/Inspection of Home UPS (at reseller location)

**! Warning:** The Home UPS weighs 7 kg. Please handle carefully.

Inspect the shipping containers for signs of obvious damage. If damage to either shipping container is extensive, notify the carrier and return the unit to the factory. If there are no apparent signs of damage, carefully open the container, and remove the packing materials (do not discard). Inspect for dents, scratches, warpage of the top cover, or other signs of damage. If unit is damaged, please notify the factory and obtain a Return Material Authorization number and return the unit as/if instructed. If there are no obvious signs of damage, repackage the unit for shipment to the customer using the materials already removed from the shipping container. Ship or otherwise deliver the unit to the customer location.

## Section 2. Unpacking/Inspection of Home UPS (at customer location)

**Note:** The **Home UPS** Assembly is shipped with two (one male and one female) IEC connectors and battery assembly wiring for use in installing home wiring to/from the **Home UPS**.

Inspect the shipping containers for signs of obvious damage. If damage to either shipping container is extensive, notify the carrier and return the unit to the factory. If there are no apparent signs of damage to the shipping container, carefully open the container, and remove the packing materials (do not discard).

**! Warning:** The Home UPS weighs 7 kg. Please handle carefully.

Remove the item from the shipping container and inspect for: dents, scratches, warpage of the top cover, or other signs of damage. If unit is damaged, please notify the factory and obtain a Return Material Authorization number and return the unit as/if instructed.

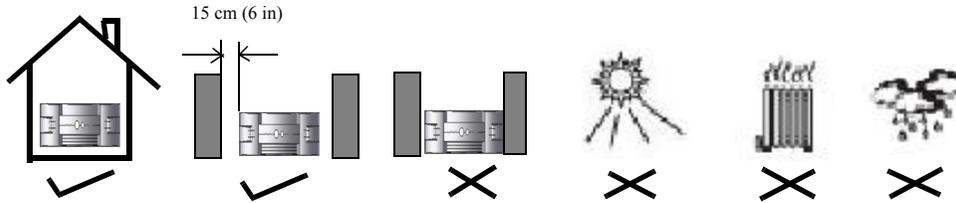
## Section 3. Installation

### Home UPS Placement

**Note:** Once the unit has been completely installed, it is not desirable to move it.

Ensure the area where the unit is to be placed is not in direct sunlight (surfaces may become hot). Further ensure the unit is placed in a dry area away from sources of liquids, and that the vents on each side have at least 15 cm (6 inches) of unobstructed clearance.

#### Placement



### Battery Connection

Connect the red battery terminal lead (protrudes from the lid) to the positive (+) terminal of the battery and connect the black battery terminal lead (protrudes from the lid) to the negative (-) terminal.

### Install Home UPS

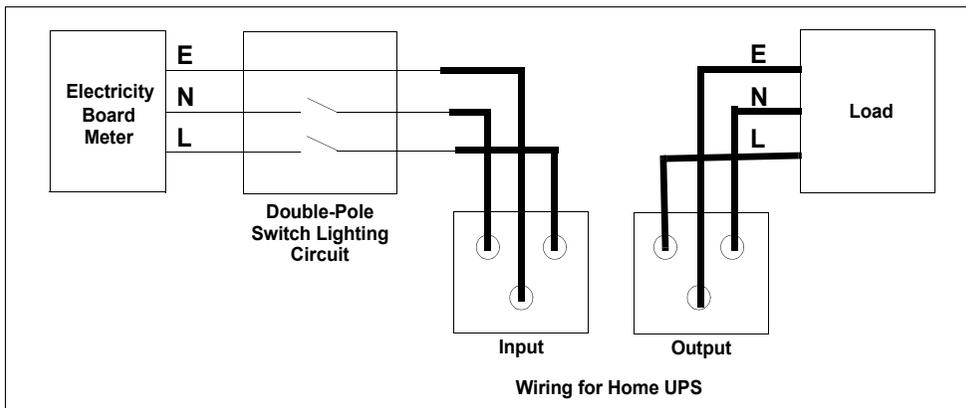
**Caution:** Installation of the **Home UPS** must be performed by a licensed and qualified electrician. Failure to comply may result in equipment damage, and may also void the Warranty.

Figure 2 shows a typical home wiring scenario after installation of the **Home UPS** Assembly wiring.

**Note:** The **Home UPS** can serve inductive loads (fluorescent lamps, ceiling and table fans), resistive loads (incandescent lamps), and SMPS loads (television).

**Caution:** Connecting the **Home UPS** to a branch circuit that exceeds 16 amps may result in equipment damage.

**Note:** Home wiring to power the desired loads should be routed and connected to a single branch circuit providing a maximum of 16 amps to the circuit. Wiring must be in accordance with local electric codes and standards. Connected loads must not exceed 500 watts when the **Home UPS** is On Battery.



**Figure 2. Typical Home Wiring After Home UPS Installation**

Connect one end of the electrical cable from the double-pole switch lighting circuit in accordance with local electric codes and standards. Connect the other end of the electrical cable to the provided IEC connector, and then to the rear panel **Input** connector on the **Home UPS** Assembly (Figures 2 and 3).

Connect one end of the electrical cable from the load in accordance with local electric codes and standards. Connect the other end of the electrical cable to the provided IEC connector, and then to the rear panel **Output** connector on the **Home UPS** Assembly (Figures 2 and 3).

Connect the battery wiring harness from the battery to the rear panel input connector of the **Home UPS** (Figure 3) marked **12V Battery**. Once the home wiring is complete and the battery is connected to the **Home UPS** Assembly, turn on power at the Electricity Board Meter and then at the Double-Pole Switch Lighting Circuit. The **Home UPS** will automatically turn on. Ensure **AWAY/HOME** switch (Figure 4) in **HOME** position.

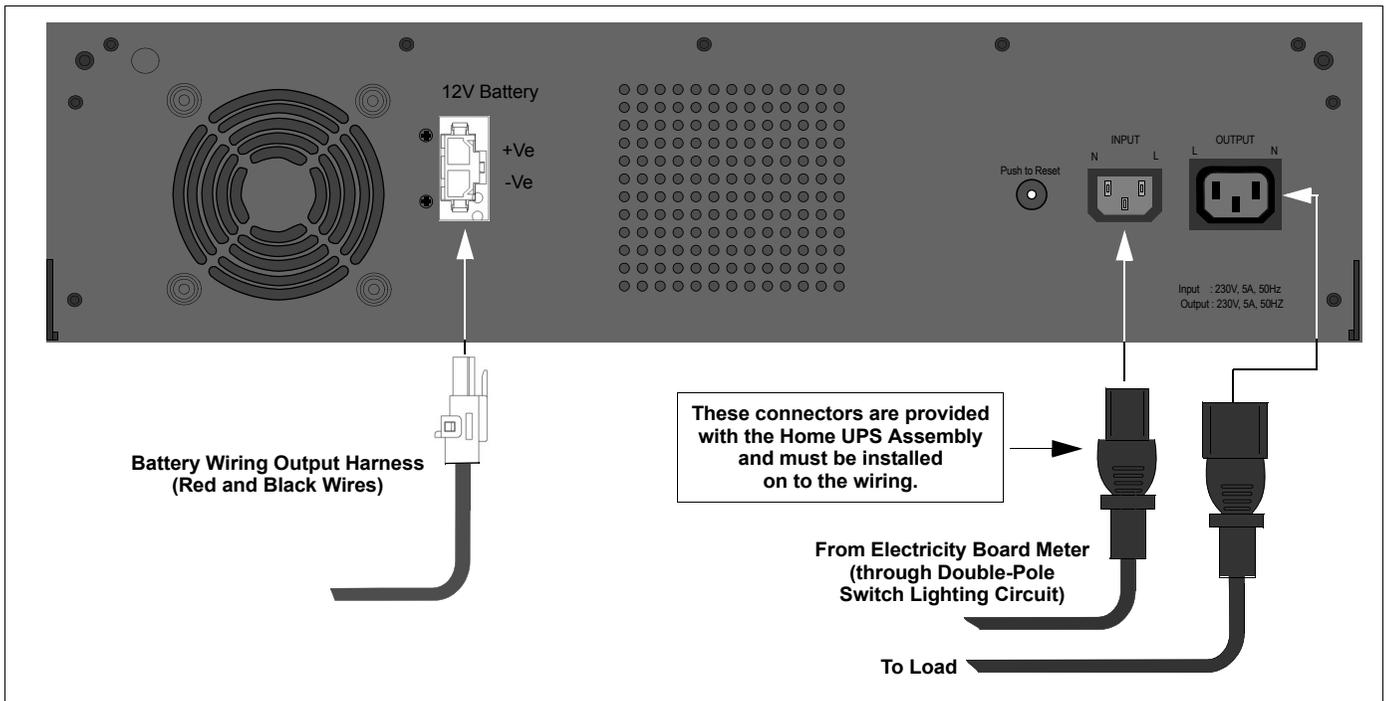


Figure 3. Home UPS Connections

## Section 4. Controls and Indicators

Please review this section thoroughly before applying power to the **Home UPS**.

**Home UPS Controls** - Controls provided on the **Home UPS** consist of the holiday mode switch marked **AWAY/HOME**, and the **Test/Mute** switch, as well as a rear panel **Push to Reset** circuit breaker, and are defined in the following:

**AWAY/HOME** - (also known as the holiday mode switch) - In the **HOME** position, this two-position rocker switch (Figure 4) sets the **Home UPS** so that it will switch to battery output when there is a utility power outage.

In the **AWAY** position, the **Home UPS** goes into standby mode and will not switch to battery power in the event of a power outage. This is to conserve the batteries. However, in this position, the **Home UPS** will charge the batteries until a utility power failure occurs.

**TEST/MUTE** - In **TEST** mode, when **ON MAINS LED** is lit, on pressing this push button, the unit will do self test to determine the state of the system. During On Battery self test it will also show the load status which can be used to find out the load capacity. In the **MUTE** position (push in for 5 seconds), this push button switch silences the low battery buzzer.

**Circuit Breaker Switch** (Rear Panel) - When in **ON MAINS** mode, if the system draws more than 10A, circuit breaker will trip. To reset the circuit breaker switch, push the switch fully inward.

**Cold Boot** - To turn on the **Home UPS** on **Battery Mode**. Keep **AWAY/HOME** switch in **HOME** position and press the **TEST/MUTE** button and hold it for 2-3 seconds.

**Home UPS Indicators** - The **Home UPS** provides light emitting diode (LED) indicators (Figure 4) to show the operational condition of the **Home UPS** and batteries. Indicators consist of **Inverter Load Status** (**25%**, **50%**, **75%**, **100%**, and **OVER LOAD**). Other indicators consist of: **INVERTER DISABLE**, **ON MAINS**, **ON BATTERY**, and **FAULT**). Using Table 1, determine the condition of the **Home UPS** and battery.

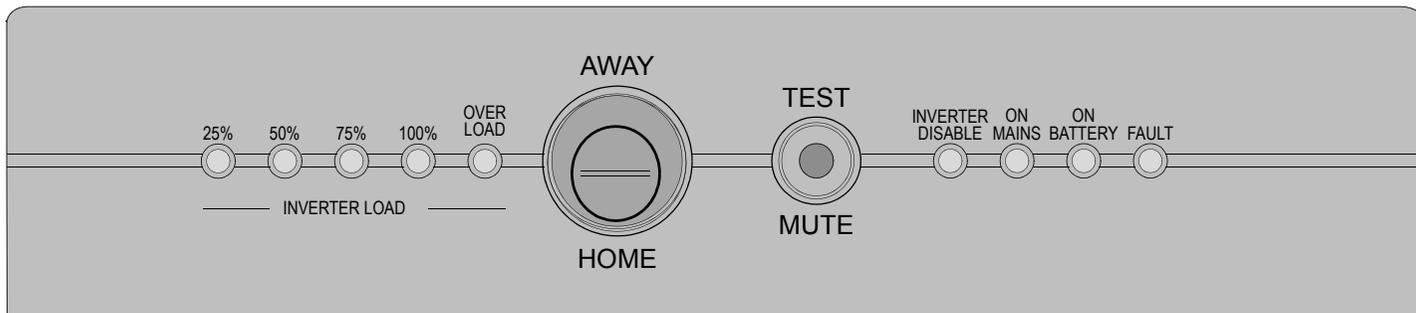


Figure 4. Home UPS Front Panel Controls and Indicators

Table 1. Home UPS Indicators

MODE	INV DISABLE (red)	ON MAINS (green)	ON BATTERY (yellow)	FAULT (red)	BUZZER	DESCRIPTION
ON LINE	Off	On	Off	Off	Off	The unit is ON-LINE.
ON LINE SELF TEST	Off	Flashing	Off	Off	Off	The unit is in ON-LINE Self-Test mode.
ON BATTERY SELF TEST	Off	Flashing	On	Off	Off	The unit is in ON-BATTERY Self-Test mode and the load is less than 100%.
ON BATTERY	Off	Off	On	Off	Off*	The unit is in ON-BATTERY mode and the load is less than 100%.
BAD BATTERY WARNING	Off	On	Flashing	Flashing	Chirp every 2 seconds	The unit is in ON-LINE mode; battery is bad.
Short Circuit (heavy overload)	Off	Off	Off	On	Continuously On	The unit is in FAULT state, due to short circuit fault.
ON BATTERY Low Battery Warning	Off	Off	On	Off	Constant Beeping, Can be muted through front panel TEST/MUTE push button.	

\* During transfer of Inverter from Mains to Battery mode, a short beeping is given to indicate Mains Out of Range.

Table 2. Load Indications

	25%	50%	75%	100%	Overload	Buzzer	Description
Power Meter	on	off	off	off	off	off	The unit is in ON-BATTERY mode, and the load is less than 25%.
Power Meter	on	on	off	off	off	off	The unit is in ON-BATTERY mode, and the load is between 25% and 50%.
Power Meter	on	on	on	off	off	off	The unit is in ON-BATTERY mode, and the load is between 50% and 75%.
Power Meter	on	on	on	on	off	off	The unit is in ON BATTERY mode; the load is between 75% and the overload limit.
Power Meter	on	on	on	on	on	on	The unit is in ON BATTERY mode; the load is above 100% and requires some of the loads to be off/ disconnected.

**NOTE:** In the case of a sustained overload, the **Home UPS** will be turned off automatically after one minute, and will wait in the fault state for a minute. After that, it will restart again. If the overload still persists, the **Home UPS** will be turned off again after one minute, and will wait in fault state for one minute and restart again. In the same way, it will try for three restarts. If the overload still persists, it will stay in fault state permanently until the unit is restarted with **TEST / MUTE** button. If the time interval between two consecutive overloads is more than 5 minutes, then the latest overload is considered as a fresh overload and three restart cycles will begin again.

## Section 5. Troubleshooting

**Note:** If the **Home UPS** causes interference with a television while **ON-BATTERY**, move the television at least 3 feet away from the **Home UPS**.

Use the information provided in Tables 1, 2 and 3 to diagnose **Home UPS** problems. If the problem cannot be resolved using the information provided in this manual, contact APC Technical Support.

**Table 3. Home UPS Troubleshooting**

<b>Problem</b>	<b>Cause</b>	<b>Corrective Action</b>
<b>Home UPS</b> fails to operate when mains power is turned on, or during a utility power failure.	<p>Disconnected battery.</p> <p>Power is off at the Mains.</p> <p><b>Home UPS AWAY/HOME</b> switch in the <b>AWAY</b> position.</p> <p>Dead batteries.</p> <p><b>Home UPS</b> rear panel <b>Push to Reset</b> circuit breaker has tripped.</p> <p>Improper wiring installation or loose connection.</p>	<p>Ensure batteries are connected as defined in this manual.</p> <p>Turn on power at the Mains.</p> <p>Set <b>AWAY/HOME</b> switch to the <b>HOME</b> position.</p> <p><b>Home UPS</b> failed to charge batteries, or batteries were allowed to completely discharge. Replace batteries. If replacing the batteries does not fix the problem, contact APC Technical Support.</p> <p>Reset the circuit breaker located on rear side of the <b>Home UPS</b> by pushing it fully inward until it stops; release the circuit breaker.</p> <p>Ensure wiring is as described earlier in this manual, and that all connections are secure.</p>
<b>Home UPS</b> faults.	<p><b>Home UPS</b> drops the load.</p> <p><b>Home UPS</b> is overloaded.</p>	<p><b>Home UPS</b> may have an internal failure. If this happens, the unit can be disconnected from the mains by completion of a Manual Bypass (see Manual Bypass) (Figure 5).</p> <p>Turn off some loads connected to the <b>Home UPS</b> until the <b>OVER LOAD</b> LED is no longer lit</p>

**Manual Bypass** - In the event of **Home UPS** failure or dead battery condition, the **Home UPS** can be disconnected from the mains and power restored to the circuit by completing a Manual Bypass (Figure 5) of the **Home UPS**, as follows:

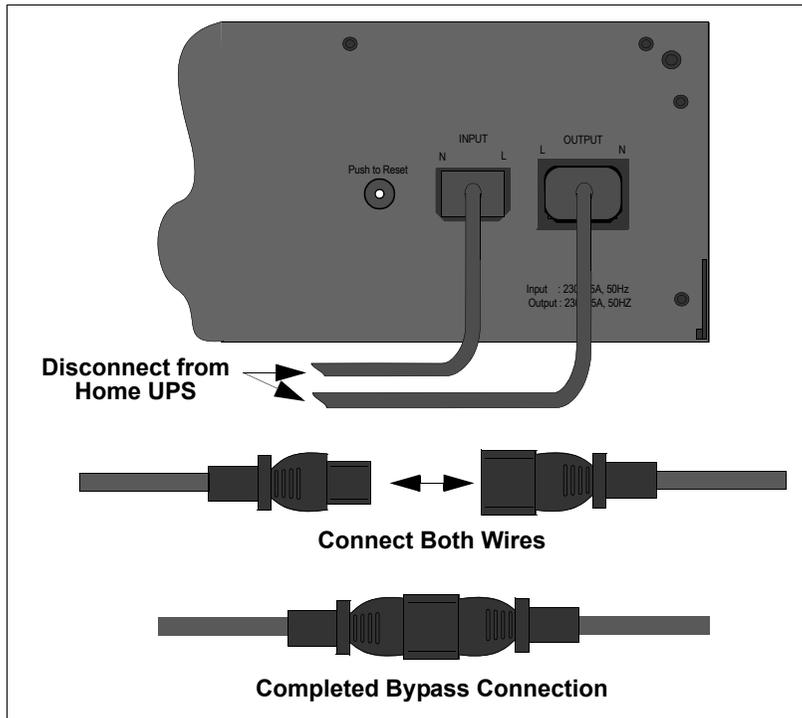
Remove the Wiring Management Kit from the **Home UPS**. Disconnect all wires connected at the **Home UPS** rear panel. Connect the wire from the **Input** socket to the wire from the **Output** socket.

## Section 6. Upper Cut-off Voltage Setting

The upper transfer voltage can be set at either 290V or 270V.

To adjust the upper transfer voltage procedure is as follows:

1. Keep **AWAY / HOME** switch in **AWAY** Position .Inverter Disable (Red LED) indicator will be ON.
2. Unplug the inverter from the utility (Mains) power supply. Press the front panel push button ‘**TEST/MUTE**’. The inverter will be in Standby Mode.



**Figure 5. Home UPS Bypass Connection**

3. Press the front panel push button 'TEST/MUTE' fully inward for 10 seconds. The unit will beep and ON MAINS (Green LED) ON BATTERY (Amber LED) and FAULT (Red LED) indicators will flash to acknowledge Lighting UPS getting into programming Mode.
4. The Lighting UPS will then indicate its default Voltage setting as shown in the following Table 4.

**Table 4. Upper Cut-off Voltage Setting**

Indicators Flashing	Voltage Setting	Upper transfer Voltage	Application
On Battery (Amber LED) and Fault (Red LED)	High	290	Not compatible with TV's, PC and other sensitive appliances
On Mains (Green LED) and Fault (Red LED)	Low	270	Compatible with all equipments. Recommended

5. To select the Low Voltage setting, press the 'TEST/MUTE' button until the ON MAINS (Green LED) and FAULT (Red LED) indicators are flashing.
6. To select the High Voltage setting, press the 'TEST/MUTE' button until the ON BATTERY (Amber LED) and FAULT (Red LED) indicators are flashing.
7. Once in Programming Mode, if the 'TEST/MUTE' button is not pressed within 5 seconds, the inverter will exit programming Mode and all LED indicators will turn off.

**Preventive Maintenance** - APC recommends the customer to do Preventive maintenance by inspecting the batteries for cracks and/or leakage, and checking Battery fluid levels and filling the batteries with distilled water (every 90 days). Dust the unit with a dry cloth. Do not use liquids when cleaning.

## Specifications

**Table 5. APC Home Appliance & Lighting UPS Technical Specifications**

	<b>Item</b>	<b>Specification</b>
<b>Input Characteristics</b>	Nominal Voltage	230 V
	Rated Voltage	230 V
	Frequency	47-53 Hz
	Nominal Rated Current	3.47 A
	Input Circuit Breaker Rating	10 A
	Input Voltage Window for Utility Operation	100 - 270/290 VAC ( User Settable )
<b>Output Characteristics</b>	Voltage (on Mains)	100 - 270/290 VAC ( User Settable )
	Voltage (on battery)	180 - 250 VAC
	Rated VA	800 VA
	Rated Watts	500 W
	Overload Indicated ON BATTERY	>100%
	Shutdown due to OVERLOAD	> 100% after 60 seconds (see Table 1 and following note)
	Frequency (ON BATTERY)	50 Hz +/- 1%
<b>Surge Protection</b>	Built-in Surge Protection	Protects the load from surges and spikes
<b>Environmental</b>	Ambient Operating Temperature	0-45 degrees C
	Humidity	95% Relative humidity, non-condensing
	Altitude	3000 m
<b>Physical</b>	Input Line	IEC socket
	Outlet Receptacles	IEC socket
	Dimensions - Unit (h) x (w) x (d)	UPS: 13.0 x 50.6 x 29.3 cm
	Weight	UPS : 7 kg
	Shipping Weight	UPS : 8 kg

## Warranty

APC warrants its products to be free from defects in materials and workmanship under normal use and service for 2 years for the Home UPS, and 18 months for the APC Batteries to the original purchaser. Its obligation under this warranty is limited to repairing or replacing, at its sole option, any such defective products. To obtain service under warranty you must obtain a Return Material Authorization (RMA) number from APC Technical Support or an APC Service Center. The defective unit must be returned with an RMA number, with transportation charges prepaid and it must be accompanied by a brief description of the problem and proof of date and place of purchase. This warranty applies only to the original purchaser.

It will be APC's standard practice to issue factory reconditioned replacement units in exchange for original units. The warranty on reconditioned units delivered for In-warranty service is 90 days or the remainder of original warranty period, whichever is longer. Repaired units carry the balance of their original warranty period.

## Contact Information

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