

Elevator Speedometer EC-2100

[Product Brochures \(PDF\)](#)
[Outer Dimension \(PDF\)](#)


The EC-2100 is a compact, light weight and battery-operated handheld speedometer designed for use in elevator adjustment, maintenance and inspection. With a wide measurement range and high speed calculation, speed and rotation of a high speed elevator can be measured.

It enables easy and accurate measurement only by pressing the circumferential ring lightly to an elevator pulley or a handrail of an elevator. Measured value can be easily read on the red LCD even in a dark place. The operator can do an inspection alone by fixing the EC-2100 main unit by a jig or using the EC-0201 external detector (option).

As well as the buttons on the main unit, the measurement values can be held by the external contact signal. The each instantaneous value is displayed on the main unit. It supports more safety work without worrying about the displayed values.

Distance measurement is available by the EC-0202 (option). It measures moving distance within the specified time. Moreover by adding the EC-0202 (option) and the EC-0203 (option), the EC-2100 can measure actual moving distance of an escalator after emergency stop operation.

Features

Wide measurement range up to 2,000 m/min and 20,000 r/min, saving calculation time with 10 ms. Useful for measurement of a high speed elevator or escalator.

Up to ten measurement results can be stored to the main unit.

Analog output and pulse output functions are provided as standard.

Maximum hold function to hold the maximum value during measurement

Averaging function: Averaging of speed or rotation speed values (selectable from 1 to 200.)

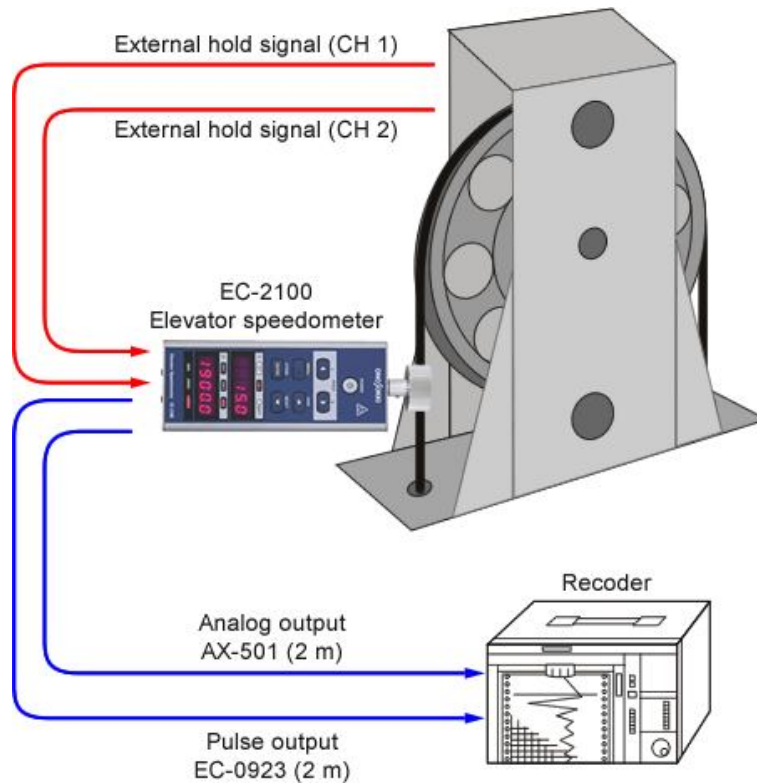
Auto power off function / display of remaining battery level function

Distance measurement function (EC-0202 option): measurement of moving distance within the specified time. Plus/minus display shows the rotation direction.

Remote measurement is available by the external detector (EC-0201 option)

Also can be used as contact type handheld tachometer by attaching the KS-300 (option) to the tip of rotating object.

• **Speed measurement of an elevator**



Make a measurement by pressing the circumferential ring to a pulley of governor or a rope. The instantaneous value of each channel is displayed by using a hold switch [1] [2] on the main unit or using the external hold signal.

Maximum value measurement

The maximum value during measurement can be held and displayed on lower screen by [DISP] button.

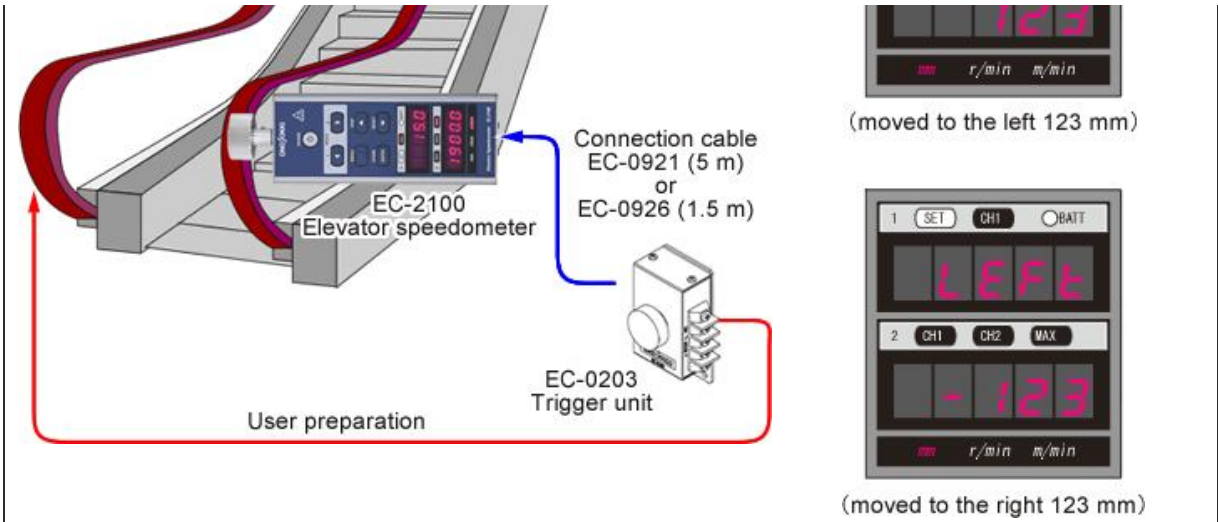
Memory function

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 channel, plus/minus and rotation direction in distance measurement (mm). The stored data can be read by [MENU] switch.

• **Moving distance measurement after emergency stop operation (Distance measurement function: EC-0202, option)**

Example of measurement results When a leftward movement of a handrail is set as +





Moving distance after emergency stop can be measured by pressing a circumferential ring to a handrail. Plus/minus display shows the rotation direction.

Measurement using the EC-0203 trigger unit (option)
Connect the EC-2100 to an escalator via the EC-0203 trigger unit. Pushing the trigger button brings the escalator to the emergency stop and the speed measurement is started. When two seconds have passed after the measurement ends, the EC-2100 holds the measurement result and prevents miscount.

Measurement not using the trigger unit
The hold switch [1] [2] on the main unit starts and stops measurement.

- Outer/inner perimeter measurement
(Distance measurement function: EC-0202, option)

The EC-2100 Elevator speedometer can be used as the handheld distance meter by installing the EC-0202 distance measurement function. The moving distance can be measured and displayed by pressing the circumferential ring to the measurement object. Start and stop are operated by the switches on the main unit. When the circumferential ring passes the stop position, the rotating direction setup enables correct measurement. The auto stop function* of the EC-2100 holds the measurement result when two seconds have passed after the movement of the circumferential ring ends.

*The auto stop function is disabled by the modification of the EC-2100 main unit.

Overview Specifications

EC-2100 Elevator Speedometer

Measurement section	
Measurement method	Contact type
	Speed *1: 0.1 to 2,000.0 (m/min) or 1 to 6,500.0(f/min)

Measurement range	Rotation speed: 1 to 20,000 (r/min) Distance (sold separately) *1: 0 to ±999 (mm) or 0 to 3.280 (feet) *Distance measurement up to ±5000 mm or 9.999 feet is available. However, measurement values more than ±999 mm or ±3.280 feet is not guaranteed.
Measurement accuracy	±1 count
Measurement time	10 ms
Display	5-digit red LED × 2
Display update time	100 ms
Resolution *1	Speed: 0.1 (m/min) or 0.328 (f/min) *2, rotation speed: 0.1 (r/min), distance (sold separately): 1 (mm) or 0.001 (feet) ■Speed and rotation speed: 10 or more of averaging times
Measurement unit *1	Speed: m/min or f/min, rotation speed: r/min, distance: mm or feet (distance: option)
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 (CH 1, CH 2, Max value)
Averaging function	1 to 200 times (optionally setup)
Memory function	Up to ten measurement results can be stored to the main unit.
Analog output section	
Output signal	Instantaneous value (output after averaging processing)
Voltage range	0 to 1 V/0 to F.S.
Conversion method	10-bit D/A conversion
Linearity	±1% F.S.
Output update time	10 ms
Output connector	φ2.5 mm pin-jack
Pulse output section	
Output method	Transistor output (open collector)
Voltage withstanding	14 V
Current	20 mA or less
The number of pulses	600 pulses / rotation
Logic	Negative logic
Pulse width	Approx. 0.5 to 1.2 μs
Output connector	φ2.5 mm pin-jack
Detector section	
The number of generated pulses	150 pulses/ rotation, slit reflection method
Light source	Infrared-emitting diode
Light receiving element	Photodiode
Allowable shaft load	Radial: 5kg, thrust: 5kg
Bearing life	2×10 ⁷ r/min·h (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	100mA max. (power voltage 4.5V)
Operating temperature range	0 to 45 °C
Storage temperature range	-10 to 60 °C
Outer dimensions	60(W)×162(L)×38(D) mm (same as the EC-900)
Weight	Approx. 423 g (including batteries, not including the circumferential ring)
	External hold signal cable (1.4m) EC-0922 x 1 set (2 pieces) Carrying case EC-0925 x 1 piece

Accessories	Hexagonal wrench (opposite side:1.5mm) x 1 piece Type AA battery x 3 pieces
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Note: When using the EC-2100, optional circumferential ring (KS-400, 500, 0800) or optional rotating contact tip (KS-300, EC-0924) is required.

*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.

 [Quick operation procedure "How to use the EC-2100" \(PDF\)](#)

Option

■ EC-0201 External detector



External detector for the EC-2100 Elevator speedometer. Remote operation using signal cable (EC-0921, standard accessory) provides safety measurement.

*The measurement operations such as power ON and unit selection are performed on the main unit.

Detection section	
The number of generated pulsed	150 pulse/rotation slit reflection method
Light source	Infrared-emitting diode
Light receiving element	Photodiode
Allowable shaft load	Radial:5 kg, thrust: 5 kg
Bearing life	2×10 ⁷ r/min・h (at the time of maximum load within the specification)
General specification	
Power supply	Supplied from the EC-2100 (uses the EC-0921 external signal cable for the EC-0201)
Operating temperature range	0 to 45 °C
Storage temperature range	-10 to 60 °C
Outer dimensions	60(W)×76(L)×38(D)mm with jig mounting hole (4-M4 depth 8) (same as the EC-091)
weight	Approx. 214 g (including batteries, not including circumferential ring)
Accessories	External detector signal cable (5 m): EC-0921 x 1 piece (connection for the EC-2100 and the EC-0201)

■ EC-0202 Distance measurement function

It enables moving distance measurement of escalator after emergency stop operation or a handrail by mounted into the EC-2100 main unit.

■ EC-0203 Trigger unit



Pushing the button on the EC-0203 trigger unit brings an escalator emergency stop and the EC-2100 starts measurement. When two seconds have passed after the measurement ends, the value is held to prevent miscount.

Connection section	
Connector	Connection to the EC-2100 elevator speedometer CH 1 Connection cable: EC-0921 (5 m) or EC-0926 (1.5 m)
Terminal	Connection to an escalator B contact signal push the button to be contact off. A connection cable between an escalator emergency stop device and the trigger unit: user preparation
General specification	
Outer dimensions	50 (W) × 100 (L) × 47 (D) mm
Accessories	Mounting fixture x 2 pieces

■ Accessories (option)

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 detection switch EC-001A 

Model name	Product name
EC-0921	External detector signal cable (5 m) (EC-2100 to EC-0201 or EC-0203)
EC-0922	External hold signal cable (1.4 m, 2 pieces to a set)
AX-501	Analog output cable (2 m)
EC-0923	Pulse output cable (2 m)
EC-0925	Carrying case
EC-0926	Trigger unit cable (1.5 m)

[➡ Comparison table of the EC-2100 and the EC-900](#)

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