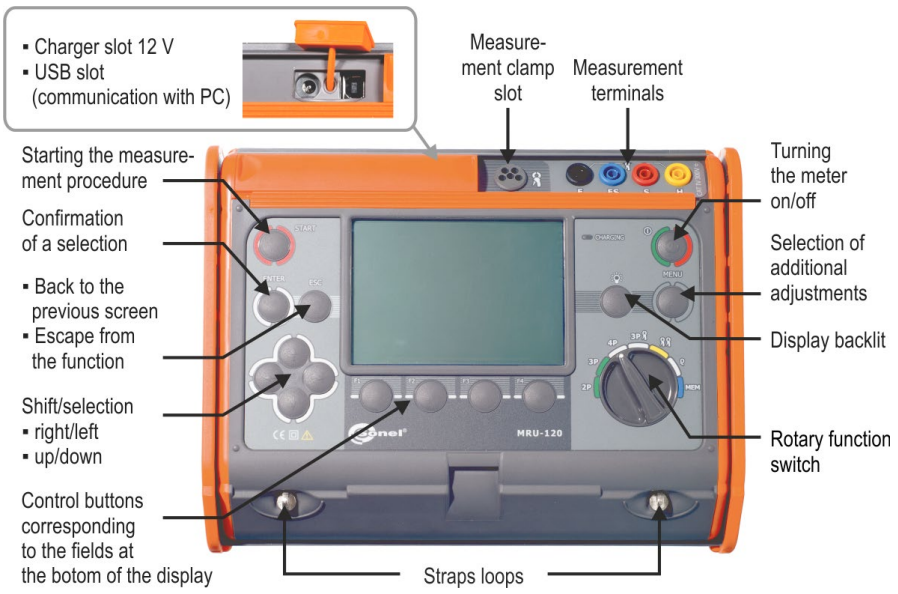
Sonel MRU-120

Earth Resistance Meter ● QuickStart

v1.00 | 26.05.2020

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.

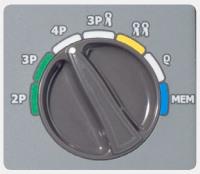


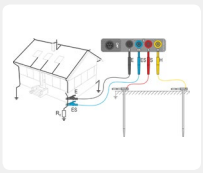
U_N>24V!	The voltage on the measurement points exceeds 24 V but is lower than 40 V. The measurement is blocked.	NOISE!	The value of the interfering signal is too high. The result may be distorted by additional uncertainty.	LIMIT!	The uncertainty of the electrode resistance >30%. Uncertainties calculated on the basis of the measured values.
U_N>40V! and a continuous sonic signal	The voltage on the measurement points exceeds 40 V. The measurement is blocked.	R>19,99kΩ R_E>19,99kΩ R_S>19,9kΩ R_H>19,9kΩ ρ>999kΩm	Measurement range exceeded.	I_L>max	Excessive interfering current, the measurement error may exceed the basic error.

First steps

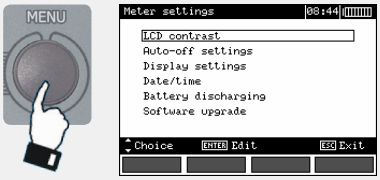
1 Turn on the meter

2 Select the method and connect

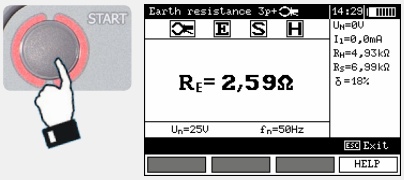




3 Configure



4 Obtain the result

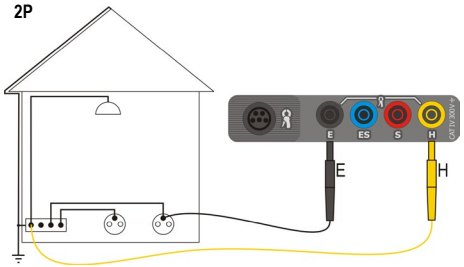


Measurements

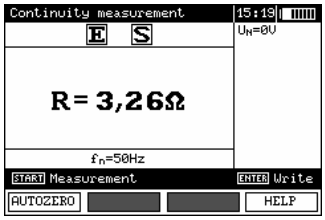
Wire continuity measurement

Connect the meter to the measured wire.

2P



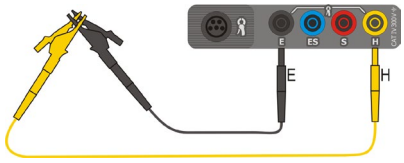
Run the measurement using **START** button.



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

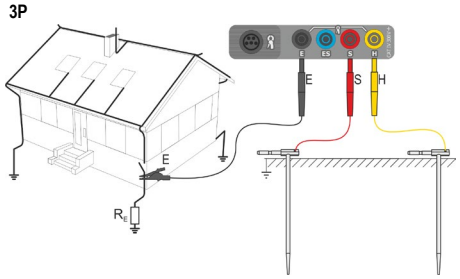
Using button **F1** enable **AUTOZERO** mode.
Separate the test leads.

Press **START**.

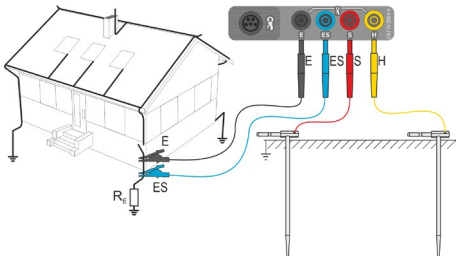
It is sufficient to realize compensation once for the given test leads. It is also remembered once the meter has been turned off, until the next successful auto-reset procedure.

Earth resistance measurement R_E

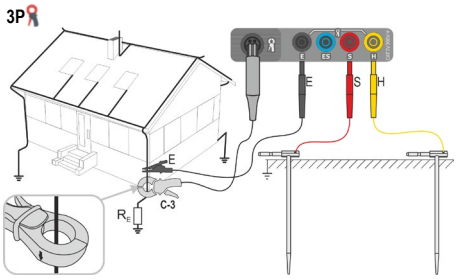
3P



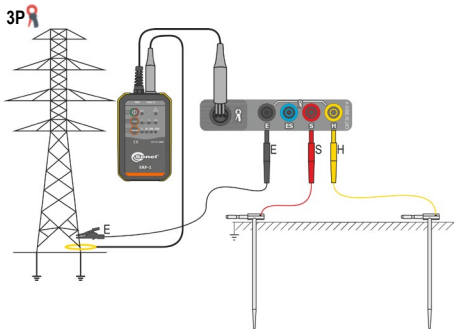
4P

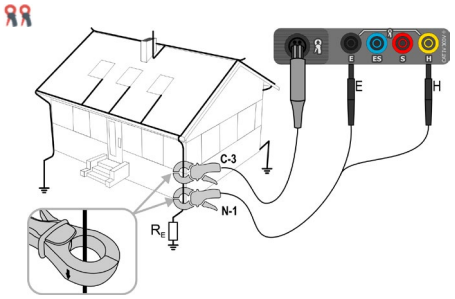


3P

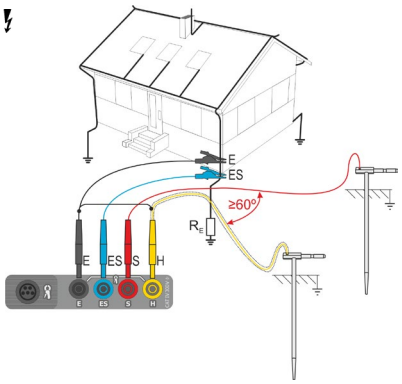


3P

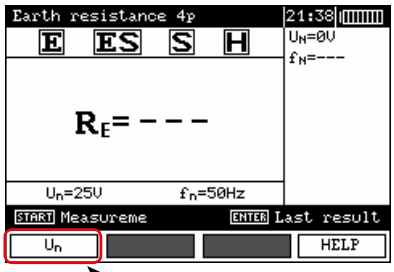




4P

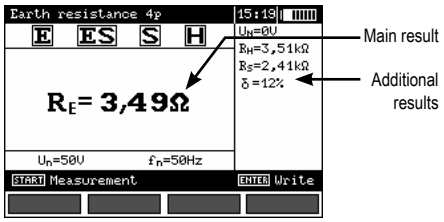


Configuration and R_E measurement



Enter settings
- **F1** voltage/pulse shape

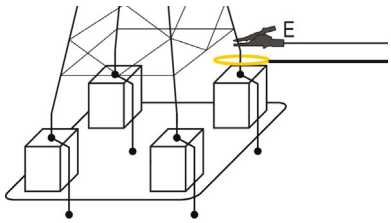
Using button **START** run the measurement.



U_N .....voltage on the measurement points
f_N.....interference frequency
I_L .....interfering current
R_H .....resistance of current electrode
R_S.....resistance of voltage electrode
δ .....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.



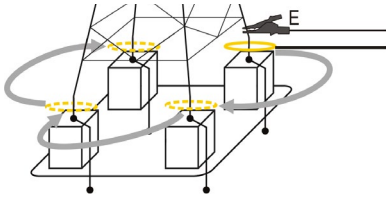
ERP-1

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-120

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

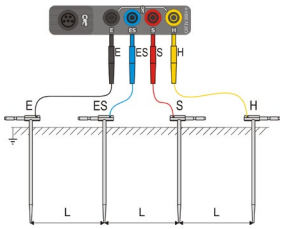


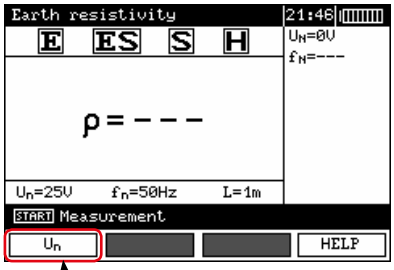
Similarly, connect the next legs of the object. Having the results of each leg measurement, you can calculate the resultant resistance of the entire object from the formula:

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

Earth resistivity measurement

Connect the meter to the measured earth.

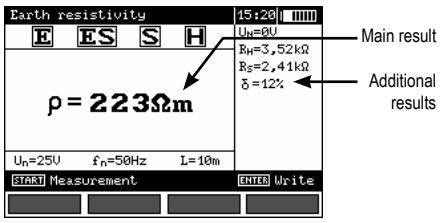




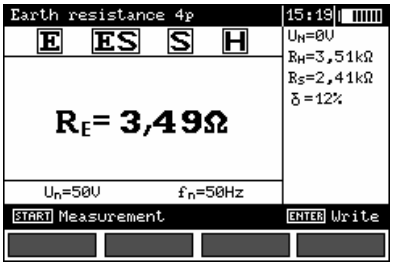
Enter settings
- **F1** measuring voltage

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

Using button **ENTER** run the measurement.

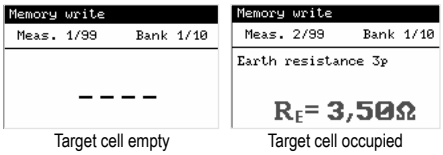


Saving a result to the memory



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.

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Find more information in the user manual and on our website www.sonel.com