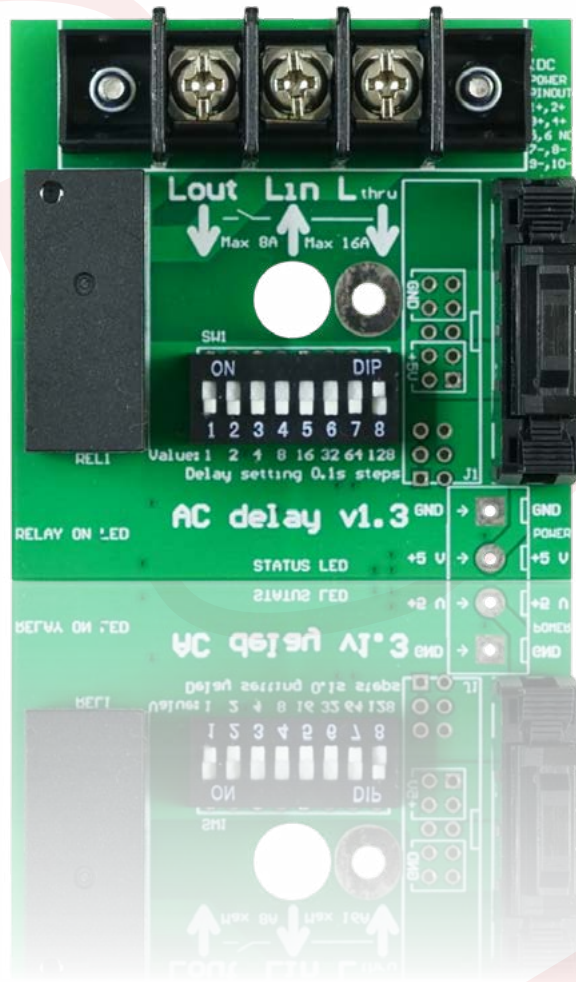




AC DELAY

User Manual

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SAFETY INSTRUCTIONS

Installation should only be carried out by a competent person or a professional electrician. Ensure that the installation adheres to the standards and regulations applicable in your country.

- **Do not use the device if it appears to be damaged.**
- **Use the device strictly in accordance with the instructions provided in this user manual. Any other usage or operation under different conditions is improper and may result in personal injury or property damage.**
- **No liability will be assumed for damages resulting from improper use.**
- **Never attempt to open the controller or undertake repairs yourself.**
- **Keep the device away from heat sources and always ensure adequate ventilation.**
- **Avoid placing the unit on heat-sensitive surfaces.**

This device is designed for indoor use only. Do not expose the unit to direct sunlight, and prevent it from coming into contact with liquids, as it could result in electrical shock, damage to the device, smoke, or overheating.

Regularly clean accessible device components from the outside. The cleaning frequency depends on the operating environment; environments that are damp, smoky, or particularly dirty may cause greater accumulation of dirt on the device components. Clean with a dry, soft cloth. Stubborn dirt can be removed with a slightly dampened cloth.

- **Never use solvents or alcohol for cleaning.**
- **Establish all connections when the unit is switched off, using the shortest possible high-quality cables. Ensure that cables cannot cause a tripping hazard.**
- **Avoid touching plug contacts with sharp or metal objects.**
- **Dispose of plastic bags, packaging, etc., properly, ensuring they are out of reach of babies and young children to prevent choking hazards.**
- **Ensure that children do not detach any small parts (e.g., screws, connectors) from the unit, as they could swallow these pieces and choke.**
- **Never allow children to use electrical devices unsupervised.**

DEVICE INTRODUCTION



When dealing with a large number of AC/DC switched-mode power supplies (SMPS) in a single installation, it is typically challenging to turn them on simultaneously because the inrush current of multiple SMPS is high enough to trip the circuit breaker. In the entertainment lighting industry, it is not unusual to use a couple of hundred SMPS to power up LED screens, for example. To safely turn on many SMPS, it is a good practice to activate them one by one, spreading the inrush current into multiple smaller portions. This requires an operator to turn on circuit breakers one by one, which is not very efficient, especially in environments where functionality is crucial, such as in TV studios.

Therefore, we have designed a small gadget called the AC delay, which automates the turn-on sequence of many SMPS.

The operation of the AC delay is very simple. After applying a 5V DC power, the AC delay “waits” for a user-defined time adjusted by a DIP switch, and then it permanently turns on the relay whose contacts are used to power up a single SMPS. So, if you use many AC delays with different delay (wait) settings, your SMPS will be turned on in a sequence one by one. Inrush currents are small, and the circuit breaker remains unaffected. Cool, isn’t it?

DEVICE SPECIFICATION

AC DELAY

Relay with adjustable delay for minimizing power-up inrush currents in multi-power supply installations

Applications

- LED screens
- Other high-power multi-power supply installations



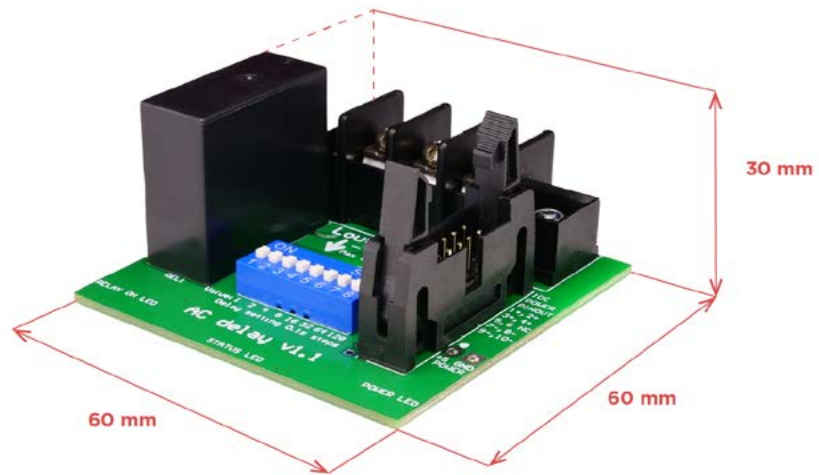
Technical specification

Operating voltage	5V DC
Operating current	<0.2A
Rated power	<1W
Power input connector	10-pin IDC connector with 2.54mm spacing, optionally terminal block
Max. switch current	8A, resistive load
Max. pass thru current	16A
Switch voltage range	88 ~ 264 VAC/47 ~ 63Hz
Relay output connector	3-pole screw terminal block with 9.5mm spacing for wires 0.35mm ² - 4mm ²
3x LED (power, status, relay on)	3x LED (power, status, relay on)
Operating air temperature	-10°C to 45°C
Storage air temperature	-30°C to 85°C
Relative humidity	5% to 80% non-condensing
Weight	80g
Dimensions	75x75x40mm
Enclosure	Plastic, IP54
Mounting options	Side tabs for screw/cable ties

Default package content

- AC DELAY PCB
- IP54 JUNCTION-BOX

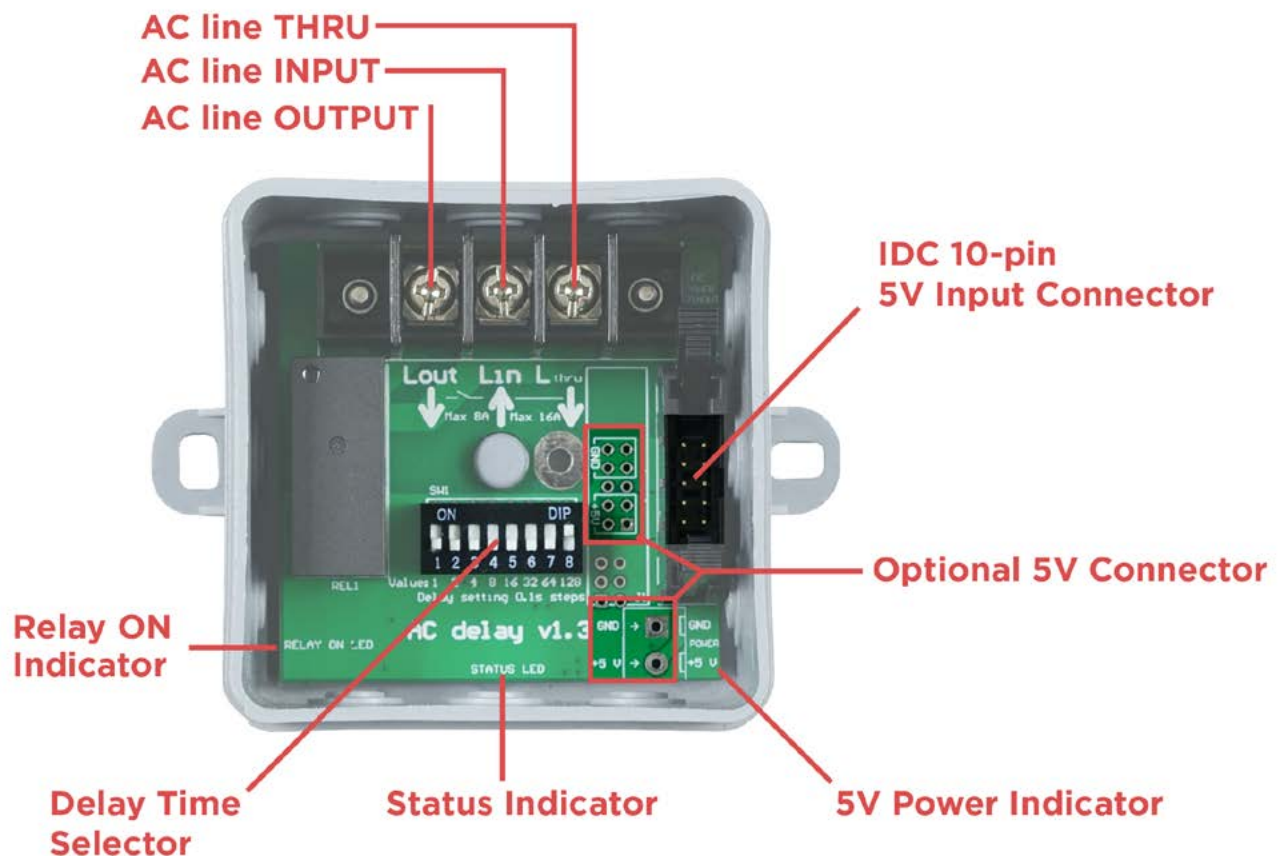
Dimensions



DEVICE VARIANTS

By default, the AC delay is equipped with one IDC 10-pin connector. For some users or installations, it is more convenient to have two IDC connectors or a screw terminal block. AC delay can be equipped with these extra connectors upon request.

DEVICE OVERVIEW



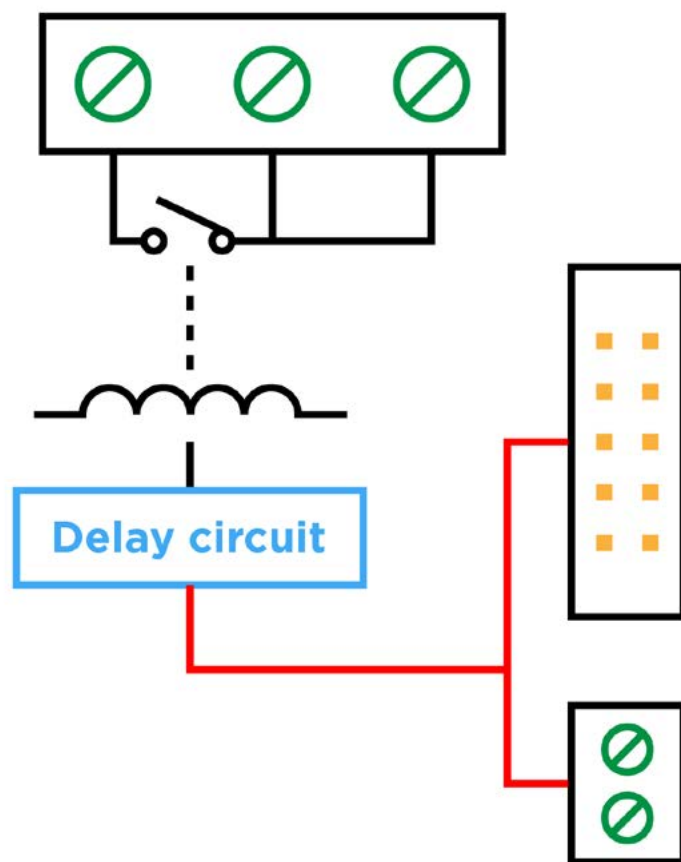
AC DELAY has 3 LED indicators

“5V POWER” indicator - indicates that 5V power is present

“STATUS LED” indicator - indicates wait time progress by blinking

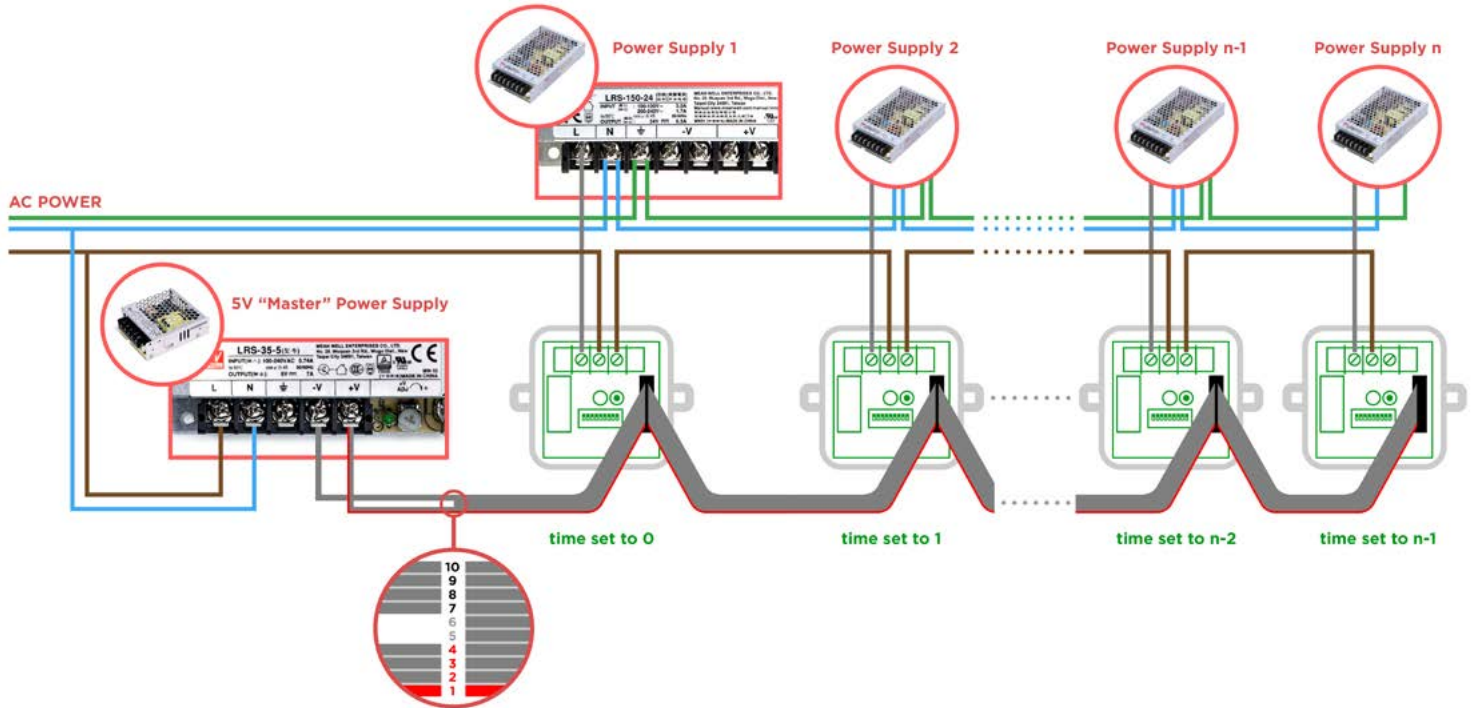
“RELAY ON LED” indicator - indicates that output relay is active

DEVICE BLOCK DIAGRAM

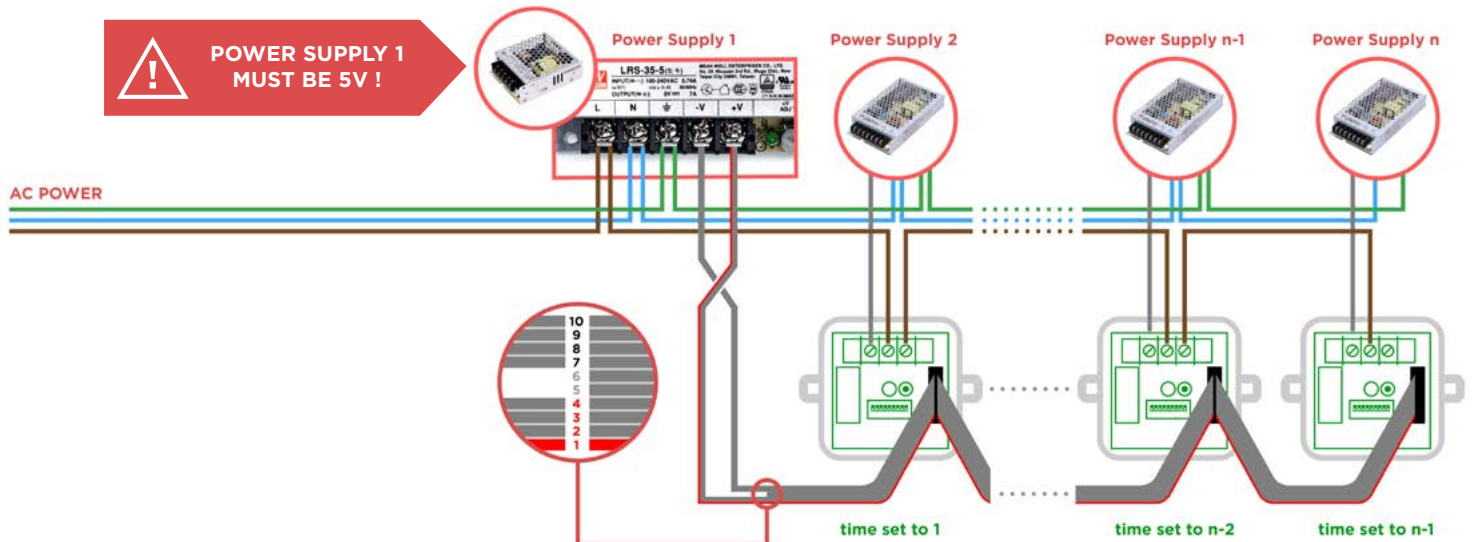


DEVICE CONNECTION

AC DELAY TYPICAL DIAGRAM WITH "MASTER" POWER SUPPLY



AC DELAY TYPICAL DIAGRAM WITH SHARED POWER SUPPLY



Please **DO NOT** connect more than 10pcs of AC DELAYS on single ribbon cable and keep total ribbon cable length shorter than 2m!

If more than 10pcs of AC DELAYS required, use multiple ribbon cables.

DO NOT overload AC delay terminals!



DEVICE SETTINGS

The only setting is to set a desired delay time by DIP switch. Delay time is 1 second + value binary set by DIP switch multiplied by 0.1s. For example setting value 50 will make delay time 1s + 5s = 6s. We recommend to set different value for every AC delay in your system to achieve sequential power up sequence of your power supplies.

BINARY VALUE TABLE

DIP No.	#1	#2	#3	#4	#5	#6	#7	#8
value	1	2	4	8	16	32	64	128

Total value set is a sum of individual values enabled.

For example to set value 50 turn on DIPs 2,5,6 ($2+16+32 = 50$).

WARRANTY

This device has been designed and made using high quality components with several quality checks and testings. Therefore we are proud to provide 5 year limited warranty for this device.

This limited warranty is valid for company or person (user) who purchased new device from us, or our authorized dealer/distributor and warranty period starts from date when user receive this device.

Limited warranty cover:

- **material defects**
- **assembly failures**
- **device malfunction**
- **this device only**

Limited warranty DO NOT cover and is void when this device:

- **has been used for different usage as specified in this manual**
- **has been opened without our permission**
- **has been modified or disassembled without our permission**
- **has been operated wrong way. E.g. over-voltage, over-current, exposed to high electromagnetic fields/discharges such as lighting strikes or ESD events with parameters way outside of HBM model**
- **has been stored or used outside of storage/operating temperature and humidity**
- **has been used in aggressive environment, corrosive environment, dusty environment or in environment with increased vibrations**
- **has been in contact with liquids**
- **has been connected wrong way. E.g. Short circuits, reverse polarity etc.**
- **has been mechanically damaged**
- **got unofficial attempts to firmware updates**

Limited warranty DO NOT cover:

- **shipping expenses to handle defective device.**
- **failures or damage of other equipments connected to this device**
- **user expenses caused by defective device**

For limited warranty claim process:

- **user must be able provide sufficient proof of purchase**
- **use email info@ledstripstudio.com with detailed description of device failure**
- **takes less than 30 days to resolve. This period starts from day we physically receive defective device (device return)**

DISPOSAL OF YOUR OLD DEVICE

This device is an electronic device, and can be categorized as hazardous waste in your country. Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

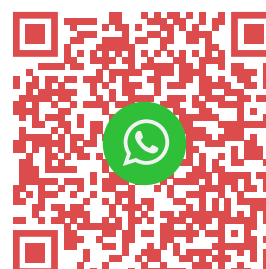
CONTACTS

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