

# **OPERATION INSTRUCTIONS**

**FOR**

**DC RESISTOR**

**TYPE ZX90E ~ ZX99E**

## TYPE ZX90E—ZX99E DC RESISTOR OPERATION INSTRUCTIONS

### 1, Introduction

Type ZX90E~ZX99E DC resistor is a multiple - valued resistor, formed by decade resistor groups in series. The resistance between both fasteners can be changed with the position of the switch brush contact.

The resistor is miniature and portable. The switches are fully enclosed, no need to clean, low pressure of contact, long life time and less variations. The stand of the resistor is made of plastic so that the insulation resistance is high. The readings of resistance on the panel is lined up, and can be read forthright and clearly. The resistance elements are all wound noninductively with enameled manganin wire, and go through strict technical process, in this way, the resistor has high stability and can be used in any position.

### 2. Applications

- 2.1. It is suitable for electric measurement and other experiments in factories, schools and scientific research units.
- 2.2. It is used as adjustable precision resistor in DC circuit.
- 2.3. It is even more suitable for calibration of resistance thermometer.

### 3. Main Specifications

- 3.1. Reference and Nominal Temperatures:

REFERENCE RANGE	NOMINAL RANGE
20+1.5 °C	20±15°C

- 3.2. Reference and Nominal Relative Humidity Range:

REFERENCE RANGE	RELATIVE RANGE
40% ~ 60%	25% ~ 80%

- 3.3. Measuring Range and Step Resolution:

TYPE	ZX90E	ZX91E	ZX92E	ZX93E	ZX94E	ZX95E	ZX96E	ZX97E	ZX98E	ZX99E
<b>Rmax(Q)</b>	111.10	11110	1111.10	11111.0	111110	11111.10	111111.0	1111110	111111.10	1111111.0
<b>Rmin(Q)</b>	0.01	1	0.01	0.1	1	0.01	0.1	1	0.01	0.1

- 3.4. Under the conditions of reference temperature, relative humidity and power, the accuracy of each decade resistor group should meet the specifications and residual resistance in following table:

TYPE	ACCURACY								RESIDUAL RESISTANCE
	x100kQ	XWkQ	XlkQ	X100Q	X10Q	X1 Q	X0.1 Q	X0.01 Q	
ZX90E	/	/	/	/	±0.1%	±0.5%	±2%	±5%	8+2.5m Q
ZX91E	/	/	±0.1%	±0.1%	±0.1%	±0.5%	/	/	10± 5mQ
ZX92E	/	/	/	±0.1%	±0.1%	±0.5%	±2%	±5%	10±2.5mQ
ZX93E	/	/	±0.1%	±0.1%	±0.1%	±0.5%	±2%	/	10± 5mQ
ZX94E	/	±0.1%	±0.1%	±0.1%	±0.1%	±0.5%	/	/	10± 5mQ
ZX95E	/	/	±0.1%	±0.1%	±0.1%	±0.5%	±2%	±5%	12 + 2.5m Q
ZX96E	/	±0.1%	±0.1%	±0.1%	±0.1%	±0.5%	±2%	/	12+ 5m Q
ZX97E	±0.2%	±0.1%	±0.1%	±0.1%	±0.1%	±0.5%	/	/	12± 5mQ
ZX98E	/	±0.1%	±0.1%	±0.1%	±0.1%	±0.5%	±2%	±5%	14±2.5mQ
ZX99E	±0.2%	±0.1%	±0.1%	±0.1%	±0.1%	±0.5%	±2%	/	12± 5mQ

### 3.5. Reference, Nominal and Ultimate Power:

REFERENCE POWER	0.05 W
NOMINAL POWER	0.1 W
ULTIMATE POWER	0.2 W

- 3.6. Under the conditions of reference temperature and power, relative humidity is beyond reference range, but within nominal one, an additional error due to relative humidity should be within relevant class index.
- 3.7. Under the conditions of reference relative humidity and power, temperature is beyond reference range, but within nominal one, an additional error due to temperature should be within relevant class index.
- 3.8. Under the conditions of temperature, relative humidity applied power is beyond reference range, but within nominal one, and an additional error due to power should be within relevant class index.
- 3.9. The resistor can be acted on by ultimate power for 2 hours. The difference between the value of the resistor before and after the application of this limiting power dissipation shall not exceed 10% of a value corresponding to the class index when the resistor is again under reference conditions.
- 3.10. The insulation resistance between circuit of the resistor and metal chassis should be over 100MQ.
- 3.11. A 45~65Hz, 2000V AC sinusoidal voltage should be beared for 1 minute of test between the resistor circuit and its cover without breaking down.

### 3.12. Dimensions and Weight:

TYPE	DIMENSIONS (mmxmmxmm)	WEIGHT (kg)
ZX90	200x95x94	0.85
ZX91		
ZX92	242x95x94	1
ZX93		1.1
ZX94		
ZX95	284x95x94	1.15
ZX96		1.25
ZX97		
ZX98	327X95X94	1.35
ZX99		

#### 4. Notice and Maintenance

- 4.1. During using the resistor, the applied power should be within nominal value.
- 4.2. Before using the resistor, all switches should be rotated for several times so as to be in good contact.
- 4.3. The resistor should be kept in a room v/ithout corrosive gases and harmful impurity substance, in which the enviremental temperature is 5~35°C and the relative humidity is 25%~80%. It should also be out of the sun.

#### 5. A Complet Set

Resistor	1
Operation Instrucrction	1 Copy