

## INCANDESCENT BULB BURNING EQUIPMENT



The equipment is suitable for testing automotive incandescent bulbs with the setting of normal or extreme (intensive burning) operational environment. It is equally suitable for testing the lifetime of bulbs and to develop the burning technology. The parameter settings may be alike for all bulbs, different by groups, or different for each lamp. The bulb burning equipment was planned for continuous working, and makes event logging and data collection through the examination.

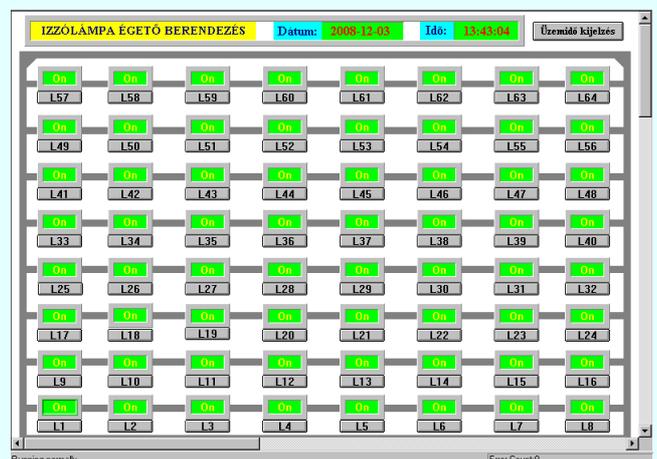
The incandescent bulb burning equipment is a computer-controlled system, which offers unique hardware and software resources to control all the bulbs. The bulb test is also possible with DC or impulse drive. The operator receives continuous information about the momentary functional state of the equipment.

### The functional features of the equipment:

- the bulb handling may be one by one independent, by groups independent, or alike
- automatic control mode
- manual control mode
- burn out monitoring
- current limit monitoring
- overheat monitoring
- continuous measurement of the terminal voltage and the current consumption
- data collection
- event logging
- uptime counting and storage
- continuous save of the operational parameters
- continuation of the original test in case of system halt or system stop
- automatic halt in case of hardware failure

### The handling features of the equipment:

- plain, user-friendly graphical interface with touch screen or keyboard and mouse
- password protected user accounts with different rights
- continuous monitoring of the momentary functional state of all single bulbs
- overview display of tested bulbs
- unique display of tested bulbs
- hardware test mode
- long time working without supervision



### **The hardware features of the equipment:**



- independent programmed drive for each bulb
- output voltage can be programmed in a wide range
- DC drive or PWM drive with programmable duty cycle
- PWM drive with constant or programmable frequency
- one by one independent burn out, current limit and power supply overheat monitoring
- one by one independent terminal voltage and current consumption measurement
- one by one independent short circuit protection
- power on without transients from cold bulb state
- suitable for testing of bulbs with two spirals

### **The software features of the equipment:**

- automatic control mode with one by one independent control program (burning program)
- simply programmable, the burning cycle consists of maximum 100 different setting procedure (primary step), repeated maximum through 10000 hours
- easy to use, user-friendly on-line editor for creating and editing the program files, which control the automatic burning process
- unique measurement identifier to all bulbs
- defining bulb groups to support the testing with same parameters
- continuous saving of the parameters of the momentary functional state into data file for the continuation of the interrupted operation
- continuous measurement of the terminal voltage and current consumption, averaging, minimum and maximum calculation, and storage of these data
- event logging with date and time stamp
- spiral independent uptime storage
- software calibration of the programmed output voltage and measurement voltage and current
- continuous watching of hardware failure and automatic stopping
- continuation of the test with parameters saved before the working interruption

### **The tests for automotive incandescent bulbs, which can be done with the equipment:**

- lifetime test with DC drive and simulation of normal operational environment
- lifetime test with PWM drive (DRL mode) and simulation of normal operational environment
- lifetime test with mixed (DC and PWM) drive and simulation of normal operational environment
- lifetime test with DC drive and simulation of extreme operational environment
- lifetime test with PWM drive (DRL mode) and simulation of extreme operational environment
- lifetime test with mixed (DC and PWM) drive and simulation of extreme operational environment
- the development of the test (burning) technology and applicable environmental parameters
- supports the development of bulbs with the accomplishment of the examinations with special environmental settings and with the documentation of the results
- accomplishment of tests with different type by groups or one by one



### The hardware units of the equipment:

- the control computer (with peripheral devices and built-in I/O cards) ensures the realisation of the automatic control mode and manual control mode
- the system controller unit is used for programming of the single bulbs, measuring the voltage and current values, and collecting the status information
- the multiplexer units ensure the control of 16 pieces of bulb power supply units
- the bulb power supply units ensure the unique service of the tested bulbs
- the mains and power system ensures the powering of the single hardware units, including the powering of the control computer by UPS

### The mechanical construction:

- the hardware units are located in a control cabinet
- the bulbs under test are installed on the burning frame
- there are interchangeable sockets on the burning frame suitable for bulbs with different types
- the bulbs on the burning frame are covered with a guard

### Technical data:

The maximum number of the tested bulbs	64 pieces
The type of the tested bulbs	car incandescent bulbs with 1 or 2 filaments
Voltage range of testing	6–33V or 6–48V (it depends on configuration)
Accuracy (voltage)	$\pm (0.05V \pm 0.2\%)$
Setting step (voltage)	0.1V
Maximum power	130W
Starting short-circuit current for a short time	Maximum 25A (programmable)
Short-circuit current for a long time	0.4 * (the programmed value)
Burn out threshold	0.05 * (the programmed value)
Accuracy (current)	$\pm (0.2A \pm 5\%)$
Setting step (current)	0.1A
Mode	DC or PWM
Frequency of testing (PWM mode)	Fixed frequency 100Hz or Programmable in 50–200Hz range
Accuracy (frequency)	On the case of a fixed frequency $\pm 0.01\%$ On the case of a programmable freq. $\pm 0.1\text{Hz}$
Setting step (frequency)	1Hz
Duty cycle (PWM mode)	1–99%
Setting step (duty cycle)	1%
Mains	3*400V AC / 10A
Protection	IP20
Temperature range	+0°C – +50°C

Relative humidity	maximum 65%
Atmospheric pressure	87kPa–107kPa
The weight of the control cabinet	approximately 280kg
The dimensions of the control cabinet	600*820*2100mm
The weight of the burning frame	approximately 40kg
The dimensions of the burning frame	1210*800*1650mm

## Accessibility:

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