Quick operation procedure

How to use the EC-2100

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1. Overview

The EC-2100 Elevator Speedometer is a compact and lightweight handheld speedometer with built-in batteries, designed for adjustment, maintenance, and inspection of an elevator. The EC-2100 Elevator Speedometer is provided with two display units enabling speed display at two different measurement timings.
By fixing the EC-2100 Elevator Speedometer to jig or using the EC-0201 External Detector (option), you can perform inspection works alone.

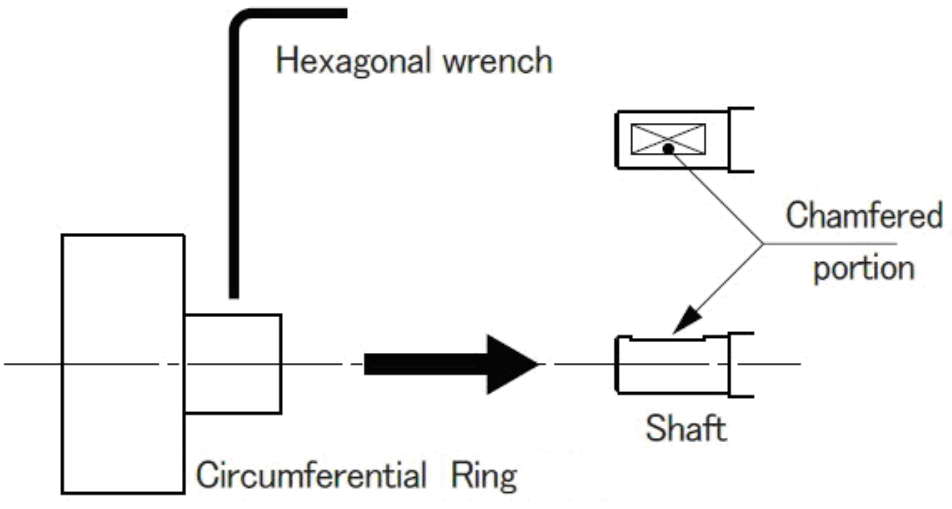
2. Features

- Memory function (for storing and reading 10 measurement results)
- Maximum hold function (for holding maximum measurement value)
- Averaging function (for averaging with desired number of times up to 200 times)
- Analog and pulse output
- CE marking (noise-immune design)
- Remaining battery level check (remaining battery level displayed at activation)
- Distance Measurement Function (option)

3. Measurement of an elevator

3.1 Before measurement

When attaching circumferential ring (KS-400/KS-500/KS-0800) or rotating shaft and its relay shaft (KS-300+EC-0924) to the EC-2100, insert the shaft into each measurement tip all the way until it stops and securely fix them by the supplied hexagonal wrench. Make sure that both the chamfered portion of the shaft and the screw-attached side of the circumferential ring are in the upward state before fixing. Fixing each measurement tip to a wrong position or loosely attaching it may cause detachment during measurement and possibly resulting in an accident



■Speed measurement

Three kinds of circumferential ring are provided. Check the width and material of each one and choose one depending on your purpose.

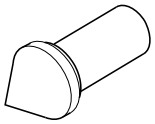
KS-400
Metallic Wide type

KS-500
Metallic Narrow type

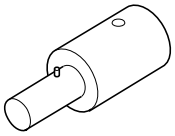
KS-0800
Rubber coating wide type

■Rotation speed measurement

When measuring the rotation speed of the motor etc., Rotating contact tip (KS-300) and its Relay Shaft are used.



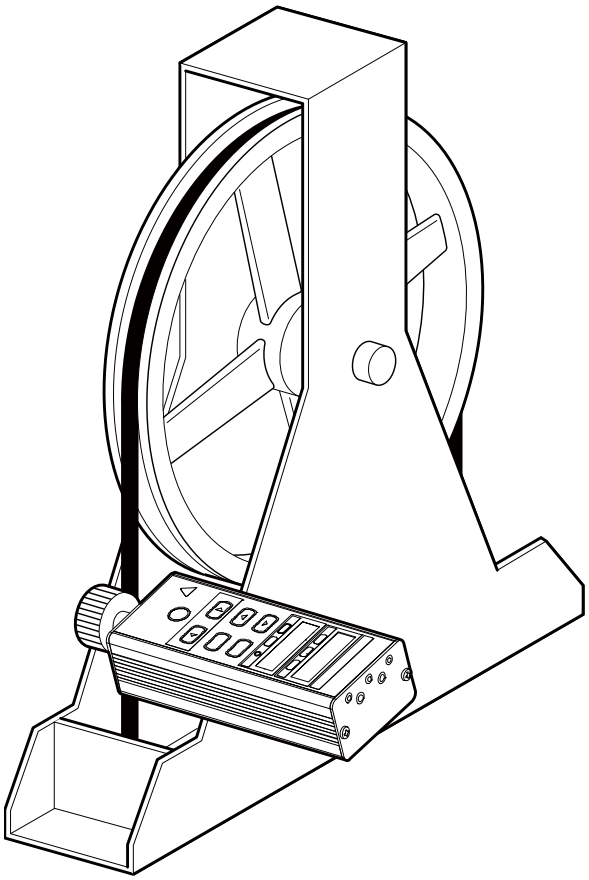
KS-300
Rotating contact tip



EC-0924
Relay shaft for rotating contact tip

3.2 Basic measurement

■Speed measurement



After turning on the power, select the unit "m/min" or “f/min, press the circumferential ring onto a wire rope or a pulley to measure the rotation speed.

- ●Never touch the rotating section. There is a risk of getting your hand caught in the rotating section resulting in serious personal injury. Work gloves and clothes are also at the risk of it. Be careful not to get too close to the rotating section for your safety.
- ●When the speed exceeds 1,000 m/min (10,000 r/min), make measurement by fixing the EC-2100 Elevator Speedometer or the EC-0201 External Detector (option) for your safety.

Note : To ensure safety, manufacture robust attachment jig according to your operating conditions. Fix the EC-2100 or an external detector to the attachment jig by using four M4 screws.

■Rotation speed measurement

After turning on the power, select the unit "m/min" or “f/min, press the Rotating contact (KS-300) onto a center of motor axis or pulley to measure the rotation speed.

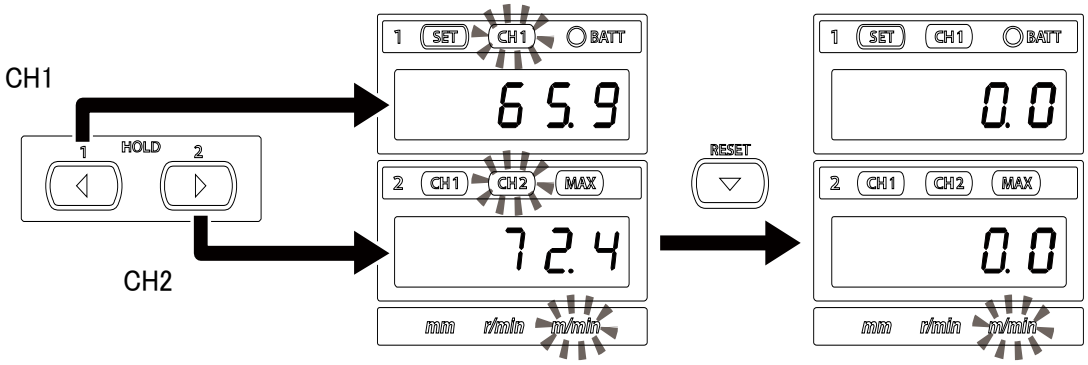
●Never touch the rotating section. There is a risk of getting your hand caught in the rotating section resulting in serious personal injury. Work gloves and clothes are also at the risk of it.
Be careful not to get too close to the rotating section for your safety.

●Make sure that the shaft center of the measurement object is pressed by the shaft center of the rotating contact tip, and hold on the EC-2100 firmly.

● Check the circumferential rings and rotating contact tips before measurement. Replace the new parts by ONO SOKKI when you find the rubber part worn, resin part cracked or attaching part loosed, do not keep using them.

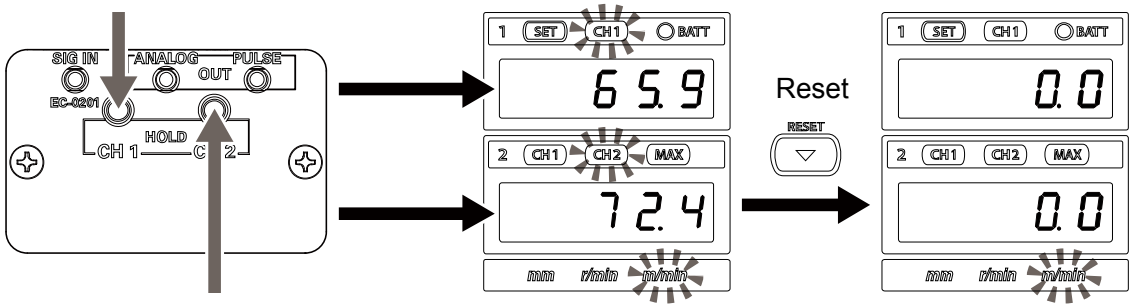
3.3 Holding the measurement value

Press the "CH1"/"CH2" hold switch of the EC-2100 Elevator Speedometer to hold the measurement value. Pressing the "RESET" switch clears the held data.



When using the EC-0922 External Hold Signal Cable, the hold state enters when the contact opens (OFF).

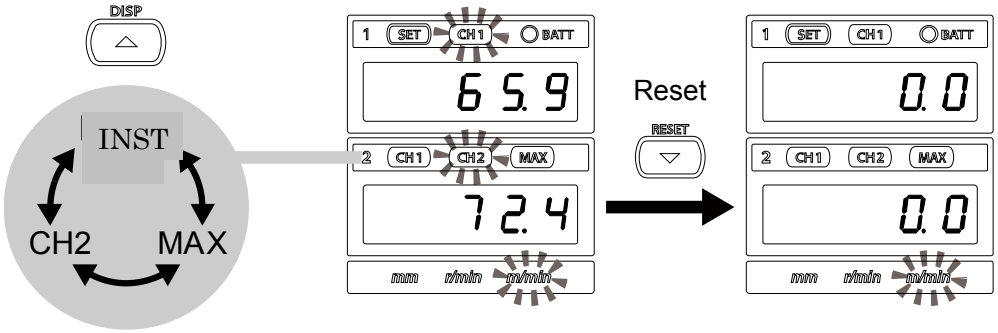
CH1 External hold signal
(contact open)



CH1 External hold signal
(contact open)

3.4 Displaying the maximum value

Press the “DISP” switch to turn ON the “MAX” indicator. Press the “DISP” switch to change the value in order of CH2 (hold value), MAX (maximum value) and instantaneous value. When the “MAX” is blinking by pressing “DISP” switch, the maximum value is displayed in the lower display regardless of whether the hold switch is used. Press the “RESET” switch to clear all the stored data including maximum value.

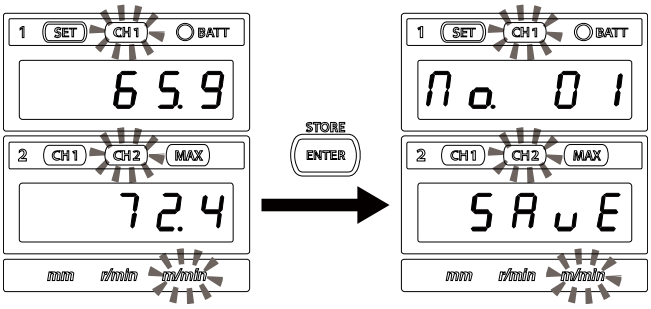


3.5 Storing the measurement value

Press the “STORE” switch to store the hold data (CH1/CH2) and the maximum value (MAX) in the EC-2100 Elevator Speedometer. When data is stored, the storage number (No.XX) is displayed in the upper for one second and “SAvE” is displayed in the lower for one second.

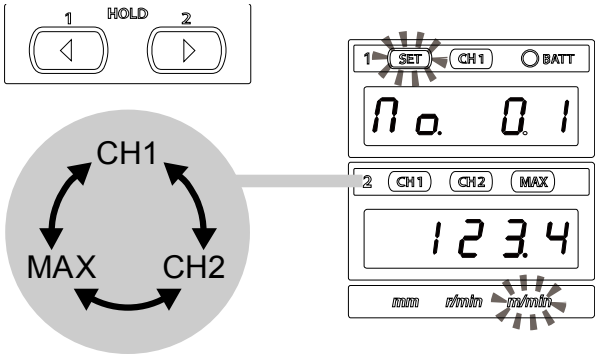
Note: When saving the eleventh measurement data, the stored first data is overwritten.

*The stored data can be read in the setting mode.

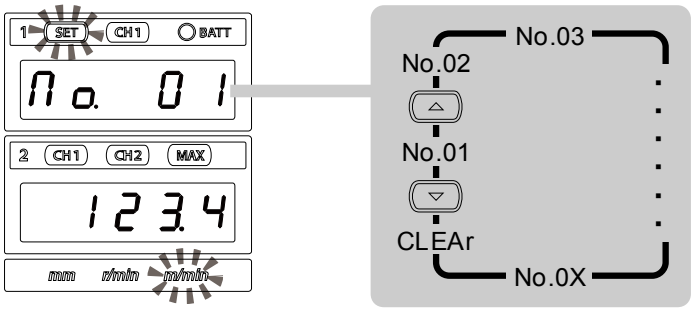


3.6 Reading the stored measurement data

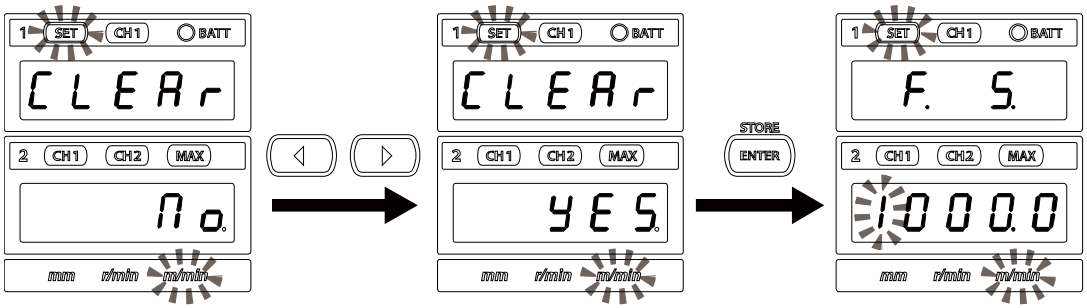
The stored measurement data can be read in the setting mode by the “MENU” switch.
Only when there is stored data, the storage number is displayed in the upper display and the stored data is displayed in the lower display. Pressing the "◁" and "▷" switches enables selecting "CH 1", "CH 2", or "MAX" for the storage number displayed in the lower display.



Pressing the "△" and "▽" switches, enables selecting data display for up to "No. 01" to "No.10."



When "CLEAr" is displayed in the upper display and "No" is displayed in the lower display, pressing the "◁" and "▷" switches changes the lower display to "YES." Pressing the "ENTER" switch in this state clears all the stored data. When you return to the setting mode by “MENU” switch, the stored data is not cleared.



Pressing the "ENTER" switch in the state of selecting “YES” clears all the stored data and moves to the next setting item “analog output full scale”.

4. Measurement of an escalator (option)

4.1 Outline

This measurement aims to measure the actual moving distance of an escalator after emergency stop operation.

●To select “mm”, the “EC-0202 Distance Measurement Function” (option) needs to be installed.

4.2 Before measurement

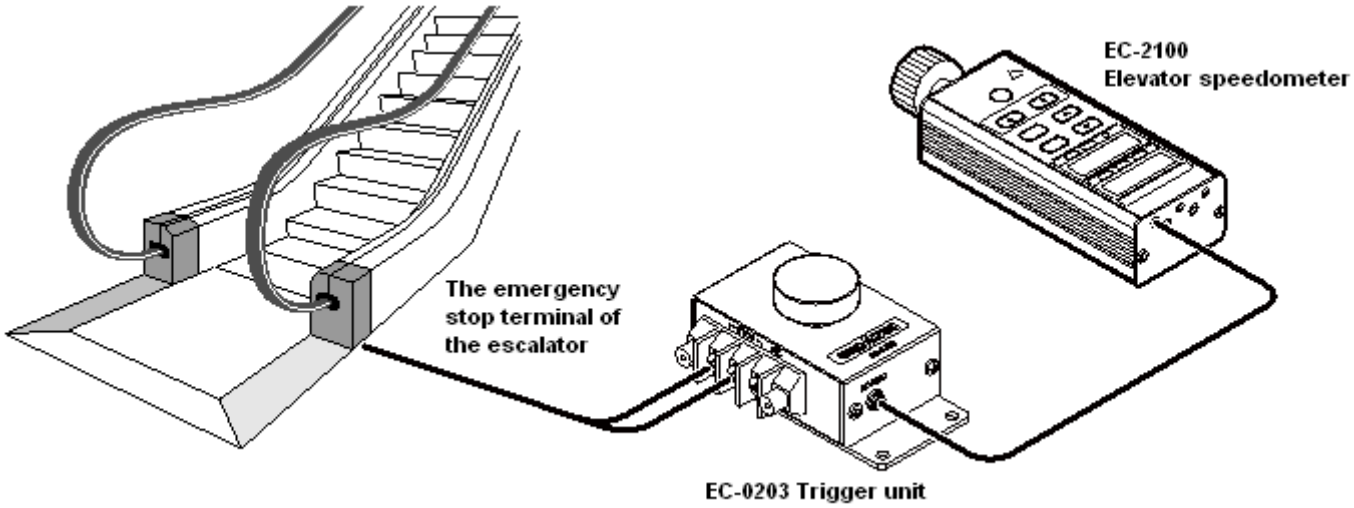
■Attaching Circumferential Ring

The rubber coating type circumferential ring (KS-0800) is suitable for the measurement of an escalator using handrail. We provide several types of circumferential ring so that you can choose appropriate one depending on your need. Please refer to the page of [3. Measurement of an elevator] about the types or attaching method of the circumferential ring.

■Connecting the Trigger unit

Switching the EC-0203 Trigger unit (option) enables both operations of an escalator emergency stop and measurement start of the EC-2100.

Connect the “SIG IN” connector of the EC-2100 to the “EC-2100” connector of the EC-0203, the “STOP” connector of the EC-0203 and the emergency stop connector of the escalator.



＊When not using trigger unit, the hold switch [1][2] on the main unit starts and stops the measurement.

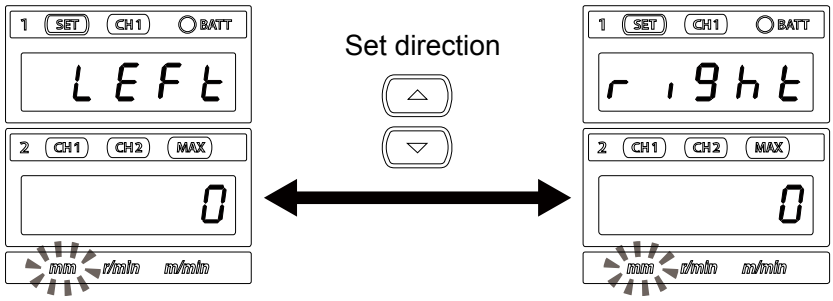
4.3 Basic Operation

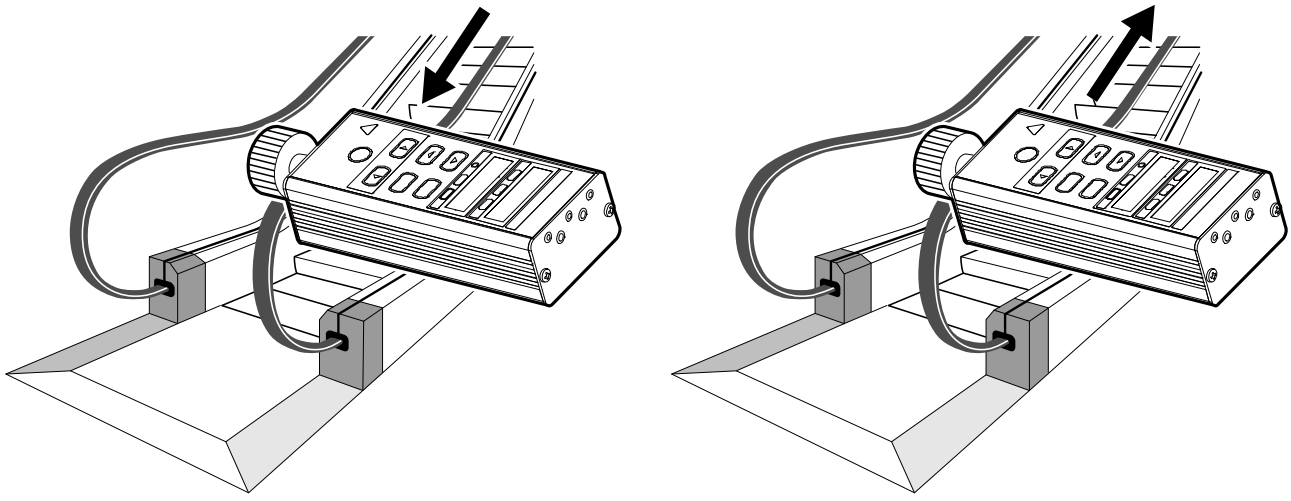
■Setting unit

Select the unit “mm” and press the Circumferential Ring onto a hand rail of the escalator under measurement.
When "Unit" is displayed in the upper display, pressing the "◁" and "▷" switches changes the unit in the lower display.
Select a unit to be used and then press the "ENTER" switch. The unit is applied and the next setting item is selected.
Also for the following setting items, the setting is applied when you press the "ENTER" switch to change item or press the "MENU" switch to return to the measurement mode.
Note: To select "mm", the "EC-0202 Distance Measurement Function" (option) needs to be installed.

■Setting the measurement direction

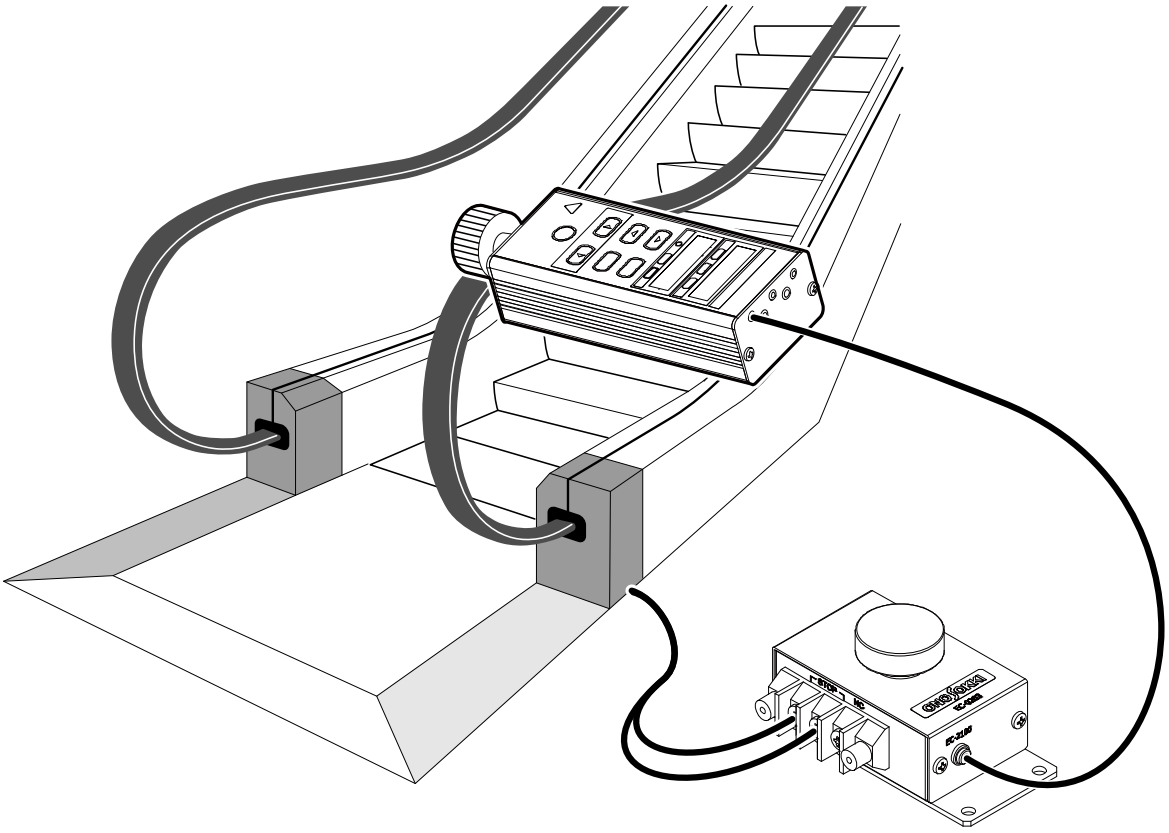
Press the "MENU" switch to return to the measurement mode after setting the unit “mm”. And then the distance measurement is ready.
The measurement direction can be set by pressing the “△“ and “▽“ switches in this state.
When pressing the circumferential ring of the Elevator speedometer to the handrail of an escalator, select “right” when the handrail is rotated to the right, select “left” when it is rotated to the left.
The positive (+) measurement value is displayed to the setup direction and the negative (-) is displayed to opposite of the setup direction.

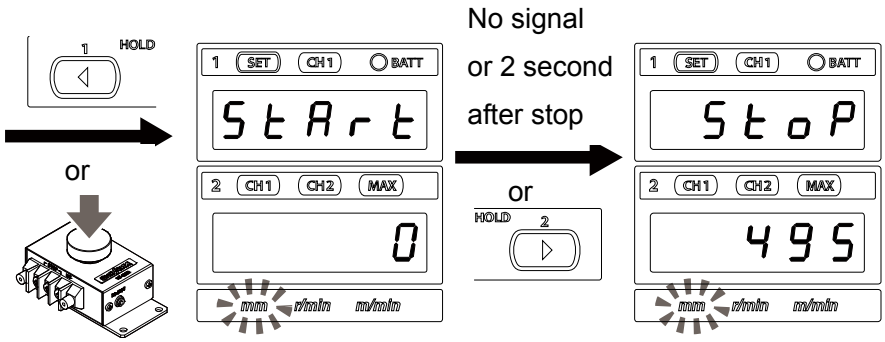




■Starting and stopping measurement

Press the “CH1” hold switch or the switch of the EC-0203 Trigger Unit to start measurement.
When the Circumferential Ring does not rotate for 2 seconds, measurement is automatically stopped. Hold the EC-2100 Elevator Speedometer for at least 2 seconds after the escalator under measurement stops.
The distance over which the Circumferential Ring rotates is displayed in the lower display. Pressing the “CH2” switch also ends measurement.





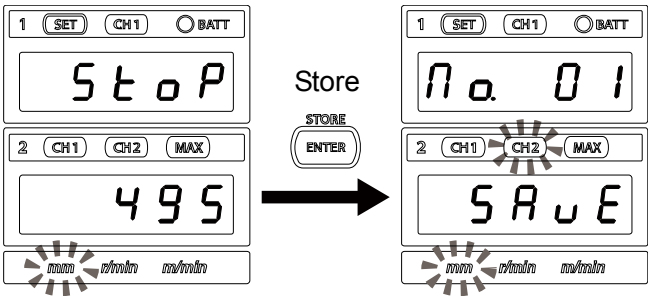
4.4 Storing the measurement data

Press the “STORE” switch to store up to ten measurement results including the direction, polarity and values in the EC-2100 Elevator Speedometer. When the data is stored, the storage number (No.XX) is displayed in the upper and “SAvE” is displayed in the lower for one second.

Note: When saving the eleventh measurement data, the stored first data is overwritten.

*The stored data can be read in the setting mode.

(ENTER Applies the setting and selects the next setting items in the setting mode)



4.5 Reading the stored measurement data

The stored measurement data can be read in the setting mode by the “MENU” switch.

Please refer to the section [3.6 reading the stored measurement data].