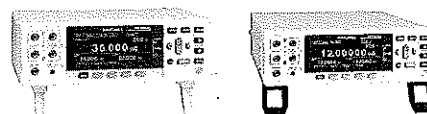
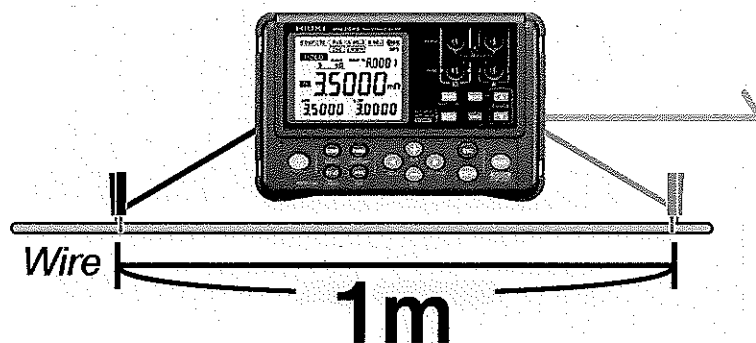


Estimating the Length of Copper Wire

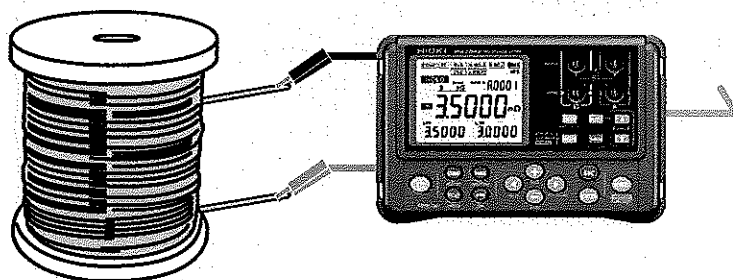
The length of copper wire can be estimated by measuring its resistance.

- Verify the length of copper wire available by using the RM3544/RM3545/RM3548 Resistance Meter.
 1. Using the RM3544/RM3545/RM3548 Resistance Meter, measure the resistance of a 1 m length of the wire whose overall length you wish to estimate.
 2. Next, measure the resistance of the entire wire whose length you wish to calculate.
 3. By dividing the resistance value for the entire wire by the resistance value for the 1 m length, you can estimate the overall length of the wire (in meters).



You can also use the RM3544/RM3545 to perform this measurement.

Measure the resistance of a 1 m length of the wire whose overall length you wish to estimate.
The resistance of a 1 m length of the wire : $A[\Omega/m]$



You can also use the RM3544/RM3545 to perform this measurement.

Measure the resistance of the wire of unknown length.

Resistance value of wire X [m]: $B[\Omega]$

Wire of unknown length: $X[m]$

$$\text{Wire of unknown length } X [m] = B [\Omega] / A [\Omega/m]$$

To ensure accurate measurement

Since copper wire has a comparatively large temperature coefficient, an error will be introduced if the temperature of the wire when the resistance per meter is measured differs from the temperature of the wire when the overall resistance is measured.

The resistance meter's temperature correction function can be used to correct temperature variations in the wire's resistance.

Products used

RESISTANCE METER RM3544

RESISTANCE METER RM3545

RESISTANCE METER RM3548

TEMPERATURE SENSOR Z2001