RESISTANCE SUBSTITUTION BOX

Schematic Diagram
Model RS-500


Elenco Electronics, Inc.
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## Instruction Manual

Elenco Electronics, Inc.

## INTRODUCTION

The RS-500 Resistance Substitution Box is a convenient instrument for determining the desired resistance values in circuits under design or test. The resistance obtainable is form $0 \Omega$ to $11,111,110 \Omega$ in 1 ohm steps. All resistors are precision $1 \%$ resistors.

## OPERATION

All of the resistors are wired in series. A switch on the front panel shorts each resistor. Putting the switch in the ON (up) position removes the short and places the resistor across the output terminals. The two green binding posts serve as the output terminals. The black binding post is tied to the front panel. To place any resistance across the output terminals turn ON those switches that add up to the desired resistance. For example, for $5,071 \Omega$, turn on the $3 \mathrm{k} \Omega, 2 \mathrm{k} \Omega, 40 \Omega, 30 \Omega$ and $1 \Omega$ switches.


## PARTS LIST

| RESISTORS |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Qty | Description | Part \# | Qty | Description | Part \# |
| $\square 1$ | $1 \Omega 1 \% 2 \mathrm{~W}$ | 111033 | $\square 1$ | $3 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 143032 |
| $\square 1$ | $2 \Omega 1 \% 2 \mathrm{~W}$ | 112033 | $\square 1$ | $4 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 144032 |
| $\square 1$ | $3 \Omega 1 \% 2 \mathrm{~W}$ | 113033 | $\square 1$ | $10 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 151032 |
| $\square 1$ | $4 \Omega 1 \% 2 \mathrm{~W}$ | 114033 | $\square 1$ | $20 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 152032 |
| $\square 1$ | $10 \Omega 1 \% 2 \mathrm{~W}$ | 121033 | $\square 1$ | $30 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 153032 |
| $\square 1$ | $20 \Omega 1 \% 2 \mathrm{~W}$ | 122033 | $\square 1$ | $40 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 154032 |
| $\square 1$ | $30 \Omega 1 \% 2 \mathrm{~W}$ | 123033 | $\square 1$ | $100 \mathrm{k} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 161031 |
| $\square 1$ | $40 \Omega 1 \% 2 \mathrm{~W}$ | 124033 | $\square 1$ | $200 \mathrm{k} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 162031 |
| $\square 1$ | $100 \Omega 1 \% 1 \mathrm{~W}$ | 131032 | $\square 1$ | $300 \mathrm{k} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 163031 |
| $\square 1$ | $200 \Omega 1 \% 1 \mathrm{~W}$ | 132032 | $\square 1$ | $400 \mathrm{k} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 164031 |
| $\square 1$ | $300 \Omega 1 \% 1 \mathrm{~W}$ | 133032 | $\square 1$ | $1 \mathrm{M} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 171031 |
| $\square 1$ | $400 \Omega 1 \% 1 \mathrm{~W}$ | 134032 | $\square 1$ | $2 \mathrm{M} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 172031 |
| $\square 1$ | $1 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 141032 | $\square 1$ | $3 \mathrm{M} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 173031 |
| $\square 1$ | $2 \mathrm{k} \Omega 1 \% 1 \mathrm{~W}$ | 142032 | $\square 1$ | $4 \mathrm{M} \Omega 1 \% 1 / 2 \mathrm{~W}$ | 174031 |


|  | MISCELLANEOUS |  |
| :--- | :--- | ---: |
| Qty | Description | Part \# |
| $\square 1$ | PC Board | 517011 |
| $\square 28$ | Switch Slide DPDT | 541023 |
| $\square 1$ | Front Panel | 614103 |
| $\square 1$ | Case | 623003 |
| $\square 4$ | Spacer 7/16" x 1/4" | 624120 |
| $\square 4$ | Spacer 4-40 x 1/2" | 624431 |
| $\square 1$ | Binding Post Black | 625031 |
| $\square 3$ | Lockwasher, Binding Post | 625031 LW |
| $\square 3$ | Nut, Binding Post | 625031 HN |
| $\square 2$ | Binding Post Green | 625033 |
| $\square 4$ | Screw 4-40 x 1/4" Flat Head | 641434 |
| $\square 4$ | Screw 4-40 x 3/4" Pan Head | 641483 |
| $\square 3$ | Washer Flat 1/8" | 645600 |
| $\square 1$ | Lockwasher \#4 Internal | 646402 |
| $\square 3$ Lockwasher \#4 External | 646405 |  |

