Handy Calibrator

Multi-functional Hand-held Calibrator

• Highly accurate within 0.02% of the DC voltage range for source and measure
• Source and measurement can be performed simultaneously.
• Vertical body with large-screen display
• Loop power supply function (24 VDC at a load of max 22 mA)
  It is possible to measure current in the mA range while supplying power.
• Sink function
• Sweep functions that allow 3 types of continuous outputs:
  Step sweep function
  Linear sweep function
  Program sweep function

Yokogawa Meters & Instruments Corporation
Multi-functional and high-precision calibrator that can be used to calibrate and test industrial process devices and various electronics equipment

**Functions/Features**

- **Vertical hand-held calibrator**
  Easy-to-hold vertical body is designed to make it intuitively easy to operate, as individual functions are accessed directly by pressing assigned keys.

  Using the main body case (model No. 93027) (sold separately), you can hang CA150 to your body or a handrail to keep it handy.

- **Simultaneous source and measurement for process devices**
  In conventional calibration applications, multiple devices such as a standard generator, dial resistor and multi-meter were required. Now with a single CA150 unit, it is possible to perform operation check at regular inspection and maintenance of thermocouples, RTDs and instruments, as well as maintenance and equipment diagnosis of process devices such as transmitters, thermostats and signal converters.

- **Loop power supply function**
  It is possible to measure generated current signals while supplying loop power 24 VDC from a two-wire type transmitter (up to 22 mA).  

**Two-wire Type Transmitter Applications**

- **Two-wire type transmitter (measurement function) application**
  - **Loop check function**
    Measures mA signals output while supplying transmitter power at 24 VDC.

- **Two-wire type transmitter (source function) application**
  - **Sink function**
    Receives current (Sink) from the power supply at voltages of up to 28 VDC and transmits mA signals to the loop.

**Memory Functions**

- **Setting memory**
  This function saves/load settings conditions.  
  Up to 21 data items can be stored.  
  Settings for (source/measurement) functions, ranges, generated values/measured values as well as setting mode conditions can be stored.

- **Data memory**
  This function saves source and measure values displayed.  
  Up to 100 data items can be stored.  
  Storage date/time, (source/measurement) functions, ranges and generated values/measured values can be stored.  
  Stored data can be checked on the display of the main unit as well as via communication.

**Convenient Functions Useful in Field Tests**

**Sweep Functions (Automatic Output Functions)**

- **Step sweep function**
  This function changes the output in a staircase (step) pattern at fixed intervals.

- **Linear sweep function**
  This function increases (or decreases) the output linearly with respect to the generated value.

- **Program sweep function**
  This function outputs source setting values stored by the data memory function sequentially in the order they are stored in the memory.
Specifications

**Source Unit**

- **Accuracy** (% of setting + V, mV, µA, Ω and °C) at 23°C ± 5°C

### DC voltage

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Source range</th>
<th>Accuracy</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>500mV</td>
<td>10µV</td>
<td>0 to 500.00 mV</td>
<td>±0.02% + 50µV</td>
<td></td>
</tr>
<tr>
<td>5V</td>
<td>1mV</td>
<td>0 to 50.00 mV</td>
<td>±0.03% + 50µV</td>
<td></td>
</tr>
<tr>
<td>35V</td>
<td>10mV</td>
<td>0 to 350.00 mV</td>
<td>±0.05% + 50µV</td>
<td></td>
</tr>
</tbody>
</table>

### DC current

<table>
<thead>
<tr>
<th>mA SINK</th>
<th>20mA</th>
<th>0 to 20.00 mA</th>
<th>±0.03% + 40µA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20mA SINK</td>
<td>1mA</td>
<td>0 to 2.00 mA</td>
<td>±0.12/ls (mA)</td>
<td></td>
</tr>
</tbody>
</table>

### Input resistance

<table>
<thead>
<tr>
<th>20Ω</th>
<th>0.1Ω</th>
<th>0 to 200Ω</th>
<th>±0.01Ω + ThΩ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50Ω</td>
<td>0.2Ω</td>
<td>0 to 500Ω</td>
<td>±0.02Ω + ThΩ</td>
<td></td>
</tr>
</tbody>
</table>

### RTD

<table>
<thead>
<tr>
<th>±1Ω</th>
<th>0.1Ω</th>
<th>0 to 1Ω</th>
<th>±0.1Ω + ThΩ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>±1Ω</td>
<td>0.1Ω</td>
<td>0 to 1Ω</td>
<td>±0.1Ω + ThΩ</td>
<td></td>
</tr>
</tbody>
</table>

### Thermocouple

<table>
<thead>
<tr>
<th>±1%</th>
<th>0.1%</th>
<th>0 to 1%</th>
<th>±0.1% + ThΩ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>±1%</td>
<td>0.1%</td>
<td>0 to 1%</td>
<td>±0.1% + ThΩ</td>
<td></td>
</tr>
</tbody>
</table>

### Frequency

<table>
<thead>
<tr>
<th>±1%</th>
<th>0.1%</th>
<th>0 to 1%</th>
<th>±0.1% + ThΩ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>±1%</td>
<td>0.1%</td>
<td>0 to 1%</td>
<td>±0.1% + ThΩ</td>
<td></td>
</tr>
</tbody>
</table>

**Specifications common to source unit**

- **Source unit response time**: Approx. 300 ms only ranges 1V, 5V, 0(000)mV (excitation current 1mA) and RTD (excitation current 1mA) response time approx. 300 ms.
- **Storage temperature range**: -20 to 60°C (RH) or less (no condensation).
- **External dimensions**: Approx. 251 x 124 x 70 mm
- **Weight**: Approx. 1000 g (with Batteries)
- **Operating temperature/humidity range**: 0 to 40°C, 20 to 80%RH (no condensation)
- **Fuse for measurement**: 1A (spare)

### Memory functions

- **6 AA size alkaline batteries**
- **AC adapter (sold separately)**
- **Dedicated NiMH battery**

### Specifications common to measurement unit

- **Maximum measurement unit input voltage terminal**: 42 VDC
- **Current terminal**: 120 mA
- **Current terminal input protection fuse**: 150 mA (200VAC)
- **Measurement display refresh rate**: Approx. once per second
- **Specifications Input Power Supply**
  - **Single 24 VDC power supply (measurement terminal used)**
  - **Maximum load**: 22 mA DC or less
- **The mADC signals are measured while power is being supplied with the loop check function.

### General Specifications

- **Specifications common to measurement and source unit**

  - **Communication function**
    - Serial interface: RS232 D-Sub 9-pin connector

  - **Memory functions**
    - Data can be stored and loaded in setting memory (setting data) and data memory (source/measurements).

  - **Battery life**
    - **Conditions**: Simultaneous measurement source/measurements
    - **Output**: 5 V DC/10 kΩ or more
    - **Display**: Approx. 10 minutes
    - **Temperature**: 0 to 40°C, 20 to 80%RH (no condensation)
    - **Battery life**: Approx. 1000 hours

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### Safety

- **EMC**: EN 61326-2-2
- **Safety**: EN 61010-1, UL 61010-1-CNACS/CSA
- **Conformance Standards**: Safe 222.0 No 61010-1
- **Class**: EN 61326 Class B/EN 55011 Class B Group 1

(1) Effective from June 2009
Model Name

<table>
<thead>
<tr>
<th>Product name</th>
<th>Model name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handy Calibrator</td>
<td>CA150</td>
</tr>
</tbody>
</table>

With the main body case (model name: 93027) (sold separately) installed
Includes strap and accessory storage case

Main body case is designed to make it easy to hold with one hand.

External Dimensions

<table>
<thead>
<tr>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width:</td>
</tr>
<tr>
<td>Height:</td>
</tr>
<tr>
<td>Depth:</td>
</tr>
</tbody>
</table>

Supplied Accessories

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lead cable for source</th>
<th>Lead cable for measurement</th>
<th>Carrying case</th>
<th>Terminal adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>98020</td>
<td>RD031</td>
<td>93026</td>
<td>99022</td>
</tr>
<tr>
<td>Remark</td>
<td>One set of 1 red and 2 black cables Length: Approx. 1.7 m</td>
<td>One set of 1 red and 1 black cables Length: Approx. 1.0 m</td>
<td>Lead cables for source/measurement, terminal adapter, 6 spare batteries, fuse, AC adapter and Instruction Manual can be stored.</td>
<td>Used for temperature measurement.</td>
</tr>
</tbody>
</table>

Optional Accessories (sold separately)

<table>
<thead>
<tr>
<th>Product name</th>
<th>AC adapter</th>
<th>RJ sensor</th>
<th>Accessory storage case</th>
<th>NiMH battery</th>
<th>Main body case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>94010</td>
<td>B9108WA</td>
<td>B9108XA</td>
<td>94015</td>
<td>93027</td>
</tr>
<tr>
<td>Remark</td>
<td>-D For UL/CSA Standard</td>
<td>-F For VDE Standard</td>
<td>-H For GB Standard</td>
<td>-R For SAA Standard</td>
<td>-S For BS Standard</td>
</tr>
<tr>
<td></td>
<td>For reference junction compensation</td>
<td>Lead cables, RJ sensor, etc. can be stored.</td>
<td></td>
<td>NiMH battery Dedicated</td>
<td>With strap and accessory storage case</td>
</tr>
</tbody>
</table>

YOKOGAWA METERS & INSTRUMENTS CORPORATION


NOTICE

Before using the product, read the instruction manual carefully to ensure proper and safe operation.

Subject to change without notice.
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