

HAKKO 192

SOLDERING TESTER

Instruction Manual

Thank you for purchasing the HAKKO 192 Soldering Tester. Be sure to read these instructions before using your HAKKO 192, and keep the instructions handy for reference during use.

The HAKKO 192 cannot be used with ungrounded soldering irons. Ground the soldering iron by plugging it into a grounded (3-hole) outlet.

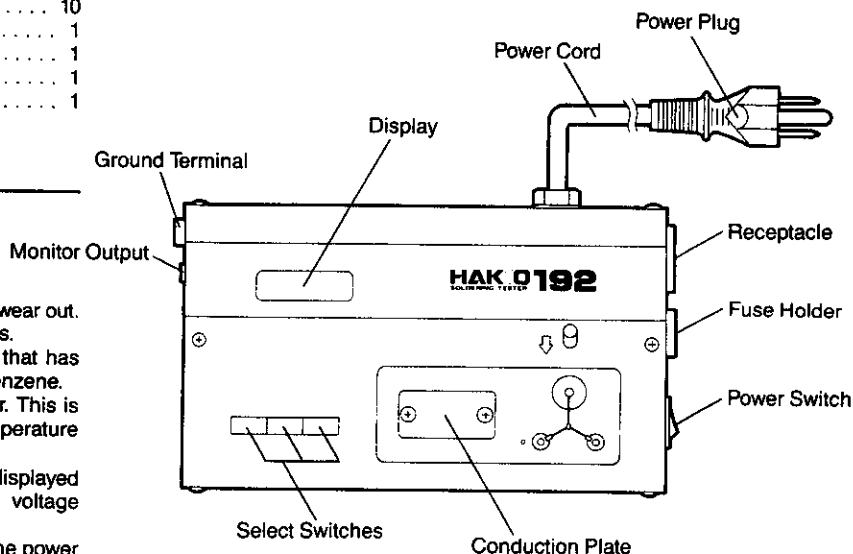
Package Contents

HAKKO 192	1
Temperature Sensors	10
Ring Plate	1
Ground Clip	1
Midzet Fuse (5A)	1
Instruction Manual	1

Precautions

1. Handle the temperature sensor carefully. The temperature sensor is extremely thin $\phi 0.2$ and may break if pressed with too much force.
2. The measuring point on the temperature sensor has been specially processed, but repeated measurements will cause it to wear out. Replace it promptly to ensure the accuracy of measurements.
3. When there is flux on the terminal, wipe it away with a cloth that has been moistened with alcohol. Do not use paint thinner or benzene.
4. Before measuring, coat the soldering iron tip with fresh solder. This is necessary to ensure proper contacting between the tip, the temperature sensor, and the conduction plate.
5. Instead of the overrange code $\overline{-1}$, a value will sometimes be displayed when the tip is not touching the conduction plate during voltage measurement. This is normal.
6. During voltage and resistance measurement, make sure that the power cord has been inserted into a grounded (3-hole) outlet.
7. When voltage and resistance measurements are greater than the prescribed values, check the tip and make sure the fastening screws of soldering iron are not loose, then measure again.

Part Names



Specifications

Name	HAKKO192	
Resolution	Temperature	1°C/1°F
	Voltage	0.1 mV
	Resistance	0.1Ω
Measurement Range	Temperature	0 ~ 600°C/0 ~ 1200°F
	Voltage	0 ~ 90 mV (AC)
	Resistance	0 ~ 90Ω
Accuracy	Temperature	± 3°C (in 300 ~ 500°C range) ± 6°F (in 572 ~ 932°F range)
	Voltage	± (5% + 1 digit)
	Resistance	± (5% + 1 digit)
Temperature Sensor	K(CA) thermocouple	
Display	Liquid crystal display (LCD)	3-1/2 digits
	Overrange	$\overline{-1}$
Monitor Output	Temperature	1 mV/°C (°F)
	Voltage	10 mV/mV
	Resistance	10 mV/Ω
	Burnout	-7V (max.)
Voltage Measurement	Conforms to MIL-STD-2000	
Power Consumption	1W	
Dimensions	200(W) × 50(H) × 120(D) [7.9(W) × 2.0(H) × 4.7(D) in]	
Weight	Approximately 1.1 kg (2.4 lbs.)	
Operating Environment	0 ~ 40°C/0 ~ 104°F 0 ~ 80 R.H.	

*Specifications are subject to change without notice.



HAKKO CORPORATION

HEAD OFFICE

4-5, SHIOKUSA 2-CHOME, NANIWA-KU, OSAKA, 556 JAPAN
TEL: (06) 561-3225 FAX: (06) 561-8466
TLX: HAKKOOSA J65274

OVERSEAS AFFILIATES

U.S.A.: AMERICAN HAKKO PRODUCTS, INC.
CORPORATE OFFICE
25072 ANZA DR. SANTA CLARITA, CA 91355, U.S.A.
TEL: (805) 294-0090 FAX: (805) 294-0096
S'PORE: HAKKO PRODUCTS PTE., LTD.
1, GENTING LINK #02-04, PERFECT INDUSTRIAL
BUILDING, SINGAPORE 1334
TEL: 7482277 FAX: 7440033

HONG KONG: HAKKO DEVELOPMENT CO., LTD.
ROOM 804, EASTERN HARBOUR CENTRE,
28 HOI CHAK STREET, QUARRY BAY, HONG KONG
TEL: 811-5588 FAX: 590-0217

PHILIPPINES: HAKKO PHILS TRADING CO., INC.
NO. 415 WINDSOR TOWER CONDOMINIUM,
163 LEGASPI ST., LEGASPI VILLAGE MAKATI,
METRO MANILA, PHILIPPINES
TEL: 2-810-76-49 FAX: 2-810-76-49

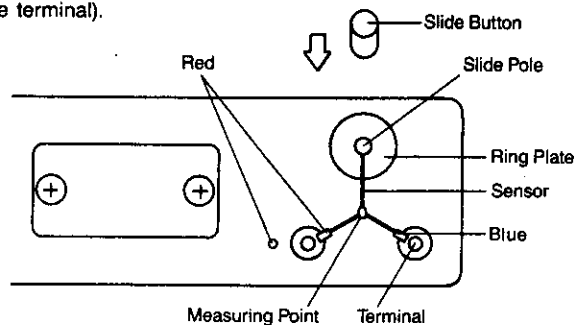
MALAYSIA: HAKKO PRODUCTS SDN BHD
MALAYSIA HEAD OFFICE: PETALING JAYA
LOT 21/2 THE HIGHWAY CENTRE JALAN 51/205 46050
PETALING JAYA WEST MALAYSIA
TEL: 03-7941333 FAX: 03-7911232

PENANG BRANCH: TEL: 04-846669 FAX: 04-848628
JOHORE BAHRU BRANCH: TEL: 07-367766 FAX: 07-374655

■ Procedure

① Preparations

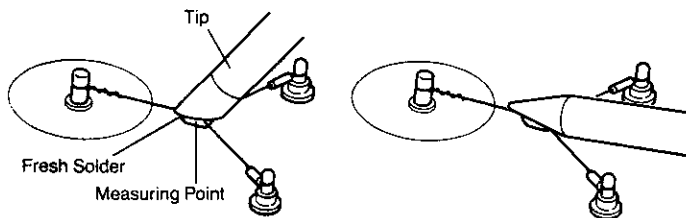
1. Attach the ring plate to the slide pole.
2. Move the slide button in the direction indicated by the arrow in the figure below, then attach the sensor as shown in the drawing (place the red end on the side with the red dot, and blue end on the another side of the terminal).



3. Insert the power plug into the outlet and set the POWER switch to the ON position.
 - Be sure to insert the power plug into a grounded (3-hole) outlet.
 - Power will be supplied to the outlet on the HAKKO 192 only when the unit is plugged in and the POWER switch is set to the ON position.

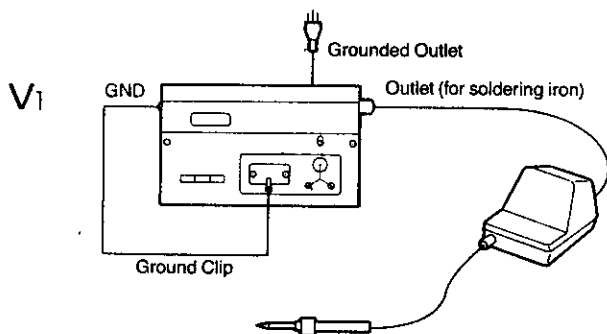
② Measuring the Tip Temperature

1. Press the [TEMP] select switch.
2. Clean the tip and coat it with fresh solder.
3. Quickly place the tip on the measuring point on the temperature sensor. As shown in the figure below, place the tip properly on the measuring point in accordance with the type of tip being used, as if you were soldering that point.



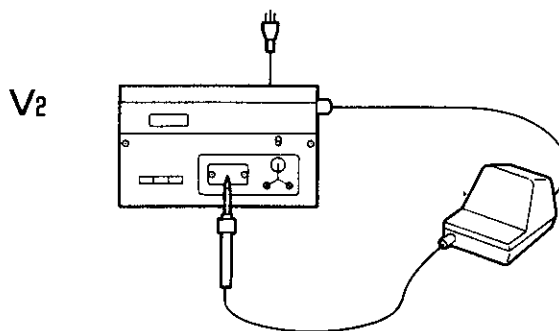
4. The value shown in the display will increase; wait two to three seconds for it to stabilize.

③ Measuring the Difference in Potential Between Tip and Ground



1. Plug in the soldering iron by inserting the plug on the power cord into the outlet on the HAKKO 192.
2. Wait until the tip reaches the set temperature. If the soldering iron is a variable tip temperature model, set temperature to the maximum.
3. Press the [mV] select switch.
4. Using the ground clip, connect the ground terminal (GND) on the HAKKO 192 to the conduction plate.
5. Read the value on the display. (V_1)

6. Disconnect the ground clip.
7. Clean the tip and coat it with fresh solder.
8. Place a tiny bead of solder in the center of the conduction plate and heat the bead until the solder has completely melted.
9. When the display has stabilized, read the value. (V_2)
If the soldering iron power plug uses an alligator clip rather than a 3-prong grounded plug, connect it to the GND terminal with the ground clip and then perform measurements.
10. Subtract V_1 from V_2 to derive the difference in potential between the tip and the ground. $V = V_2 - V_1$



④ Measuring the Resistance Between Tip and Ground

1. Press the [OHM] select switch. Using the same procedure as when measuring the difference in potential, measure the values for R_1 and R_2 (which correspond to V_1 and V_2 in that procedure).
2. Subtract R_1 from R_2 to derive the resistance between the tip and ground. $R = R_2 - R_1$

⑤ Overrange Display

The overrange code is -1 . An overrange occurs during temperature measurement when the temperature sensor is not attached, and during voltage and resistance measurement when the tip is not in contact with the conduction plate.

■ Monitor Output

- The HAKKO 192 converts measurements to DC voltage values and outputs these values from the monitor output terminal. See the "Specifications" table on the previous page for voltage values.
- Be careful when using monitor output; as measurements are converted to DC voltage values, monitor output may not match the values shown on the display. There will also be some error on the part of the instrument to which these values are output.

■ Ground Terminal (GND)

- The ground terminal (GND) is connected to the ground line for the soldering iron outlet on the HAKKO 192. It is used when deriving the values for V_1 and R_1 during measurement of the difference in potential and the resistance, respectively, between the tip and ground.
- When using a type of soldering iron that is grounded with an alligator clip, connect the clip to the GND terminal.

■ Maintenance and Calibration

- When there is flux on the terminal, wipe it off with a cloth moistened with alcohol. DO NOT use paint thinner or benzene for this purpose.
- To replace the conduction plate, remove the set screws.
- Repeated measurements will wear out the temperature sensor. When it is important that measurements be absolutely accurate, be sure to use a new temperature sensor.
- The life of the temperature sensor will vary depending on the temperature at which measurements are made and the type of solder and flux being used. In general, temperature sensors can be used for 50 measurements. Replace the sensor as soon as the measuring point wears out.
- HAKKO can calibrate the instrument for a nominal fee. Please contact your dealer for further information.

■ Part Replacement and Options

No.	Name
191-211	Sensor [K(CA) Thermocouple/10 pcs.]
B1752	Conduction Plate
B1753	Monitor Cord

HAKKO 192

Additional Information for Conduction Wire and Optional Temperature Probe

Conduction Wire(No.B1950)

*Please use Conduction Wire in the following case.

*Measuring the Difference in Potential Between Tip and Ground.

*Measuring the Resistance Between Tip and Ground.

*When using fine tips at low temperatures and the solder is hardly melted on the conduction plate.

Attaching the Conduction Wire

1. Remove the 2 screws which secure the conduction plate.
2. Remove conduction plate.
3. Secure conduction wire(No.B1950) with same screws in place of conduction plate.

Note: Measuring with conduction plate meets MIL standard, always use the conduction plate except for the above written cases.

Option

Temperature Probe(No.A1310)

For measuring the temp. of solder in the soldering pot,remove the temp. sensor and connect to the terminal.(Place the red end on the side with the red dot,and blue end on the another side of the terminal.)

Dip the tip of probe into the solder.

温度プローブ取扱説明書

温度プローブ (No.A1310)

はんだ槽用のプローブです。従来の温度センサーをはずし温度プローブのコネクター赤、青の色を合わせ、191/192本体のターミナルに差し込みます。プローブの先をはんだの中に入れ、測定します。

Temperature Probe / Instruction Manual

Temperature Probe(No.A1310)

For measuring the temp. of solder in the soldering pot. Remove the temp. sensor and connect to the terminal of 191/192. (Place the red end on the side with the red dot, and blue end on the another side of the terminal.) Dip the tip of probe into the solder.



白光株式会社

大阪/〒556 大阪市浪速区橋東2丁目4番5号
TEL: 大阪営業 (06) 561-1574 (代) FAX: (06) 568-0821
海外営業 (06) 561-3225 (代) FAX: (06) 561-8466

東京/〒101 東京都千代田区神田佐久間河原85号地
TEL: (03) 3866-1161 (代) FAX: (03) 3866-1164

仙台/〒983 宮城県仙台市宮城野区榴岡4丁目13番1号
(サンアドバンスビル3F)
TEL: (022) 296-5481 FAX: (022) 296-5480

工場/堺・上月

HAKKO CORPORATION

HEAD OFFICE

4-5, SHIOKUSA 2-CHOME, NANIWA-KU, OSAKA, 556 JAPAN
TEL: (06) 561-3225 FAX: (06) 561-8466

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MALAYSIA HEAD OFFICE: PETALING JAYA

TEL: 03-7941333 FAX: 03-7911232