YR2050
USER MANUAL

Connectors:

Keyboard:

Menu/Select	Hold/ Edit/Save	▲
Range	Calculate/ Digit	▼

Operations Menu

Press **Menu** button to power On device.

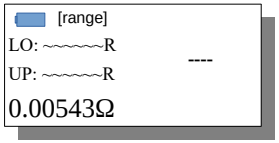
Press and hold **Menu** button to power Off – a menu will appear: Hold (Yes) or ▲ (cancel)

1 – Normal Mode (menu item #1)

➢ Press Menu, use ▲▼ to select menu items #1;

➢ Menu (Select) again to activate resistance measurement mode with or without limit reports ;

➢ Screen divided into the upper left part, with the values of the lower/upper parameters on the left and whether approved (PASS) or not (NO) within the stipulated limits (if acceptance report activated).



Use Hold to block new readings**.**

Use Range to select range and auto range modes**.**

First line:

Left: Range mode: AUTO, 1R, 10R, 100R, 1K – use **Range** to select;

Second line:

Left: **LO**: lower limit , **UP**: lower limit values

Right: result of test – NO or PASS

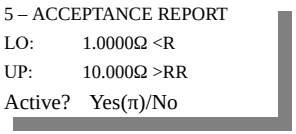
Example:

It is desired to test a batch of 30 Ω resistors. Those that are within the limits of 29,000 and 30,100 Ω will be accepted.

➢ Press **Menu**;

➢ Use ▲▼ for select menu item #5;

➢ Press **Menu** (again and the screen with the current parameters will be displayed :

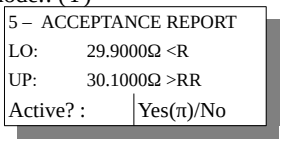


➢ Enter the lower limit value : Use ▲▼to position in front of LO and **Digit button** to position the digit to be adjusted. . Use ▲▼ again to adjust the desired value.

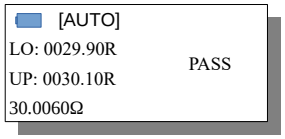
➢ Press **Save** button to fix the value;

➢ Repeat the above steps to set the upper limit;

➢ Activate report mode:: (Y)



➢ Return to operating mode 1: press **Save** button for return to the main screen.



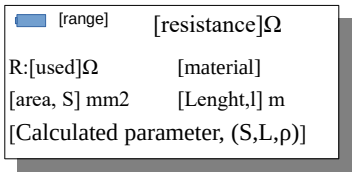
➔ If the component under measurement is accepted, a single beep is emitted when connecting it; if it is rejected, the beep will sound repeatedly.

➔ Measurements above the equipment limits (>4000 ohm) generate overload and are not considered in the report.

2 – Cable calculation Mode (menu item #2)

Measure the resistance of a cable, made of a certain material, given two of the following parameters, determine the third: standard resistivity (ρ), area (S) or length (L):

R = ρ*L/S



First line: :

Left: Range mode: AUTO, 1R, 10R, 100R, 1K – use **Range** to select;

Right: actual value of the measured resistance.

The other parameters can only have their values changed if they are not the ones chosen to be calculated.

Fourth line: the parameter to calculate (resistivity **ρ**, length **L** or area **S**);

- Use ▲▼ to go to the 4th line - parameter to calculate
- Use **Hold**(Edit) to edit selected parameter
- Use ▲▼ select parameter to calculate: **ρ** (resistivity), **l** (length), **S** (cable cross-sectional area);

Observe the 2nd and 3rd lines of the display: the data of the parameter being selected becomes "---", as it will be calculated and not informed;

The unit of measurement appears to the right of the selected parameter;

- For exit from edit parameter press **Hold**(Save) button.

Second line:

Left: the resistance value used in the calculations (generally the same as measured by the equipment);
Right: the cable material: custom1, …, pers8, copper, constantan, silver/manganese, aluminum, iron, gold, silver, platinum, tungsten, nickel-chromium, iron-chromium, nickel-aluminum, pers1 …

Use ▲▼to go to the parameter (it is completely selected); press **Edit** to change;
Use ▲▼to choose the material; press Edit (Save) to exit from edit mode.

Third line:

Left, wire cross-section (area) [mm^2];

Right, the lenght [m];
Use ▲▼to select parameter; press Edit to edit parameter; use Digit to select the digit to edit (at the point, its position changes);
Use ▲▼change the digit or decimal point position; press Edit (Save) o exit from edit mode..

Example 1: a copper cable has a resistivity of 0.00518 Ω. It has a length of 42cm (0.42m). What is your cross section (**S**)?

➢ Since you want to calculate the cross section, press (▲▼) to select the last line.

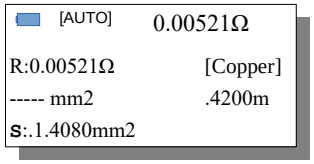
➢ Press **Hold**(Edit) for parameter selection and (▲▼) select **S: ------ mm2**.

➢ Press **Hold** (Save) to exit from edit mode.

➢ Enter the length: press (▲▼) until the third line is highlighted, **Hold** (Edit); press **Digit** to select the digit to change and (▲▼) to adjust; press **Hold** (Save) to exit from edit mode.

➢ Enter the cross-sectional area: repeat the above steps for the area parameter;

➢ Press **Digit** button for cross section (S) will be calculated.



Example 2: A copper cable has a measured resistance 0,00498Ω. . Its cross section (S) is 1,5mm2. what is the expected length of this cable?

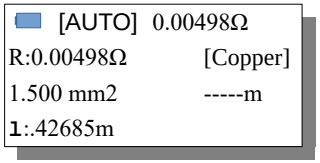
➢ Press (▲▼) until you highlight the last line . Press **Hold** (Edit) and select **l: -----m**

➢ Press Hold (Save) to set the parameter to be calculated. .

➢ Input the cross area S press (▲▼) until highlighting the third line, area parameter. Press **Hold** (Edit); press Digit pto select the digit to change and (▲▼) to adjust.

➢ Press Hold (Save) to exit from edit mode.

➢ The cable length will be calculated : l: 42658m



Notes: The measured value of the material's electrical resistance is constantly updated, **but the calculated parameter will only be updated when you press Calculate.**

3 – Backlight Setting (menu item #3)
Light: 10 – 99%
Trigger: Always Off (Ⱥ); Operate; Always On;
Backlight On time: Delay *nn* seconds (5-60sec);

4 – Energy Saving Settings (menu item #4)
Automatic shutdown: Enable (π) /Desable;
Delay time: nn min 10-60min, (for automatic shutdown, if active)
Low power mode: Enable (π) /Desable;
Delay: nn min, 5-30 min

- Use ▲▼ to select parameter
- Use **Digit** button to adjust the parameter value
- Use **Hold** button (Save) to save the parameter value

When entering the low-power mode, display show ----- on resistance value place. For exit from low-power mode press any button.

6 – Serial port (menu item #6)– not used
7 – Calibration (menu item #7) – not used
8 – Restore Calibration (menu item #8) – not used

9 – Contrast Setting (menu item #9)
Contrast: 1-9, default 3
use button **Digit** and **Save** (Hold).

10 – Resistivity Setting (menu item #10)
Used in menu item #5 to determine the length or cross-section of the conductor.

01 – Copper	08 – Platinum
02 – Constantan	09 – Wolframium
03 – Manganin	10 – Nickel chrome
04 – Aluminium	11 – Ferrum-Chromium-Aluminum
05 – Ferrum	12 – Alnico – Nickel-Aluminum
06 – Aurum	13 … 20 – Personalized
07 – Argentum	

Measurement R_{on} of transistors MOS

For transistors N-MOS, cconnect the black clamp to the terminal S, connect the red clamp to the terminal D, add a positive voltage between G and S > Vbr.
For transistors P-MOS, connect the red clamp to the terminal S connect the black clamp to the terminal D. Add a negative voltage between G and S < -Vbr.

Specifications

Display: 120.000 counts

Display update: 4times per second
Voltage protection - max: 20V
Current protection - max: 0,5A
Internal battery : LiIon – 3.7V, 2000mAh, 18650 case
Power consumption:
< 60mA – range 10 Ω and higher, backlight is off ;
<160mA - range 1 Ω , backlight is off
< 10mA in low power mode

Keep batteries charged to at least 50%!

Keyboard

Menu/Select	Hold/ Edit/Save	▲
Range	Calculate/ Digit	▼