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### **Related Applications**



**LED Driver Test Solutions** 

# **Related Technical Articles**

EU announces new ErP regulations and energy efficiency labeling regulations for lighting products

AC and DC Power Supply Introduction

## **Related Successful Case**

Thailand – Installed LSG-1800B goniophotometer, LPCE-3 integrating sphere and WT2080 LED driver tester

Mexico – Lisun Group has Successfully Become the Test Instruments Supplier for General





AC Power Source

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Product No: LSP-500VAR

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5

Description

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Adjustable Frequency 45Hz to 400Hz AC Power Supply specifications:

- AC-DC-AC frequency conversion technology, Controlled & tested by 16 bits MCU
- Protection for over hot, thundering voltage and current
- Total voltage distortion: ≤0.2%; Voltage stability: ≤0.05%/30min
- Load adjust rate: ≤0.05%; Frequency stability: ≤0.01%/30min
- Output voltage range: AC 0.0~300.0V, Output Frequency Range: 45~70Hz, 100Hz, 200Hz and 400Hz
- It is pure sine wave AC power source with low harmonic and high accuracy
- Input Power: 220V and 50/60Hz (110V can be option)
- Communicate with PC via software, the Voltage & Current set by the software and Power Output can be remote controlled.

| LISUN Model                                   | <b>Output Power</b> | Specification                       |  |
|---|---------------------|-------------------------------------|--|
| LSP-500VAR                                    |                     |                                     |  |
| LSP-500VARC (with Trigger Function)           | 500VA               | 0~150V is 4.2A and 150~300V is 2.1A |  |
| LSP-500VARC-Pst (IEC-Pst AC Source Generator) |                     |                                     |  |
| LSP-1KVAR                                     |                     |                                     |  |
| LSP-1KVARC (with Trigger Function)            | 1KVA                | 0~150V is 8.4A and 150~300V is 4.2A |  |
| LSP-1KVARC-Pst (IEC-Pst AC Source Generator)  |                     |                                     |  |

P.S. LSP-500VARC and LSP-1KVARC are the update version with big LCD screen. The LSP-500VARC-Pst and LSP-1KVARC-Pst are according to IEC TR 61547-1:2020 IEC61000-3-3, IEC 61000-4-15 and IEEE 1453 Pst programmable function as below:

Table 1 - Voltage fluctuations - Test specification of voltage fluctuations applied at input AC mains 120/230 V and 50/60 Hz

| Rectangular amplitude modulations with duty cycle of 50 % a c d f |  |   |                   |                   |                   |  |  |
|---|--|---|-------------------|-------------------|-------------------|--|--|
| Voltage changes<br>per minute<br>cpm                              | Modulation<br>frequency<br>$f_{\rm m}$<br>Hz | Relative voltage fluctuation $d = \Delta U / U$ % |                   |                   |                   |  |  |
|   |  | 120 V<br>50 Hz                                    | 120 V<br>60 Hz    | 230 V<br>50 Hz    | 230 V<br>60 Hz    |  |  |
| 39  | 0,325 0                                      | 1,045   | 1,040             | 0,894             | 0,895             |  |  |
| 110   | 0,916 7                                      | 0,844   | 0,844             | 0,722             | 0,723             |  |  |
| 1 056   | 8,8  | 0,353 b   | 0,353 b           | 0,275 b           | 0,275 b           |  |  |
| 1 620   | 13,5   | 0,545   | 0,548             | 0,407             | 0,409             |  |  |
| 4 000   | 33 1/3 °                                     | 3,426   | Test not required | 2,343             | Test not required |  |  |
| 4 800   | 40,0 °                                       | Test not required                                 | 4,837             | Test not required | 3,263             |  |  |

- See Table 5 of IEC 61000-4-15:2010 and Table D1 of IEC 61000-3-3:2013.
- See Tables 2a and 2b of IEC 61000-4-15:2010 for  $P_{\text{inst}}$  = 1; the values of d = 0,252 % and d = 0,196 % are increased to respectively 0,353 % and 0,275 % to give  $P_{\text{St}}^{\text{LM}}(I)$  = 1.
- The duration of the voltage fluctuation and recording of the illuminance is recommended to be a minimum of 180 s (60 s for the transient response of the flickermeter's filters and 120 s for the duration of the statistical evaluation of the flicker level in block d, see A.2.5). First of all, the transient response of the light flickermeter's filters should be considered, which is dominated by the illuminance adapter (block a, see A.2.2). The time constant of this filter is set at 10 s, reaching the 90 % of the value corresponding to the steady state response at approximately 50 s. In addition, the evaluation period should contain an integer number of voltage fluctuation periods. For the set of test modulation frequencies given in this table, the minimum duration to achieve an integer number of voltage fluctuation periods in all the test cases is 120 s.
- Recommended absolute tolerance for the duty cycle is ±2 pp, for the modulation frequency the recommended tolerance is ±1 % and for the relative voltage fluctuation the recommended tolerance is ±5 %.
- The 33 1/3 Hz and 40 Hz modulation frequencies should be synchronous with the supply frequency of respectively 50 Hz and 60 Hz with a fixed phase angle as defined by Equation (1).
- The light flicker specifications in this document are expanded such that it is aligned with the voltage flicker specifications given in IEC 61000-4-15, which is limited to 120 V and 230 V, 50 Hz and 60 Hz. No voltage fluctuation tests are available yet for 100 V, 200 V and 277 V. However, in practice the test specifications given in this table for 120 V and 230 V can be applied for 100 V and 200/277 V respectively for indicative purposes.

Programmable AC Power Signal Output when do Flicker dynamic Pst LM(I) test in IEC TR 61547-1:2020