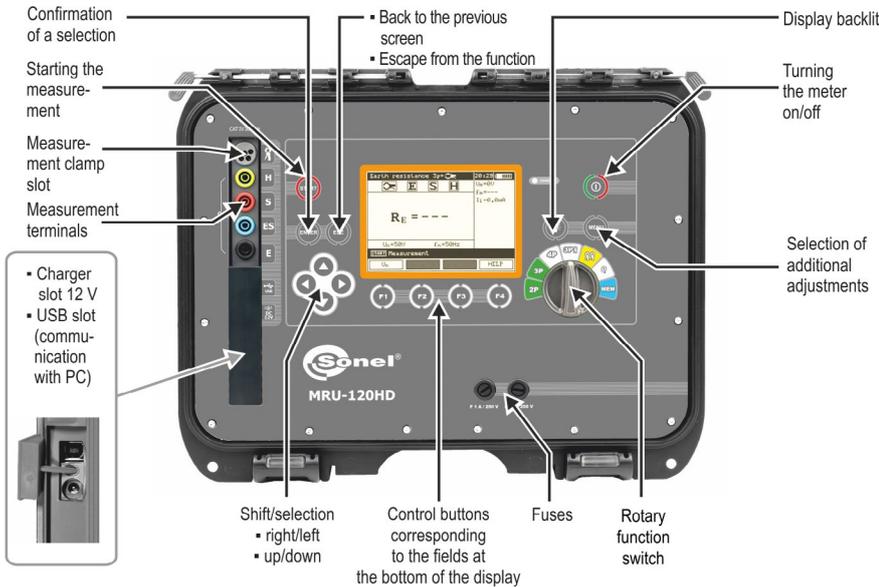




The meter is designed for measurements at interference voltages which do not exceed 24 V for  $R_E$  measurements and 3 V for  $R_{CONT}$  measurements. The voltage is measured up to 100 V, but above 40 V is indicated as dangerous. The meter must not be connected to voltages exceeding 100 V.



$U_N > 24V!$  The voltage on the measurement points exceeds 24 V but is lower than 40 V. The measurement is blocked.

$U_N > 40V!$  The voltage on the measurement points exceeds 40 V. The measurement is blocked.

**NOISE!**

The value of the interfering signal is too high. The result may be distorted by additional uncertainty.

$R > 19,99k\Omega$

$R_E > 19,99k\Omega$

$R_S > 19,9k\Omega$

$R_H > 19,9k\Omega$

$\rho > 999k\Omega m$

Measurement range exceeded.

**LIMIT!**

The uncertainty of the electrode resistance >30%. Uncertainties calculated on the basis of the measured values.

$I_L > max$

Excessive interfering current, the measurement error may exceed the basic error.

## First steps

### 1 Turn on the meter



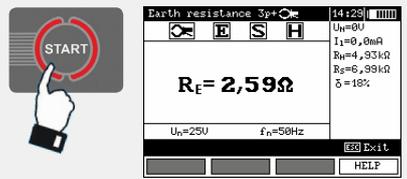
### 2 Select the method and connect



### 3 Configure



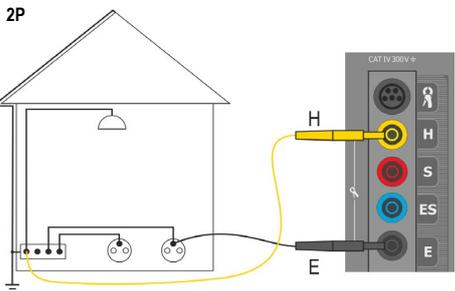
### 4 Obtain the result



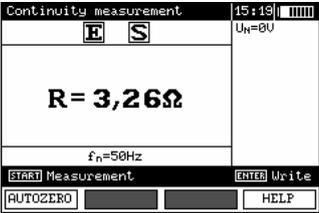
## Measurements

### Wire continuity measurement

Connect the meter to the measured wire.



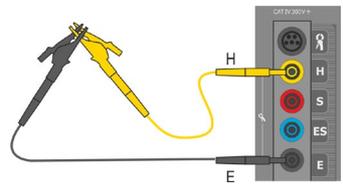
Run the measurement using **START** button.



In order to eliminate the influence of the resistance of the test leads over the result of the measurement, its compensation (auto-zeroing) has to be done.

#### Enabling auto-zeroing

Using button F1 enable **AUTOZERO** mode. Short-circuit the test leads.



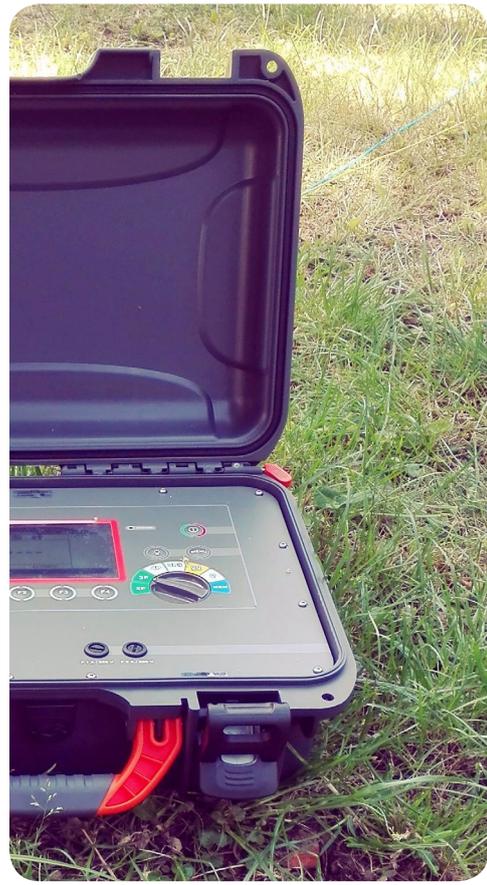
Press **START**.

#### Disabling auto-zeroing

Using button F1 enable **AUTOZERO** mode. Separate the test leads.

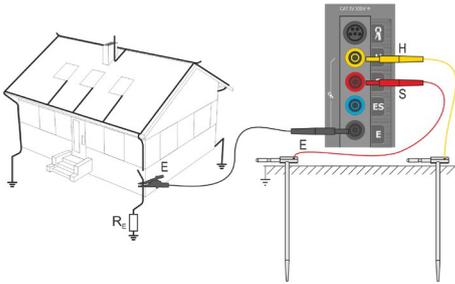
Press **START**.

It is sufficient to realize compensation once for the given test leads. It is also remembered once the meter has been turned off, until the next successful auto-reset procedure.

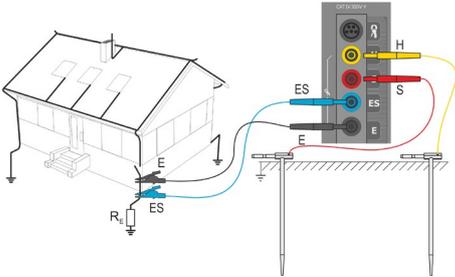


## Earth resistance measurement $R_E$

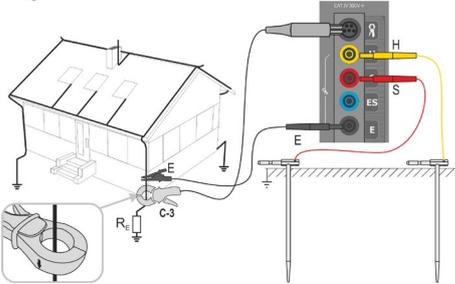
3P



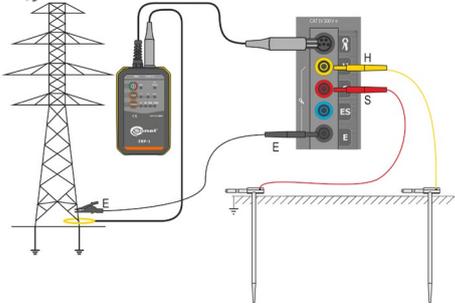
4P



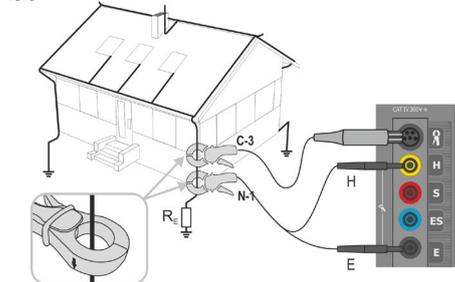
3P



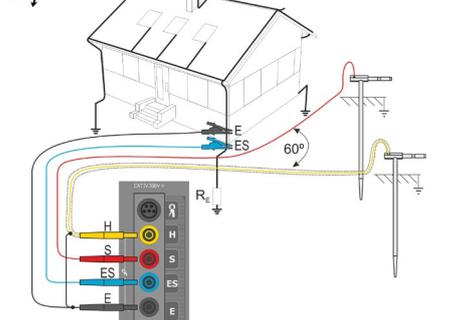
3P



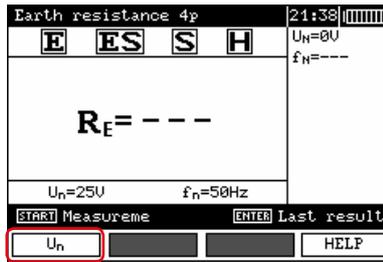
3P



4P



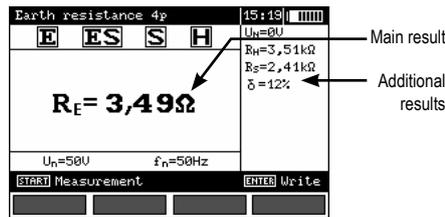
### Configuration and $R_E$ measurement



Enter settings  
• F1 voltage/pulse shape



Using button **START** run the measurement.

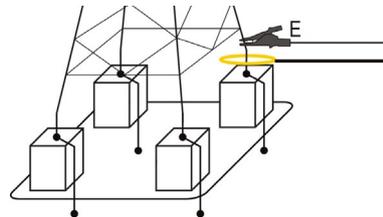


Main result  
Additional results

$U_n$  .....voltage on the measurement points  
 $f_n$  .....interference frequency  
 $I_n$  .....interfering current  
 $R_H$  .....resistance of current electrode  
 $R_S$  .....resistance of voltage electrode  
 $\delta$  .....additional uncertainty caused by the resistance of the electrodes

### Measurement of $R_E$ of poles using ERP-1 adapter

Connect the meter to the leg of the measured pole.

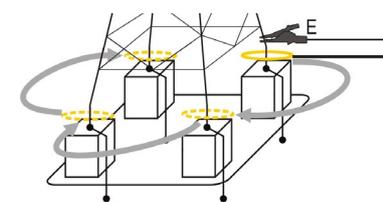


#### ERP-1

- Using **FLEX** button select the type of flexible clamps connected to the device.
- Using **TURNS** button select the number of flexible clamp wraps around the pole leg.

#### MRU-120HD

- Select method **3P**. Connect the flexible clamp to ERP-1 adapter. Wrap the clamp around the object's leg and its earthing tape. Select measuring voltage. Press **START**.

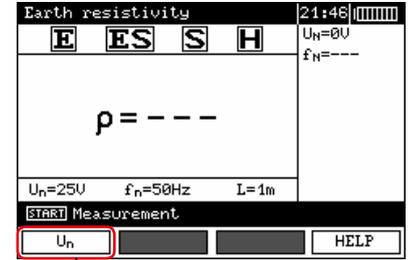
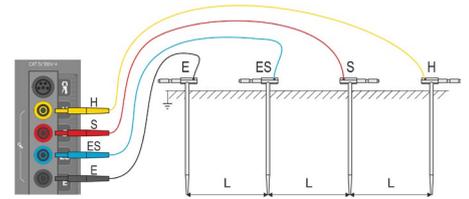


Similarly, connect the next legs of the object. Having the results of each leg measurement, you can calculate the resultant resistance of the entire object from the formula:

$$R_E = \frac{1}{\frac{1}{R_1} + \dots + \frac{1}{R_n}}$$

## Earth resistivity measurement

Connect the meter to the measured earth.



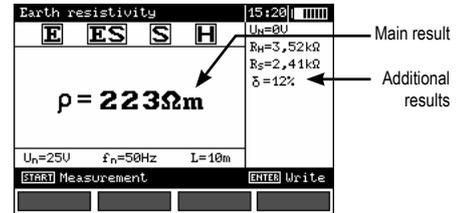
Enter settings  
• F1 measuring voltage



Press **START**.  
Using buttons **▲ ▼** enter the distance between electrodes.

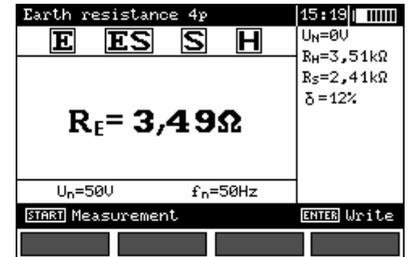


Using button **ENTER** run the measurement.



Main result  
Additional results

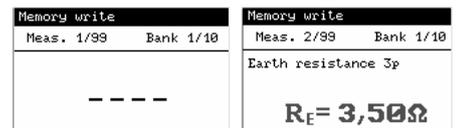
### Saving a result to the memory



After the measurement press **ENTER**.



Select memory cell using buttons **▲ ▼**.  
Select memory bank using buttons **◀ ▶**.



Target cell empty

Target cell occupied



Press **ENTER** to save the result.



Find more information  
in the user manual  
and on our website  
[www.sonel.com](http://www.sonel.com)