

SUNWA

YS-360TR_{E-B} MULTITESTER

INSTRUCTION MANUAL

Appearance and parts names

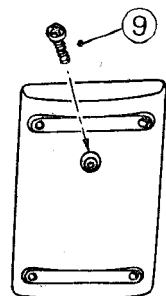
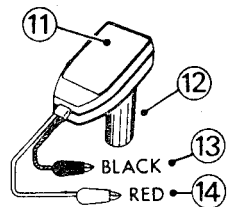
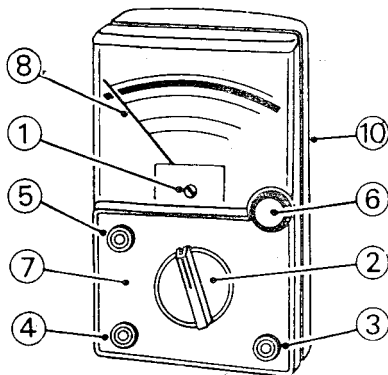


Fig. 1



◀ Optional accessory

- | | |
|--------------------------------------|-----------------------------|
| ① Indicator zero corrector | ⑧ Indicator pointer |
| ② Range selector switch knob | ⑨ Rear case bolt |
| ③ Measuring terminal + | ⑩ Rear case |
| ④ Measuring terminal -COM (common) | ⑪ Connector for hFE test |
| ⑤ OUTPUT (series condenser) terminal | ⑫ Connection pin to tester |
| ⑥ 0Ω adjusting knob | ⑬ Transistor base clip |
| ⑦ Panel | ⑭ Transistor collector clip |

SPECIFICATION

DC VOLTAGE

Ranges:

0.1—0.5—2.5—10—50—250—1000V

Accuracy at FSD : 4%

Sensitivity : 20kΩ/V

Extension : 25kV (with HV probe extra)

AC VOLTAGE:

Ranges:

10—50—250—1000V

Accuracy at FSD: 5%

Sensitivity 9KΩ/V

Decibelmeter : -10 to +50dB

0 dB = 1mw/600Ω

DC CURRENT

Ranges:

50uA (at 0.1VDC position), 2.5, 25mA, 0.25A

Accuracy at FSD: 3%

Volt Drop : 250mV

RESISTANCE:

Ranges:

×1—0.2Ω up to 2kΩ, Midscale, at 20Ω

×10—2Ω up to 20KΩ, Midscale at 200Ω

×100—20Ω up to 200KΩ, Midscale at 2KΩ

×1K—2KΩ up to 2MΩ, Midscale at 20KΩ

×10K—2KΩ up to 20MΩ, Midscale at 200KΩ

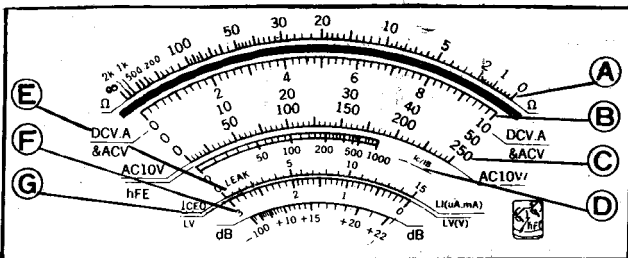
ICEO 150μA—15mA—150mA

hFE 0—1000 (with connector extra)

Size 152 × 123 × 41mm

Weight 280g

REFERENCE TABLE FOR READING



Test	Range Position	Scale to read	Multiplier
DC Volt	DC 0.1V	B 10	$\times 0.01$
	0.5V	B 50	$\times 0.01$
	2.5V	B 250	$\times 0.01$
	10V	B 10	$\times 1$
	50V	B 50	$\times 1$
	250V	B 250	$\times 1$
Ac Volt	1000V	B 10	$\times 100$
	AC 10V	C 10	$\times 1$
	50V	B 50	$\times 1$
	250V	B 250	$\times 1$
DC Current	1000V	B 10	$\times 100$
	DC 50μA	B 50	$\times 1$
	2.5mA	B 250	$\times 0.01$
	25mA	B 250	$\times 0.1$
Resistance	0.25A	B 250	$\times 0.001$
	$\times 1$	A	$\times 1$
	$\times 10$	A	$\times 10$
	$\times 100$	A	$\times 100$
	$\times 1K$	A	$\times 1000$
BUZZ	$\times 10K$	A	$\times 10000$
	The buzzer buzzes in the range of 0 to about 10KΩ		
Decibe $\times 1$	AC 10V	G	$\times 1$
	50V	G	$\times 1 + 14dB$
	250V	G	$\times 1 + 28dB$
I_{rms}	$\times 1$	E	$\times 1$ (for big TR)
	$\times 10$	E	$\times 1$ (for small TR)
hFE	$\times 10$	D	$\times 1$
Diode	$\times 1K$	E	$\mu A \times 10$
	$\times 10$	F	$\times 1$
	$\times 1$	F	$mA \times 1$
		F	$mA \times 10$
		F	$\times 10$

OPERATION

Ω TEST

- (1) Plug the test leads into COM and + sockets
- (2) Place the range selector to a prescribed range position.
- (3) Short the test leads and turn 0Ω ADJ to set the pointer to zero position.
- (4) Make sure that there is no voltage across the circuit to be tested.
- (5) Connect the test leads to the tested resistor and read the scale in accordance with the reference table.

DCV TEST

- (1) Plug the red test lead into the + socket and the black one into the - COM.
- (2) Set the range selector to a selected DCV range position
- (3) Connect the red test lead to the positive polarity of the circuit tested and the black one to the negative.
- (4) Read the DCV A scale referring the reference table

ACV TEST

- (1) Plug the red test leads into the + socket and the black into the - COM socket.
- (2) Set the range selector to a chosen ACV range position.
- (3) Connect the test leads to the circuit being tested regardless of the polarities.
- (4) Read ACV scale with the reference table.

DCA TEST

Plug the red test lead into the + socket and the black into the - COM.

- (2) Set the range selector at a selected DCA range position.
- (3) Connect the red test lead to the positive polarity of the circuit tested and the black into the negative.
- (4) Read the DCV A scale converted with the reference table.

ACV TEST ON OUTPUT TERMINAL

- (1) Plug the red test lead into the OUTPUT socket and the black one into the -COM.
- (2) Set the range selector at the selected range position.
- (3) Connect the test leads to the circuit to be tested and read the scale in the same manner as ACV test. Such a measurement is made to block the DC voltage which presents in the same circuit and must be cut out so that AC voltage can be read alone.

CONTINUITY TEST (BUZZ)

Set the range selector knob to BUZZ, apply the test lead pins to two points to be tested, and test continuity. Then, the buzzer will buzz at between 0 and about 10 K Ω . It is impossible to test a point where voltage is being applied.

TRANSISTOR TEST

1. ICEO (LEAKAGE CURRENT) TEST.

- 1) Plug the test leads into + and -COM sockets.
- 2) Set the range selector to $\times 10$ (15mA) for small size transistor, or to $\times 1$ (150mA) for big size transistor.
- 3) Adjust 0 Ω ADJ to set the pointer to zero position of the Ω scale.

4) Connect the transistor with the tester:

For NPN transistor, the 'N' terminal of the tester is connected with the COLLECTOR(C) of the transistor and the 'P' terminal with the EMITTER(E) of the transistor.

For PNP transistor, reverse the NPN transistor connection.

- 5) Read I_{ceo} range. If the pointer is not within the LEAK zone or the pointer moves up near to the full scale, the transistor tested is not good. Otherwise it is a good transistor.

2. hFE (DC amplification) test

- (1) Set the range selector to $\times 10$.
- (2) Adjust 0 Ω ADJ to adjust the pointer to zero position.
- (3) Connect the transistor to the tester:
For NPN transistor, A) connect the 'P' terminal of the tester to the emitter of the transistor with the hFE test lead, B) Plug the hFE connector into 'N' terminal and connect its red clip to the collector and the black one to the base of the transistor.
For PNP transistor, A) connect the 'N' terminal of the tester to the emitter of the transistor, B) plug the hFE connector into the "P" terminal and connect the clips in the same way as for NPN transistor connection.

- (4) Read the hFE scale. The value of the reading is I_c / I_b which is the DC amplification degree of the transistor tested.

3. DIODE TEST

(1) Set the range selector at selected range position.
 — $\times 1K$ for $0-150\mu A$, $\times 10$ for $0-15mA$, $\times 1$ for $0-150mA$ test.

(2) Connect the diode to the tester.

For I_F (forward current) test connect the "N" terminal of the tester to the positive polarity of the diode and the "P" terminal to the negative polarity of the diode. For I_R (reverse current) test, reverse the connection.

(3) Read I_F or I_R on the LI scale provided.

(4) Read the linear (forward) voltage of the diode on the LV scale while testing I_F or I_R .

DCV(20K Ω /V)

DCmA-

Ω

ACV(9K Ω /V)

