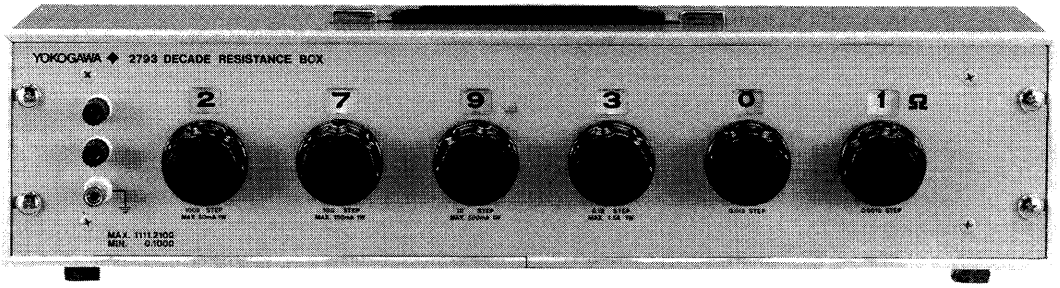
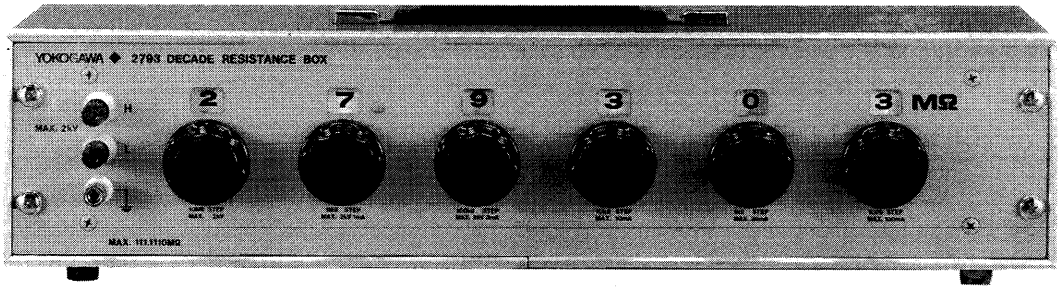
User's Manual

2793 (279301,279303) Decade Resistance Box

IM 2793-01E





YOKOGAWA ◆
Yokogawa Meters & Instruments Corporation

IM 2793-01E
6th Edition June 2007

Cautionary Notes for Safe Use of the Product

■ The following symbol is indicated on the instrument to ensure safe use.



"Handle with care!" This symbol is indicated where the operator must refer to instructions in the manual or attached material in order to protect personnel and the instrument.

■ Since mishandling the instrument can result in an accident that may lead to injury or death of the operator, such as an electric shock, be sure to observe the following instructions.



WARNING

● Measurement

- Always maintain the instrument within the limits for allowable current, voltage and power, during operation. If there is more than one limit for any of these parameters, the lowest limit takes precedence.
- Only operate the instrument on an input-to-ground supply voltage of no greater than 250 V (except for Model 279303).
- When an input-to-ground supply voltage of greater than 250 V needs to be applied to Model 279303, exercise extra care when handling the instrument.
- The terminals and internal circuitry may become electrified to high voltages and extremely hot depending on the instrument's condition of use. Do not touch these parts.

● Protective Measures

- To avoid electric shock, be sure to apply protective grounding to the grounding terminal.
- If a crack appears in the instrument after it has been accidentally dropped or bumped, the safety-purpose insulation may be damaged. By all means do not use the instrument, but ask the manufacturer for repair.

● Operating Environment

- Do not operate the instrument in a flammable or explosive gas atmosphere.
- Do not operate the instrument if there is any condensation on it.

● Disassembly

- Nobody except members of the manufacturer's service staff is allowed to disassemble the instrument.

THE **2793** DECADE RESISTANCE BOX is most reliable instrument developed by YOKOGAWA's latest techniques and long experience. To operate your 2793 at its full capability for a longer life, please read carefully the instructions contained in this manual.

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GENERAL

The **2793 01** and **03** Resistance Boxes are high-accuracy variable resistors with 6 dials. Setting of these instruments is easy over wide resistance range.

The **2793 01** has resistance range of 0.1 to 1111.210Ω in 1mΩ steps and accuracy of ±0.01%. It is best suited for calibration of resistance thermometers.

The **2793 03** has resistance range of 0 to 111.1110MΩ in 100Ω steps and accuracy of ±0.05%. It is best suited for calibration of insulation resistance testers.

These Decade Resistance Boxes employ in-line display system, and rack-mounting is possible.

SPECIFICATIONS

2793 01

Resistance Range: 0.100 to 1111.210 Ω
Dial Composition: 0.001 Ω × 10 + 0.01 Ω × 10 + 0.1 Ω × 11 + 1 Ω × 10 + 10 Ω × 10 + 100 Ω × 10
Resolution: 0.001 Ω
Accuracy: ±(0.01% + 2 mΩ)
(At temperature 23 ± 2°C, humidity 45 to 75%)
Input Power: Max. 0.1 W

Temperature Coefficient:

T.C.	100 Ω step	10 Ω step	1 Ω step	0.1 Ω step	(unit)
α_{20}	−5 ~ +10	−5 ~ +20	Approx. * 20 to 90	Approx. * 90 to 900	$\times 10^{-6}/°C$
β	−0.3 ~ −0.7		−	−	$\times 10^{-6}/°C^2$

$Rt = R_{20} \{1 + \alpha_{20} (t-20) + \beta (t-20)^2\}$
Rt : Resistance Value at t°C
R_{20} : Resistance Value at 20°C
* Including T.C. of wiring and switches resistance (60μΩ/°C)

Max. Allowable Power: 0.25 W per step.
Within 1 W for overall instrument
Temperature Raise: Less than 30°C at maximum power rating.

Max. Allowable Current:
100 Ω step : 50 mA
10 Ω step : 150 mA
1 Ω step : 500 mA
0.1 Ω step : 1.5 A

Insulation Resistance: More than 500 MΩ (500 V DC) between panel and circuit
Dielectric Strength: 1000 V AC 1 minute between panel and circuit
Dimensions: Approx. 110 × 491 × 140 mm (4-3/8 × 19-3/8 × 5-1/2")
Weight: Approx. 4.8 kg (10.6 lbs)

2793 03

Resistance Range: 0 to 111.1110 MΩ
Dial Composition: 100 Ω × 10 + 1 kΩ × 10 + 10 kΩ × 10 + 100 kΩ × 10 + 1 MΩ × 10 + 10 MΩ × 10
Accuracy: 100 Ω, 1 kΩ, 10 kΩ and 100 kΩ steps ... ±(0.05% + 0.05 Ω)
1 MΩ, and 10 MΩ steps ... ±0.2%
(At temperature 23 ±2°C humidity below 75%, including residual resistance approx. 0.05 Ω.)

Max. Allowable Input:
100 Ω step : 100 mA
1 kΩ step : 30 mA
10 kΩ step : 10 mA
100 kΩ step : 3 mA (100 to 600 kΩ)
2,000 V (700 kΩ to 1 MΩ)
1 MΩ step : 2,000 V
10 MΩ step : 2,000 V

Temperature Coefficient: (0 to 40°C)
100 Ω, 1 kΩ step
$\alpha_{20} = (-2 \text{ to } +20) \times 10^{-6}/°C$
$\beta = -(0.3 \text{ to } 0.7) \times 10^{-6}/°C^2$
10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ step ±30 × 10^{-6}/°C
Variation of resistance with temperature change is shown in the following equation:
$Rt = R_{20} \{1 + \alpha_{20} (t - 20) + \beta (t - 20)^2\}$
where Rt: Resistance value at t°C
R_{20}: Resistance value at 20°c

Insulation Resistance: More than 10^{11} Ω at 1,000 V DC between panel and circuit
Dielectric Strength: 2500 V DC for 1 minute between panel and circuit
Dimensions: Approx. 116 × 497 × 140 mm (4-1/2 × 19-1/2 × 5-1/2")
Weight: Approx. 4.8 kg (10.6 lbs)

2793 01

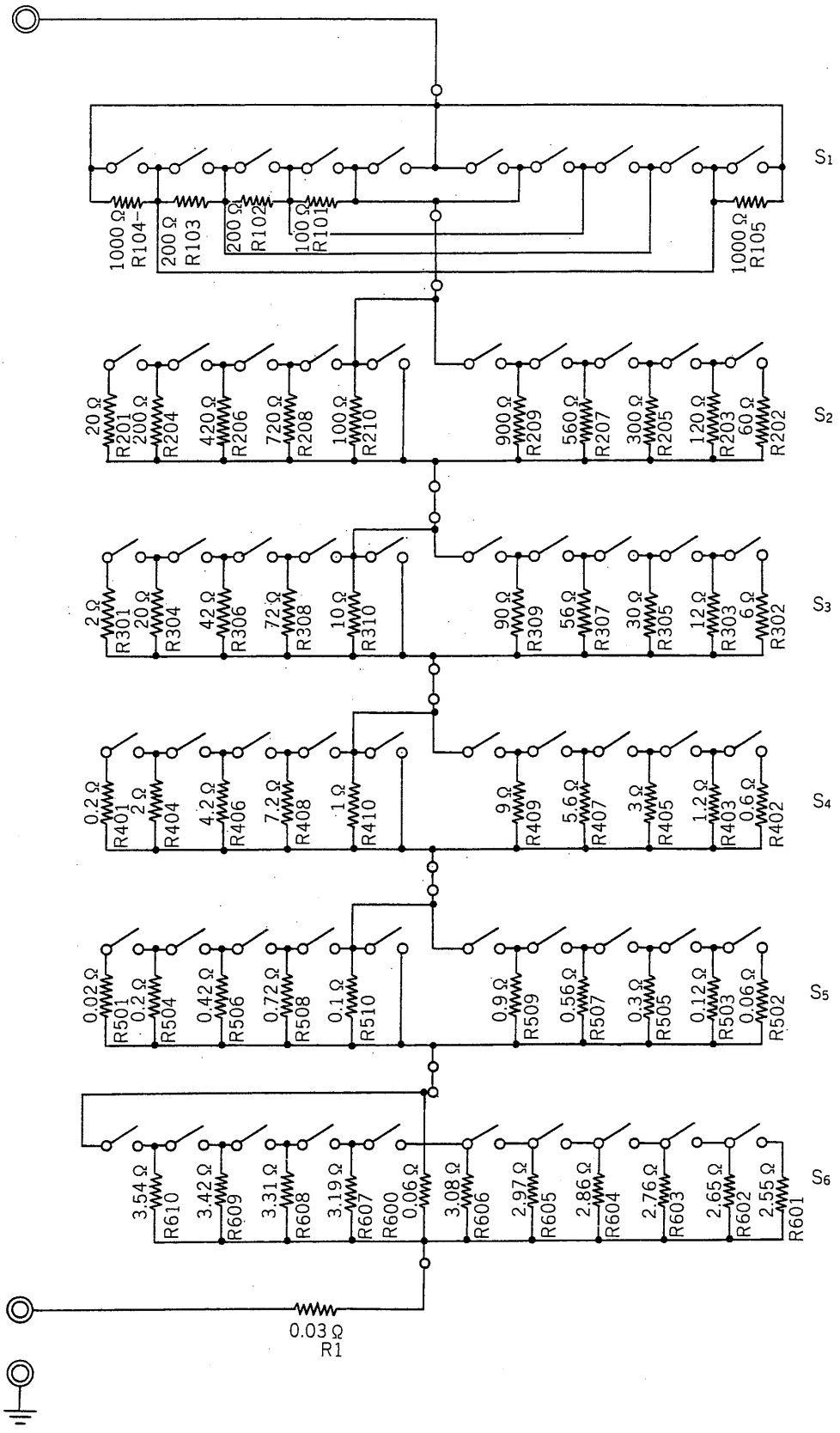


Fig. 1.1 Circuit Diagram

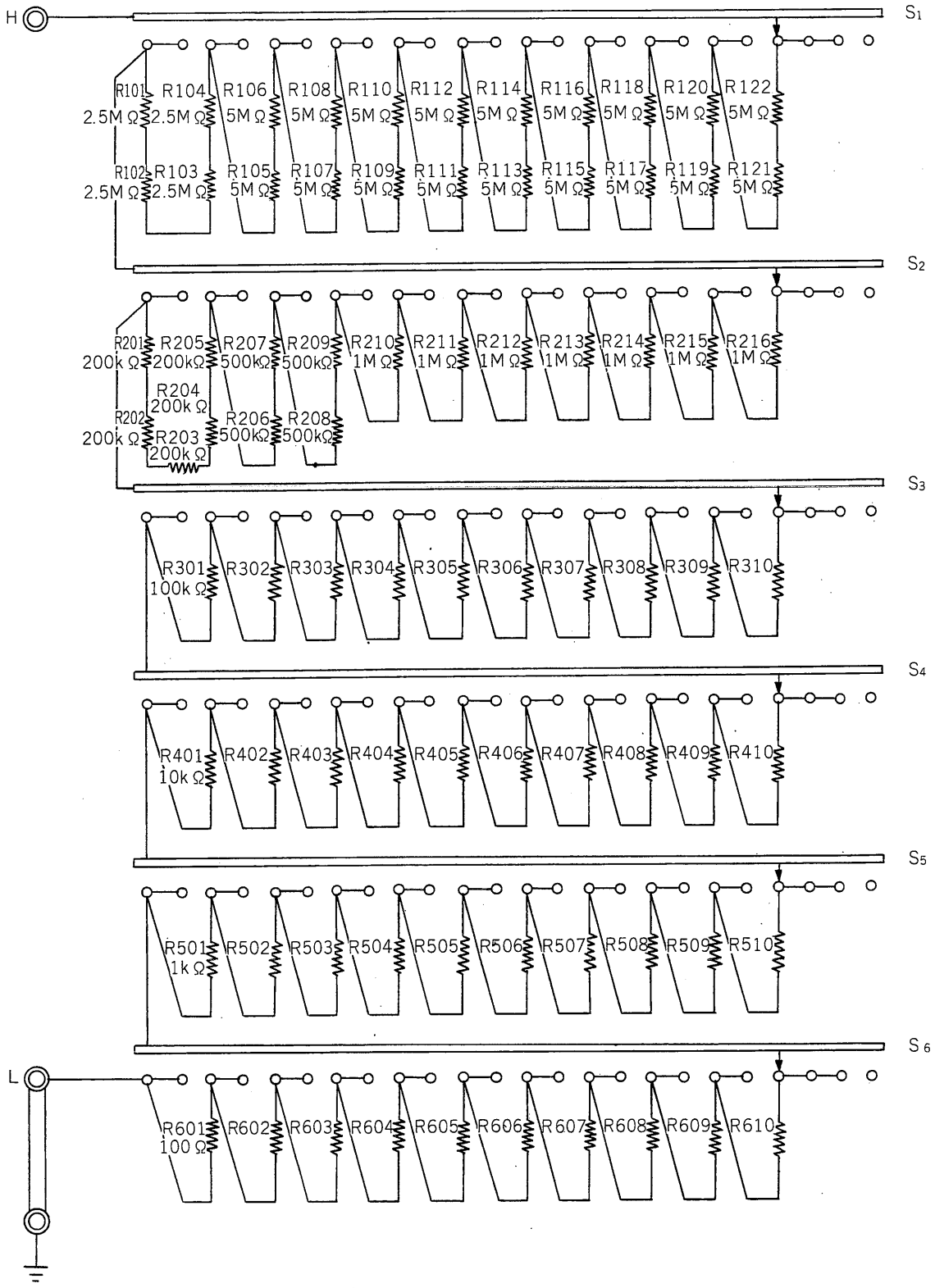


Fig. 1.2 Circuit Diagram

Disposing the Product

Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

This Product complies with the WEEE Directive (2002/96/EC) marking requirement.
The affixed product label (see below) indicates that you must not discard this electrical/electronic
product in domestic household waste.

Product Category

With reference to the equipment types in the WEEE directive Annex 1, this product is
classified as a "Monitoring and Control instrumentation" product.



To return unwanted products within the EU area, contact your local Yokogawa Europe B. V. office.
Do not dispose in domestic household waste.

YOKOGAWA ◆

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