Elevator Speedometer
EC-2100

Robust and high performance

- Analog output function
- Maximum value hold function
- Memory function
- Display of remaining battery level
- Auto power off function
- Wide measurement range up to 2,000 m/min
- Distance measurement function (option)
- Selectable measurement unit (mm or feet)
**Easy operation!**

**New functions!**

1. **Memory function**
   Up to ten measurement results can be stored to the main unit. Selected measurement item and unit are lit up.

2. **Analog output function**
   The voltage output with 0 to 1(V) is useful for data recording and graph creation on other secondary devices. F.S. setting can be freely made depending on the measurement object.

3. **Maximum value hold function**
   This function can hold the maximum value during measurement. The latest update value is displayed. It can be used with the external hold function.

4. **Averaging function**
   This function enables averaging of speed (m/min) and rotation speed (r/min). The number of averaging times can be set up optionally from 1 to 200.

5. **Display of remaining battery level function**
   This function provides against running out the battery on site.

6. **Auto power off function**
   A delay of three minutes after last button operation or signal input lets the EC-2100 automatically turn the power off for saving battery.

7. **Distance measurement function EC-0202 (option)**
   The EC-0202 measures moving distance within the specified time. Plus/minus display shows the rotation direction. (Can be set up freely.)

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**Improved performance!**

1. **Wide measurement range and higher-speed measurement**
   The measurement range of rotation is twice as many as the EC-900* (up to 2,000m/min), and only 1/10 calculation time of the EC-900* is required to save calculation time.

   * EC-900: previous model of ONO SOKKI.

2. **Applicable to CE marking**
   Noise-immune design to make accurate measurement even under strong noise environment.

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As well as elevator speed, the EC-2100 also measures actual moving distance of an escalator after emergency stop operation.

The EC-2100 is a compact, lightweight and robust handheld speedometer designed for use in elevator adjustment, maintenance and inspection. It measures speed only by pressing a circumferential ring lightly to an elevator pulley or a handrail of an escalator. Distance also can be measured as an option.
For measurement of both an escalator and an elevator by the EC-2100!

### Applications

- **Speed measurement of an elevator**

  - Make a measurement by attaching the circumferential ring to a pulley of governor or a rope. The instantaneous value is displayed by using the hold switch [1][2] on the main unit or using an external hold signal.
  - **Maximum value measurement**
    - The maximum value during measurement can be held and displayed on the lower screen by [DISP] button.
  - **Memory of the measurement results**
    - The EC-2100 has memory function to store the measurement results to the main unit. The data of CH1, CH2 and MAX value are stored in rotation measurement (m/min, r/min), and the measurement value, sign and rotation direction in distance measurement (mm). The stored data can be read in the setting mode by [MENU] switch.

- **Moving distance measurement of an escalator after emergency stop operation**

  - Make a measurement by attaching the circumferential ring to a handrail of an escalator after emergency stop operation.
  - **Connection cable**
    - Connect the EC-2100 to an escalator by the EC-0203 trigger unit.
  - **Plus/minus display**
    - shows the rotation direction.
  - **Moving distance of an escalator after emergency stop**
    - can be measured by pressing a circumferential ring to a handrail.

![](image)

**Example of measurement results**

- When a leftward movement of a handrail is set as + (moved to the left 123mm) and a rightward movement is set as + (moved to the right 123mm)

- Moving distance of an escalator after emergency stop can be measured by pressing a circumferential ring to a handrail.

### Specification

**EC-2100 Elevator Speedometer**

- **Measurement method**
  - Speed: 0.1 to 2,000.0 (m/min) or 1 to 6,500.0 (f/min)
  - Rotation speed: 1 to 20,500 (r/min)
- **Measurement range**
  - Distance (sold separately)*1: 0 to ±30,000 (m) or ±399 feet
- **Measurement accuracy**
  - ±1 count
- **Measurement time**
  - 10ms
- **Display**
  - 5-digit red LED x 2 (upper and lower display)
- **Display update time**
  - 10ms
- **Resolution**
  - 0.1 (m/min) or 0.009 (r/min): the number of averaging times; 10 or more, 1 (r/min) or 0.001 (feet)
- **Measurement unit**
  - mm or m/min, r/min, or feet (sold for distance measurement, separately)
- **Auto power off function**
  - A delay of three minutes after last operation automatically lets the power off.
- **Data hold function**
  - Data hold of each channel (CH1, CH2, MAX).
- **Averaging function**
  - Number of averaging is selectable from 1 to 200 times
- **Memory function**
  - Up to ten measurement results can be stored to the main unit.

**Output section**

- **Analog output**
  - Output signal: Instantaneous value after averaging processing
  - Voltage range: 0 to 5V
  - Conversion method: 10-bit A/D conversion
  - Linearity: ±1% F.S.
  - Output update time: 1mS
  - Output connector: ø2.5 pin jack
- **Pulse output**
  - Output method: Transistor output (open collector)
  - Voltage withstanding: 1kV
  - Current: 20mA or less
  - Number of pulses: 600 pulses/Rotation
  - Logic: Negative logic
  - Pulse width: Approx. 0.5 to 1.2µs
  - Output connector: ø2.5 pin jack

**Detector section**

- **Number of generated pulses**
  - 150 pulses/Rotation
- **Light source**
  - Infrared-emitting diode
- **Light receiving element**
  - Photodiode
- **Allowable load**
  - Radial: 5kg, Thrust: 5kg
- **Bearing life**
  - 2 x 10^10 rev/(min)(at the time of maximum load within the specification)

**General specification**

- **Power supply**
  - Type AA battery x 3 pieces
- **Battery life**
  - 15 hours or more (continuous using at room temperature)
- **Current consumption**
  - 10mA (max., power voltage 4.5V)
- **Operating temperature range**
  - 0 to 40°C
- **Storage temperature range**
  - -20 to 60°C
- **Outer dimensions**
  - 50 x 12 x 38 mm (same as the EC-905)
- **Weight**
  - Approx. 42g (including batteries, not including circumferential ring)

**Accessories**

- **EC-0060 External hold signal cable (7.4m) x 1 piece**
- **EC-0065 Carrying case x 1 piece**
- **Hexagonal wrench (1.5mm between opposing side) x 1 piece**
- **Type AA battery x 3 pieces**

*1: The measurement unit is selectable from mm (m/min) or feet (f/min). Please specify the unit at the time of order.
*2: Displaying to the first decimal point.

**EC-0201 External detector**

**Detection section**

- **The number of generated pulses**
  - 150 pulses/Rotation slit reflection method
- **Light source**
  - Infrared-emitting diode
- **Light receiving element**
  - Photodiode
- **Allowable load**
  - Radial: 5kg, Thrust: 5kg
- **Bearing life**
  - 2 x 10^10 rev/(min)(at the time of maximum load within the specification)

**General specification**

- **Power supply**
  - Supplied from the EC-2100 (uses the EC-0203 external detector signal cable)
- **Operating temperature range**
  - 0 to 45°C
- **Storage temperature range**
  - -10 to 60°C
- **Outer dimensions**
  - 60 x 12 x 38 mm (same as the EC-091)
- **Weight**
  - Approx. 214g

**Accessories**

- **External detector signal cable EC-091 (5m) x 1 piece**

**EC-0203 Trigger unit**

**Connecting section**

- **Connector**
  - Connection to the EC-2100 elevator speedometer CH1
- **Terminal**
  - Connection to an escalator
  - + contact signal
  - Push the button to be contact off.
  - The cable between an escalator emergency stop device and the trigger unit: user preparation.

**General specification**

- **Power supply**
  - Type AA battery x 3 pieces
- **Battery life**
  - 15 hours or more (continuous using at room temperature)
- **Current consumption**
  - 20mA or less
- **Output connector**
  - ø2.5 pin jack
- **Pulse width**
  - Approx. 0.5 to 1.2µs
- **Logic**
  - Negative logic
- **Number of pulses**
  - 600 pulses/Rotation

**EC-0203 Trigger unit**

**Connecting section**

- **Connector**
  - Connection to the EC-2100 elevator speedometer CH1
- **Terminal**
  - Connection to an escalator
  - + contact signal
  - Push the button to be contact off.
  - The cable between an escalator emergency stop device and the trigger unit: user preparation.

**Outer dimensions**

- 60 (W) x 120 (L) x 38 (D) mm

**Accesories**

- **Mounting fixture x 2 pieces**

Note: For your safety, fix the main unit or external detector (EC-0201) when the measurement range exceeds 1,000 m/min (10,000 r/min).
EC-2100 Elevator Speedometer

- Outer dimensions (unit: mm)

![Image of EC-2100 Elevator Speedometer](image)

- Accessories
  - External hold signal cable (EC-0922, 1.4m)
  - Carrying case (EC-0925)
  - Hexagonal wrench (for fixing circumferential ring)
  - Type AA battery (3 pieces)

Options

- Circumferential ring (wide type)
  - KS-400
- Circumferential ring (narrow type)
  - KS-500
- Circumferential ring (rubber coating wide type)
  - KS-0800
- Rotating contact tip
  - KS-300
- Relay shaft for rotating contact tip
  - EC-0924
- External hold signal detection switch
  - EC-001A

EC-0201 External detector

- Outer dimensions (unit: mm)

![Image of EC-0201 External detector](image)

- Accessories
  - External detector signal cable (5m) (EC-0921, connection for the EC-2100 and EC-0201)
  - External hold signal cable (1.4m) (2 pieces to a set)
  - AX-501 Analog output cable (2m)
  - EC-0923 Pulse output cable (2m)
  - EC-0925 Carrying case
  - EC-0926 Trigger unit cable (1.5m)

EC-0203 Trigger unit

- Outer dimensions (unit: mm)

![Image of EC-0203 Trigger unit](image)

- Accessories
  - Mounting fixture
  - Accessories
    - EC-0202 Distance measurement function
    - EC-0203 Trigger unit
    - EC-0204 External detector signal cable (5m)
      - Connection for the EC-2100 and EC-0201
    - EC-0205 Pulse output cable (2m)
    - EC-0206 Trigger unit cable (1.5m)

Offering a good solution for measuring the opening and closing door speed

HT-5510 Digital Handheld Speedometer

The HT-5510 Digital Handheld Speedometer measures opening and closing door speed and its time, such as an elevator, a train or a safety fence. An accurate zebra pattern reflective mark is attached to measure the speed, and a reflective mark to measure the time. It is also used for measurement of general rotating objects. Data recording can be available on a data logger using analog output and pulse output.

### Measurement examples

- Measuring speed of opening and closing door
- Measuring time of opening and closing door
- Measuring general rotating objects

![Image of HT-5510 Digital Handheld Speedometer](image)

- Accessories
  - HT-0502 Contact adapter x 1
  - KS-300 Rotating contact tip x 1
  - KS-200 Circumferential ring x 1
  - High accurate zebra pattern reflective mark 1 (m) x 2
  - Reflective mark 1 (m) x 2
  - Mounting fixture x 2
  - Type AAA battery 1.5V x 4
  - Carrying case x 1
  - Instruction manual x 1

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