Compact Analog Sensor Controller

**RV-10 Series**

**Features**
- Super-bright two-color LED display
- 1/4 the size of conventional models
- Multi-function/high-speed processing
- Easy setup and operation

**Measuring range**
±5 VDC, ±10 VDC, ±20 mA DC (selectable)

**Description**

**1/4 the size of conventional models**
The RV-10 is packed with useful functions but only requires a panel surface area of 48 mm 1.89” x 48 mm 1.89”. The RV-10 is ideal for use in a miniaturized control panel or limited spaces.

**Easy setup and operation**
You can set up tolerance limits and various modes using only five keys. Setting modes with the RV-10 is easy. Push the [SET] key and the A to H modes are displayed in sequence.

**Two-color LED display**
The RV-10 uses a bright 2-color LED display, providing high visibility. Measured values are displayed in green when within the tolerance range, and in red when outside the range. Acceptable/unacceptable values can be easily seen, even from a distance.

**Multi-function/high-speed processing**
The RV-10 provides a range of data processing modes such as peak hold, bottom hold and peak-to-peak hold, making target eccentricity and vibration easy to measure. The RV-10 has a fast sampling rate of 200 cycles/sec., allowing even instantaneous changes to be detected.

**New terminal block prevents screws from falling out**
KEYENCE’s unique new terminal block holds loose screws to keep them from dropping. No more missing screws during wiring work in the field.
Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>RV-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement function</td>
<td>DC voltage measurement, DC current measurement</td>
</tr>
<tr>
<td>A/D converting system</td>
<td>Successive comparison</td>
</tr>
<tr>
<td>Measurement range</td>
<td>±5 VDC, ±10 VDC, ±20 mA DC (selectable)</td>
</tr>
<tr>
<td>Display range</td>
<td>-19999 to +19999</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>±0.075% of F.S. ¹</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>1 MΩ (for voltage input), 350Ω (for current input)</td>
</tr>
<tr>
<td>System</td>
<td>Single-ended</td>
</tr>
<tr>
<td>Number of inputs</td>
<td>1</td>
</tr>
<tr>
<td>Sampling rate</td>
<td>200/s</td>
</tr>
<tr>
<td>Display rate</td>
<td>20/s</td>
</tr>
<tr>
<td>Display character</td>
<td>7-segment, 3-color LED</td>
</tr>
<tr>
<td>Range-over alarm</td>
<td>FFFF is displayed</td>
</tr>
<tr>
<td>Control input</td>
<td>Synchronous</td>
</tr>
<tr>
<td></td>
<td>Reset</td>
</tr>
<tr>
<td></td>
<td>Auto-zero</td>
</tr>
<tr>
<td>Control output</td>
<td>Tolerance setting</td>
</tr>
<tr>
<td></td>
<td>Signal type</td>
</tr>
<tr>
<td></td>
<td>NPN (HIGH, GO, LOW): 100 mA max. (40 V max.)</td>
</tr>
<tr>
<td>Response time</td>
<td>10 ms (maximum speed)</td>
</tr>
<tr>
<td>Off-delay time</td>
<td>60 ms (ON/OFF selectable)</td>
</tr>
<tr>
<td>Power supply</td>
<td>24 VDC±10%</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>0 to +50°C</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 160 g</td>
</tr>
</tbody>
</table>

¹ For DC voltage measurement only. At an ambient temperature of +5°C to +45°C.

Functions

Scaling mode
Scaling mode enables you to set the desired scale for viewing the data. You can also freely set the display to show the actual measured data.

Various hold modes
Peak (Bottom) hold mode:
Holds the maximum (minimum) value during a specified period.

Peak-to-peak hold mode:
Holds the difference between maximum and minimum values during a specified period.

Sample hold mode:
Holds the value at the rising edge of the synchronous input (when synchronous input turns on).

Trigger mode
Trigger mode is used to select trigger input methods. Use this mode to specify the sampling period for the hold mode. The RV-10 provides the following four trigger modes.

- External trigger: Uses input from an external sensor.
- Self-trigger UP (DOWN): Activated when measured value exceeds (falls below) preset trigger level.
- Flicker trigger: Activated in a preset cycle.

Auto-zero function
Push the [ZERO] key and the RV-10 resets any input value to “0000”. This function simplifies output adjustment during setup and zero-point adjustment during product changeover.
Averaging function
Select from five averaging levels (1, 4, 16, 64 and 128). Each averaging time is 5 ms to 640 ms max.

Comparison mode
Compares the current measured value with the average of the previous data. Gradual changes in an input signal are ignored, enabling sporadic changes to be accurately detected.

Output mode types
The RV-10 has two main output modes, normal and 60-ms-off-delay.

Connections

Input/Output Circuits

Input
Input to the synchronous input terminal (10), reset input terminal (11), and AUTO-ZERO input terminal (12).

Output
Open-collector output: HIGH OUT (4), GO OUT (5), and LOW OUT (6).

Hints on Correct Use

Connection to analog output equipment
1. To prevent noise interference problems, take the following actions. Use a 1-core shielded cable for the output line. The maximum length of the cable is 10 m 32.8’. For more than 10 m 32.8’, convert voltage output to current output.

Fastening terminal screws
Make sure that the terminal screws are securely fastened to the terminal block. Otherwise, the RV-10 may malfunction.
Dimensions

RV-10

Panel cutout
- When mounting several units side-by-side

![Diagram of RV-10 dimensions]

where A = number of RV-10 units to be mounted

X = A x 45 + (A-1) x 3.5

Unit: mm   Inch

- When mounting several units top or bottom

![Diagram of RV-10 dimensions]

75 min. 2.95"