

## < 513B CALIBRATOR >

- \* WIDE RANGE OF CALIBRATION VOLTAGE OUTPUT ..... 0.25mV/V TO 3mV/V
- \* HIGH ACCURACY / LOW ERROR RATIO .....  $\leq \pm 0.01\%$
- \* LOW TEMPERATURE DRIFT .....  $\leq \pm 5\text{ppm}/^\circ\text{C}$

- 513B is a calibrator designed to calibrate Amplifiers and Indicators which are to be connected to strain gauge type sensors, such as load cell and pressure gauge.
- 513B enables to generate an appropriate Phantom Load in a wide range and is to be used as Standard for Quality Assurance Tests.

### SUPPLY UNIT

1. Main Body ..... 1 unit
2. Cable (1 meter long) with Connectors at the both ends ..... 1 Set

### SPECIFICATION

- |                            |  |
|----------------------------|--|
| ① INPUT RESISTANCE         | : $350\ \Omega \pm 2\%$  |
| ② OUTPUT RESISTANCE        | : $350\ \Omega \pm 2\%$  |
| ③ CALIBRATION OUTPUT VALUE | : 0.25, 0.5, 0.75, 1.0, 1.5, 2.0, 2.5, 3mV/V   |
| ④ POLARITY                 | : +, -, Zero   |
| ⑤ ERROR                    | : $\leq \pm 0.01\%$ at each range  |
| ⑥ SENSITIVITY CHANGE       | : $\pm 5\text{ppm}/^\circ\text{C}$   |
| ⑦ EXCITATION VOLTAGE       | : DC 10V (Standard), DC 15V at Max.  |
| ⑧ EXTERNAL DIMENSION       | : 150W X 95D X 63H (in mm)   |
| ⑨ WEIGHT, NET              | : Approx. 800 grams  |
| ⑩ OPERATION CONDITIONS     | : Temperature Range $-20^\circ\text{C}$ to $+60^\circ\text{C}$<br>Humidity 80%RH (No-condensing) |

- NOTE : 1. Accuracy is assured for one year after date of delivery.
2. Ambient temperature shall be  $25^\circ\text{C}$ .
3. Temperature during measuring the sensitivity change shall be in the range of  $+10^\circ\text{C}$  and  $+40^\circ\text{C}$

# OPERATION PROCEDURE

## 1. CONNECTION DESCRIPTIONS

RED, WHITE, BLACK, GREEN, (SHIELD), YELLOW, ORANGE,

### SIGNAL AND PIN ARRANGEMENTS

RECOMMENDABLE CONNECTOR :

PRC03-12A10-7M10.5 MADE BY TAJIMI RADIO CO., JAPAN

### EQUIVALENT CIRCUIT

- 513B is originally designed for the 6 wire connections. In case of the 4 wire connections, +S and -S can be ignored.
- Connector and Binding Posts are internally connected in parallel.

## 2. CALIBRATION METHOD (WITH SENSOR CALIBRATION DATA)

In case of Pressure Sensor rating  $200\text{kg}/\text{cm}^2$  with its maker's calibration value  $0.823\text{mV}/\text{V}$  at Rated value, the calibration shall be carried out as follows.

- ① Connect 513B to an indicator to be calibrated.
- ② Set 513B at Zero. Conduct Zero Adjustment of the indicator.
- ③ Set 513B at  $+0.5\text{mV}/\text{V}$ . Conduct Gain Adjustment of the indicator and make  $121.5\text{kg}/\text{cm}^2$  ( $= 0.5\text{mV}/\text{V} / 0.823\text{mV}/\text{V} \times 200\text{kg}/\text{cm}^2$ ) displayed at its panel meter.
- ④ Repeat the above ② and ③ again.
- ⑤ Disconnect 513B from the indicator. Then, connect Pressure Sensor to the indicator instead, and conduct Zero Adjustment.

By this, calibration can be carried out without loading actual pressure.

## 3. REMARKS

- 513B is mainly designed for the  $350\ \Omega$  family sensors, but is also used for the  $120\ \Omega$  family and/or other sensors. However, we draw your attention to the fact that in the latter cases and if Input Resistance at Amplifier is relatively small, some errors might be generated.

- 513B is made with some extra-precision resistance elements, and therefore, severe vibrations, high temperature, and high humidity must be avoided.
- Either Connector or Binding Post shall be selected for use.
- 513B indicates the unit of mV/V as Calibration Output Value of each range. However, in case of G.F. = 2.00, the converting value of Equivalent Strain would be as follows.

RAGNE          EQUIVALENT STRAIN

NOTE : mV/V shows Rated Output Voltage Standard per 1V of Excitation Voltage and therefore, in case the 10V is applied to 2mV/V Rated Sensor, its rated output would be 20mV.

## WARRANTY

- \* In case of any troubles deemed to have caused by the manufacturer's design and/or production failures, 513B shall be repaired or replaced with another unit with free-of-charge for the period of one year from its delivery date. In any case of the troubles deemed to have caused by thunderbolt falls, electrical leakages, over-voltage applied, erroneous connections of power source mechanical breakages, and others originated under user's responsibility, however, shall be excluded from the coverage of the warranty.
- \* Specifications herein may be changed without notice for the sake of improvements in the performance of 513B.
- \* 513B is designed and manufactured with utmost care to maintain its high reliability for the industrial application. However, the manufacturer shall not be liable for any indemnity against damages on lives and properties caused by any accidents happened in its application areas at users.

# UNIPULSE

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