

# OPERATION MANUAL

## RESISTANCE BOX/UL **RL01-TOS**



Part No. Z1-006-200, IA005201  
Jun. 2014

## Use of Operation Manual

Please read through and understand this Operation Manual before operating the product. After reading, always keep the manual nearby so that you may refer to it as needed. When moving the product to another location, be sure to bring the manual as well.

If you find any incorrectly arranged or missing pages in this manual, they will be replaced. If the manual gets lost or soiled, a new Operation Manual can be purchased. In either case, please contact your Kikusui agent, and provide the "Kikusui Part No." given on the cover.

This manual has been prepared with the utmost care; however, if you have any questions, or note any errors or omissions, please contact your Kikusui agent.



## 环境保护使用期限 Environment-friendly Use Period

该标记为适用于在中华人民共和国销售的电子信息产品的环境保护使用期限。

只要遵守有关该产品的安全及使用注意事项，从制造年月起计算，在该年度内，就不会对环境污染、人身、财产产生重大的影响。

产品的废弃请遵守有关规定。

产品的制造年月可以在以下网址中确认。

<http://www.kikusui.co.jp/pi/>

This mark is used to indicate the period as Environment-friendly use period that applies to any of the Electronic Information Products sold in the People's Republic of China.

If you carefully observe the precaution of Safety and Usage for this product, no serious effect will be made to the environment, human body or property during the period of the specified number of years from the manufacturing month/year of the product.

In case the product is disposed, please ensure to comply with the law or regulation of local government in your region.

To check the manufacturing month/year of the product, visit the following website.

<http://www.kikusui.co.jp/pi/>

## 有毒有害物质或元素名称及含有标示 Name of hazardous materials and symbol of element in the equipment and quantity

| 部件名称<br>Name of part  | 有毒有害物质或元素<br>Hazardous material and symbol of element |         |         |               |             |               |
|-----------------------|---|---------|---------|---------------|-------------|---------------|
|                       | 铅<br>Pb   | 汞<br>Hg | 镉<br>Cd | 六价铬<br>Cr(VI) | 多溴联苯<br>PBB | 多溴二苯醚<br>PBDE |
| 内部接线 Internal wirings | ×   | ○       | ○       | ○             | ○           | ○             |
| 外壳 Enclosure          | ×   | ○       | ○       | ○             | ○           | ○             |
| 底盘组装机 Chassis assy    | ×   | ○       | ×       | ○             | ○           | ○             |
| 辅助设备 Accessories      | ×   | ○       | ○       | ○             | ○           | ○             |

○: 该部件所有均质材料的有毒有害物质的含量不超过SJ/T11363-2006标准所规定的极限值要求。

×

○: The content of toxic and hazardous substances or elements from the homogeneous materials used in all appliance components does not exceed the limit defined in the SJ/T11363-2006 standard.

×

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## Chapter 1 GENERAL DESCRIPTION

The RL01-TOS Resistance Box is a high-voltage variable resistance device which has been designed to test the output voltage of a withstanding voltage tester (dielectric strength tester) which is to be used to verify the dielectric strengths of products on a manufacturing line, complying with the requirements of UL 1270, Appendix C and UL1492, Appendix C. The output voltage test, in effect, is an output voltage regulation test of the withstanding voltage tester.

## Chapter 2 PRECAUTIONS

### 2.1 Receiving Inspection

Immediately upon receipt of the device, inspect it for any damage which might have been sustained while in transportation. If any signs of damage are found, immediately notify your KIKUSUI agent.

### 2.2 Notes and Precautions

- (1) The RL01-TOS deals with a hazardously high voltage. In order to prevent electric shock hazards, be extremely careful when handling it.
- (2) Be sure that the protective grounding terminal ④ of the RL01-TOS, together with the protective grounding terminal of the withstanding voltage tester, is securely connected to a grounding earth line.
- (3) Be sure that the cable which runs from the withstanding voltage tester is securely connected to the INPUT connector (rectangular connector) of the RL01-TOS. Securely fix the connector with the plastic screws ⑤ to guard against disconnection.
- (4) Be sure that the LO line [LOW (GND) line] also is securely connected.

# Chapter 3 OPERATION METHOD

## 3.1 Front Panel

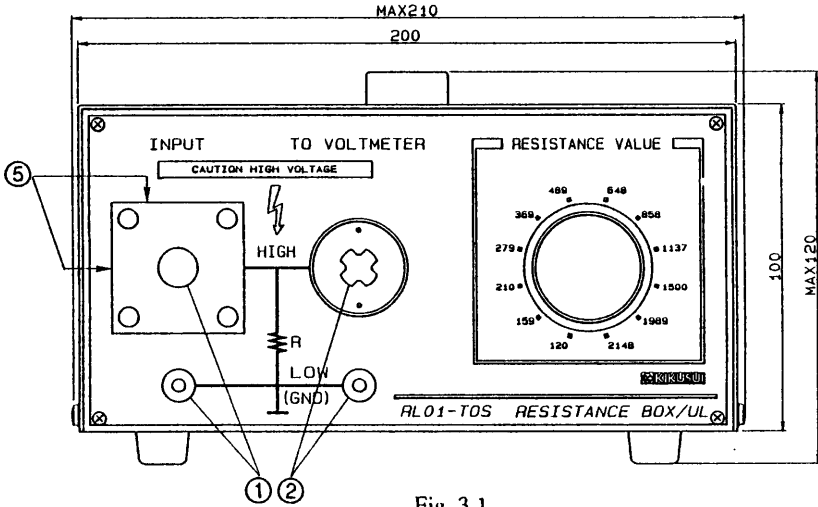


Fig. 3.1

## 3.2 Rear Panel

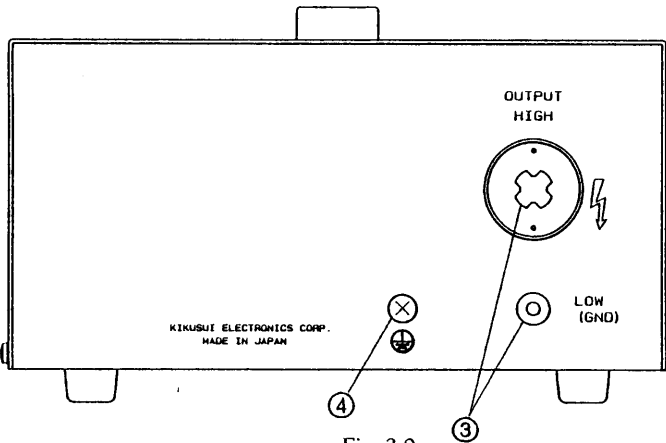


Fig. 3.2

### 3.3 Connecting Method

- (1) Connect the INPUT terminals ① shown in Figure 3.1 to the output terminals of the withstanding voltage tester.
- (2) Connect a high voltage voltmeter to the TO VOLTMETER terminals ② shown in Figure 3.1.
- (3) Connect the device to be tested to the OUTPUT terminals ③ shown in Figure 3.2.
- (4) The terminals ①, ②, and ③ are connected in parallel within the RL01-TOS. You may use terminals ② and ③ interchangeably, if such is more convenient for your use.

## Chapter 4 SPECIFICATIONS

| Item                               | Specification  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
|------------------------------------|--|------------------------------------|--------|------------------------------------|--------|------------------------------|----------|--------|--------|----------|--------|--------|----------|
| Resistance                         | <p>Selectable with a rotary switch for 12 resistances.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">120 kΩ</td> <td style="text-align: center;">369 kΩ</td> <td style="text-align: center;">1,137 kΩ</td> </tr> <tr> <td style="text-align: center;">159 kΩ</td> <td style="text-align: center;">489 kΩ</td> <td style="text-align: center;">1,500 kΩ</td> </tr> <tr> <td style="text-align: center;">210 kΩ</td> <td style="text-align: center;">648 kΩ</td> <td style="text-align: center;">1,989 kΩ</td> </tr> <tr> <td style="text-align: center;">279 kΩ</td> <td style="text-align: center;">858 kΩ</td> <td style="text-align: center;">2,148 kΩ</td> </tr> </table> <p>When resistances are reduced stepwise from the maximum value to lower values, the rate of resistance reduction is not greater than 25% of the preceding value for each step of resistance change.</p> | 120 kΩ                             | 369 kΩ | 1,137 kΩ                           | 159 kΩ | 489 kΩ                       | 1,500 kΩ | 210 kΩ | 648 kΩ | 1,989 kΩ | 279 kΩ | 858 kΩ | 2,148 kΩ |
| 120 kΩ                             | 369 kΩ   | 1,137 kΩ                           |        |                                    |        |                              |          |        |        |          |        |        |          |
| 159 kΩ                             | 489 kΩ   | 1,500 kΩ                           |        |                                    |        |                              |          |        |        |          |        |        |          |
| 210 kΩ                             | 648 kΩ   | 1,989 kΩ                           |        |                                    |        |                              |          |        |        |          |        |        |          |
| 279 kΩ                             | 858 kΩ   | 2,148 kΩ                           |        |                                    |        |                              |          |        |        |          |        |        |          |
| Resistance Accuracy                | <p>When set at 120 kΩ:<br/>Nominal resistance +1%, -0</p> <p>When set at other resistances:<br/>Nominal resistance ±1%</p>   |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Maximum Operable Voltage           | 1300 V (rated voltage for continuous operation)  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Short-period Overvoltage           | Allowable up to 1400 V for up to 5 seconds (provided that no overvoltage recurring within 60 seconds)  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Terminals                          | Output terminals and voltage check terminals   |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Ambient Conditions                 | <p>Specification range:<br/>5 to 35°C (41 to 95°F), 20 to 80%RH</p> <p>Storage range:<br/>-20 to 70°C (-4 to 158°F), ≤80%RH</p>  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Dimensions of Casing               | <p>200 W × 100 H × 260 D mm<br/>(7.87 W × 3.94 H × 10.24 D in.)</p> <p>Dimensions of Maximums:<br/>210 W × 120 H × 300 D mm<br/>(8.27 W × 4.72 H × 11.81 D in.)</p>  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Weight                             | 2.6 kg (5.7 lbs)   |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| Accessories                        | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">High voltage test cables, TL04-TOS</td> <td style="text-align: right; padding: 2px;">2 sets</td> </tr> <tr> <td style="padding: 2px;">High voltage test cables, TL05-TOS</td> <td style="text-align: right; padding: 2px;">1 set</td> </tr> <tr> <td style="padding: 2px;">"DANGER! HIGH VOLTAGE" label</td> <td style="text-align: right; padding: 2px;">1 sheet</td> </tr> </table>   | High voltage test cables, TL04-TOS | 2 sets | High voltage test cables, TL05-TOS | 1 set  | "DANGER! HIGH VOLTAGE" label | 1 sheet  |        |        |          |        |        |          |
| High voltage test cables, TL04-TOS | 2 sets   |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| High voltage test cables, TL05-TOS | 1 set  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |
| "DANGER! HIGH VOLTAGE" label       | 1 sheet  |                                    |        |                                    |        |                              |          |        |        |          |        |        |          |