SPS electronic
TRUE GERMAN QUALITY

CUSTOMIZED

Industry: Lights

LED Light Testing System L 1800

Modern LED lights, too, must be tested for electrical safety and function after production. Because of the completely new technology respective new test techniques are necessary.

Challenge

Within a few years the lighting industry has been revolutionized. Although LED technology has been known for decades it was only used from 2010 for the lighting. There are many advantages in favour of the use of LED technology but for the quick and consistent application in the lighting industry the high efficiency was decisive. Not only has the ordinary light bulb been replaced with LED lights but also mercury vapour lamps in street lights and neon lights in offices. For the final test of lightings electrical safety and function test systems are needed to meet the new requirements of the LED technology and are also prepared for the innovations in future. Only with the use of standard components these requirements can be met.

Solution

The techniques of LED lights and light bulbs are completely different. Therefore the requirements for the test technology in terms of the function are also completely different. Safety-related a LED light presents itself identical to a light with old lamps (light bulb or neon tube) – the test requirements have not changed. For lights of protection class I an insulation measurement and a ground bond (PE) test is necessary. Additionally insulation measurements to interfaces or for the power supply may be needed. The requirements for the function test have however changed significantly. Due to the high efficiency currents and outputs are considerably lower. Clocked power supplies of the LED lights stress the mains by means of apparent currents. Therefore it is necessary to measure the phase angle between current and voltage. Through the technology of the LED technology it has meanwhile become very easy and affordable to remote control lights. Already today there are several interfaces available (DALI, DSI, 0 – 10 V etc.) and it can surely be expected that future innovations will open many more possibilities. By using the standard compact tester KT 1885B with a special extension for LED lights in conjunction with a separate standard PC (or laptop) all required criteria are met. The freely programmable compact tester provides all conceivable safety and function tests and this at a very favourable price. The PC with standard software is only connected via Ethernet (LAN) with the test systems and can be replaced any time. Should any new software applications for the LED interfaces become standard, an extension of the software is easy and cost efficient. In the special LED extension the control interfaces and switch-overs to the DUT find space. Here is enough space for extensions when new technologies become accepted. The concept is complemented by a simple control panel and a (usually customer-specific) connection panel. The future is guaranteed – with the latest test technology of SPS electronic for modern LED technology.

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Advantages

+ Future-oriented solution by using a separate standard PC with standard test technique
+ Simulation standard interfaces DALI, DSI and 0 – 10 V, extensible anytime with additional interfaces
+ Programmable, electronic supply 0 – 300 V AC / DC
+ Turnkey solution including work station design (by separate control panel and separate connection desk freely configurable)
+ Simple, intuitive operation for semiskilled personnel
+ The DUT needs to be connected only once then the whole test process occurs automatically
+ In network operation, all test data is automatically saved at the specific location / database
+ Long service life and service-friendly design
+ All values and settings are available via software
+ Workplace safety according to EN 50191
+ Short cycle times with safety current limited testing technique according to EN 50191

Technical data

Safety test

- Ground bond (PE) test:
  1 – 30 A AC / 0 – 10 Ω
- Insulation test:
  100 – 6,000 V DC / 0.25 MΩ – 10 GΩ
- High voltage test AC:
  100 – 5,500 V AC / 0 – 3 mA
- High voltage test DC:
  100 – 6,000 V DC / 0 – 10 mA

Interface simulation

- DALI
- DSI
- 0 – 10 V
- More optionally

Further data

- Programmable, fully electronic source
- 0 – 300 V AC / DC for the DUT supply,
  Output max. 1,000 VA
- Quasi 3-phase operation for L1, L2 and L3

Functional test

- Continuity test:
  24 V DC / 0 – 600 mA
- Resistance measurement:
  0 – 1,000 Ω
- Current measurement:
  0 – 16 A (AC and DC)
- Voltage measurement:
  0 – 300 V (AC and DC)
- Effective power measurement:
  0 – 4,000 W
- Reactive power measurement:
  0 – 4,000 VAR
- Apparent power measurement:
  0 – 4,000 VA
- Cos φ measurement:
  -1 to +1
- Leakage current measurement:
  10 – 270 V / 0 – 10 mA

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