

FR-810B ESD SAFE

Hot-Air SMD Rework Station **Digital**

Nozzle included



- High volume airflow and high output for a various kinds of rework
- Full digital control of temperature, airflow, and time
- Simple nozzle removal and easy maintenance
- The vacuum pick-up function with an indicator ensures safety for the components and P.W.B.

FR-811 ESD SAFE

Hot-Air SMD Rework Station **Digital**

Nozzle not included



- Possible to make full-scale thermal profiles with 6-zone hot air and a bottom heater
- Possible to measure and record temperature of components and P.W.B. with type K thermocouple
- The dedicated software to link a station and a computer for easy and quick settings
- Easy data transfer through an USB cable

Common Features of FR-810B and FR-811

New user friendly functions for SMD rework

Pickup indicator

The indication comes up and the moment of picking up will be visible.



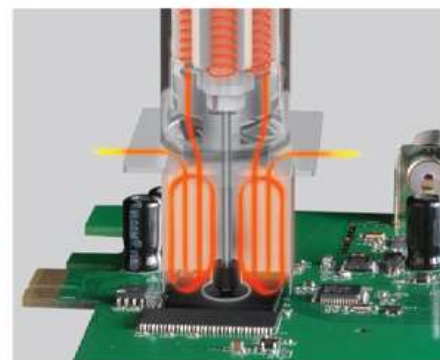
Vacuum pickup function

This can avoid an error to peel off the land by removing components with excessive force.



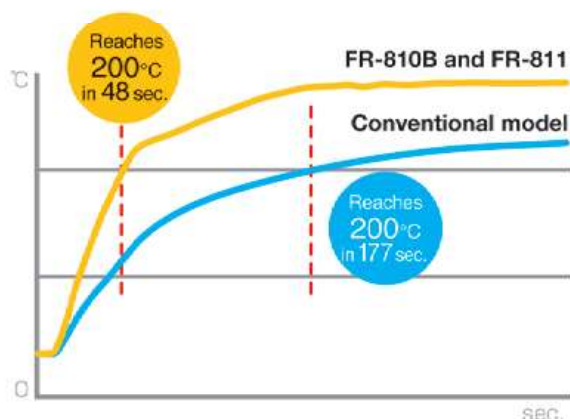
New type of nozzles

The new nozzles improve work efficiency with uniform heating (only with BGA nozzles).



Efficiency improvement

The high volume airflow and high output of FR-810B and FR-811 make it possible to perform the same work in only one-third of the time required when using a conventional model. This reduces the thermal impact on boards and components.



Test criteria

Model	FR-810B	Conventional model
Measurement method	Examination of time taken for connector sections soldered onto a ceramic board to be heated 200°C	
Board	Ceramic board	
Component used	Connector	
Nozzle shape	N51-02	A1130
Temperature setting	800°C	500°C
Air flow setting	9 (115 L/min.)	20 L/min.

Quick-change N51 nozzles



Simple heater replacement



Specifications

Port No.	FR-810B	FR-811
Power consumption	700 W (100 V), 840 W (110 V), 820 W (120 V), 1100 W (220 V), 1200 W (230 V), 1300 W (240 V)	
Temperature range	50 to 600°C	

Station

Power consumption	30 W	
Air flow*	1 to 9 (5 to 115 L/min.)	001 to 100% (5 to 115 L/min.)
Dimensions	160 (W) × 145 (H) × 220 (D) mm	
Weight	1.5 kg	

Handpiece

Power consumption	1170 W	
Standard nozzle	ø4 mm (No. N51-02)	—
Total length**	250 mm	
Weight**	180 g	

* Airflow capacity is rated as free flowing. Restrictions created by various nozzles may reduce the maximum airflow capacity.

** Without cord

Packing List

FR-810B	Station with handpiece, Nozzle (ø4 mm), Handpiece holder, Vacuum pipe control knob L (with screw), Pads (qty 2 each of ø3 mm, ø5 mm, ø7.6 mm), Heat resistant pad, Power Cord, Temperature distribution chart, Instruction manual
FR-811	Station with handpiece, Grip stand assembly, Vacuum pipe control knob L (with screw), Pads (qty 2 each of ø3 mm, ø5 mm, ø7.6 mm), USB cable, Software (CD-ROM), Thermocouple, Heat resistant pad, Power Cord, Temperature distribution chart, Instruction manual

Option

Part No.	Name	Specifications
C5027	Board holder	—
C5028	Grip fixture M	With hexagon wrench, o-ring and tray
C5029	Grip fixture L	With hexagon wrench and o-ring
B5098	Board clip	—
B5136	Board support unit	—
C5013*	Bottom heater	For FR-811

* Please ask about correct part number to the nearest HAKKO dealer or distributor in your area.

SMD Rework Station

Common Features of FR-810B and FR-811

Auto sleep and auto shutoff features

To ensure safety and conserve power, when the handpiece is placed in the handpiece holder, the auto sleep function is activated and it starts cooling automatically. If the handpiece has not been removed from the handpiece holder (example: using it in a rework fixture) and after it has been idle for 30 minutes, auto shutoff function is activated. It is automatically powered off. Access to settings can be restricted via the password function for easy management.



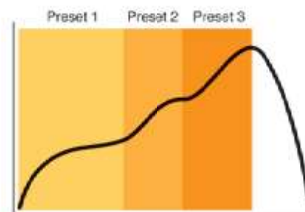
Handpiece holder No.B5048 in the picture can be attached to FR-811 as well (option).

Preset mode

	Preset 1	Preset 2	Preset 3	Preset 4	Preset 5
Temperature (°C)	250	300	350	400	450
Time (sec.)	100	80	50	120	150
Airflow (level)	6	7	8	4	5

Chain presets function for making a simple thermal profile

The chain presets function is to make a simple thermal profile by combining several preset conditions (up to 5 steps).



	Temperature (°C)	Time (s)	Airflow
Preset 1	250	100	6
Preset 2	300	40	6
Preset 3	350	50	6
Preset 4	100	000	6
Preset 5	100	000	6

* Presets 4 and 5 have been set to '000', so they are skipped.

Features of FR-811

Interface designed for intuitive operation. Possible to link to a PC.



Easy-to-read LCD



Easy-to-operate multi-direction control knob



A USB device terminal for easy data transfer

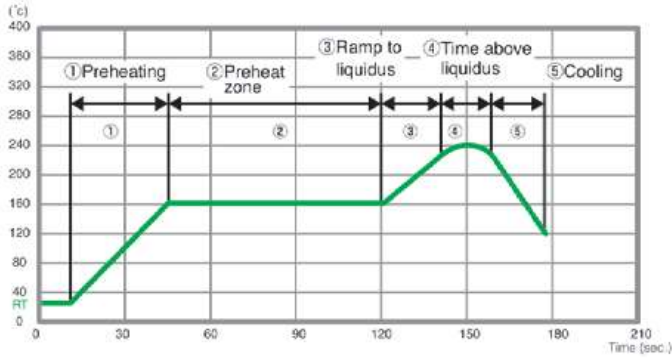


Link to a PC (A USB I/F terminal available)

The functions needed for SMD rework are in a compact body.

Possible to make full-scale thermal profiles with 6-zone hot air and a bottom heater

A basic thermal profile is composed of the 5 parts shown below. FR-811 can provide 6 zones in which temperature, time, and airflow are controlled. Therefore FR-811 can make a full-scale thermal profile which is close to reflow profiles made by a reflow oven.



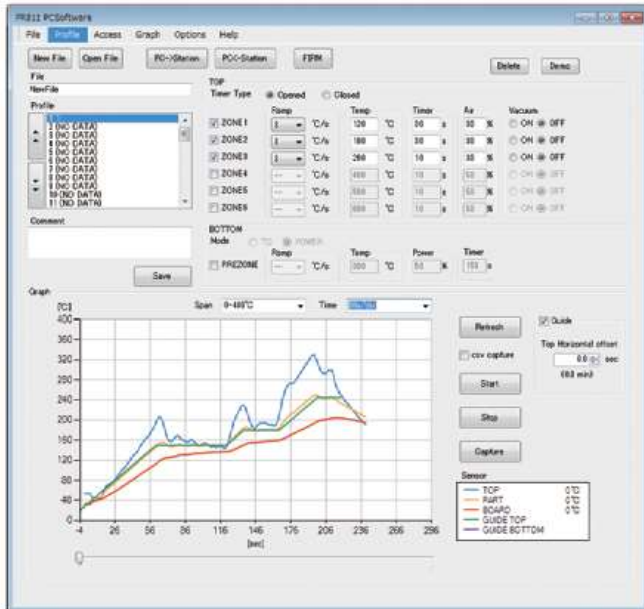
Record thermal data

By connecting a thermocouple included with FR-811, the temperature of the component or circuit board can be measured and recorded. In addition, if "TC LINK" is set, the heater output can be automatically controlled so that the temperature of the thermocouple attached to the component or circuit board follows the set profile.



Operation on a PC for various settings

By connecting FR-811 and a computer with a USB cable and using the dedicated software which comes as standard, a set thermal profile and actual temperature change can be shown in a graph in real time. The set values and graph can be saved in csv format.



Linked operation with the bottom heater

FR-811 can control on/off timing and output of the bottom heater which is available optionally.



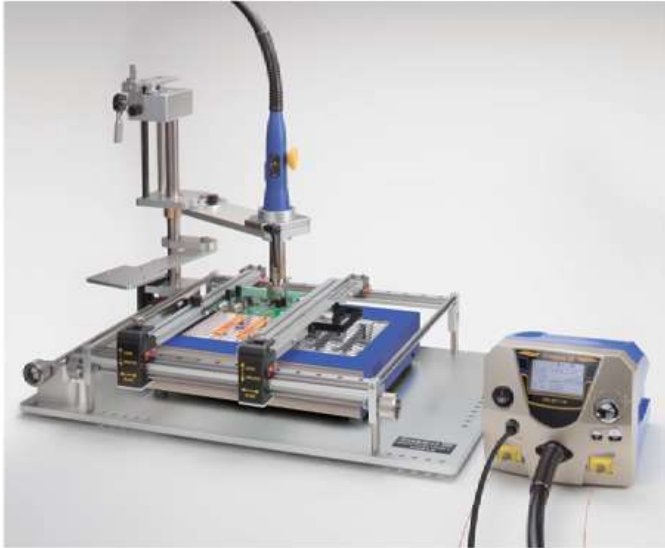
SMD Rework Station

Common Features of FR-810B and FR-811

Assembly of a low-cost SMD rework system

A low cost rework system can be assembled with a bottom heater, a grip fixture, and a board holder.

* The following pictures are set-up examples.



Option

Grip Fixture L

No.C5029



A board holder can be easily attached to the large baseplate.

Grip Fixture M

No.C5028



Recommended if a bottom heater is not required or in case of use of a bottom heater other than the dedicated model for FR-811.

The dedicated bottom heater for FR-811



Equipped with carbon heaters. Heating area is divided into 2 sections.

Board Holder

No.C5027



Makes it easy to set and remove a P.W.B. and to make fine adjustments after setting.

Board Clip

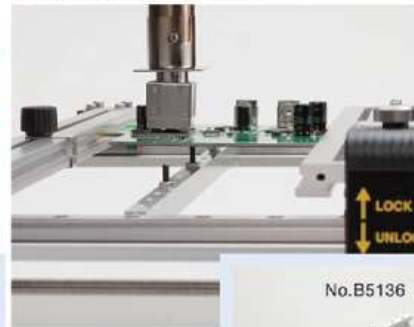


Accepts even irregular-shaped P.W.B.

No.B5098



Board Support Unit



Supports P.W.B. from underneath to minimize its warping.

No.B5136



Optional Nozzles (Quick-change type) for FR-810B, FR-811 and FR-702

Unit: mm

Single	N51-01* Single 2.5	N51-02 Single 4	N51-03 Single 5.5	N51-04 Single 7	N51-05* Bent Single 1.5 x 3
BGA	N51-10 BGA 4 x 4	N51-11 BGA 6 x 6	N51-12 BGA 8 x 8	N51-13 BGA 10 x 10	N51-14 BGA 12 x 12
	N51-15 BGA 14 x 14	N51-16 BGA 15 x 15	N51-17 BGA 17 x 17	N51-18 BGA 18 x 18	N51-19 BGA 20 x 20
	N51-20 BGA 22 x 22	N51-21 BGA 24 x 24	N51-22 BGA 27 x 27	N51-23 BGA 29 x 29	N51-24 BGA 35 x 35
	N51-25 BGA 38 x 38	N51-26 BGA 40 x 40			

* The vacuum function does not operate with these nozzles.

Single nozzle set (N51-01, N51-03, N51-04, and N51-05) is also available.

* N51-02 included with FR-810B

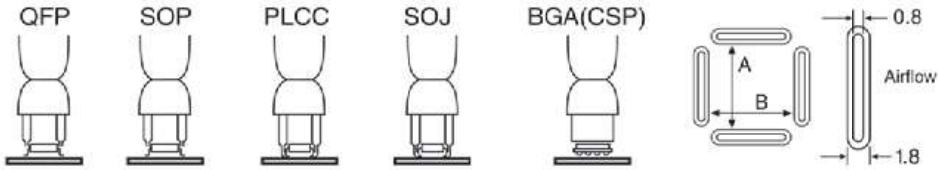
No. N51-50



SMD Rework Station
















Optional Nozzles (Conventional type) for FR-810B, FR-811 and FR-702

Unit: mm














The size in each description indicates the size of the package.










QFP and BQFP

A1125B QFP 10 × 10  A: 10.2 B: 10.2	A1262B QFP 12 × 12  A: 12.2 B: 12.2	A1126B QFP 14 × 14  A: 15.2 B: 15.2	A1128B QFP 14 × 20  A: 15.2 B: 21.2	A1127B QFP 17.5 × 17.5  A: 19.2 B: 19.2
A1261B QFP 20 × 20  A: 20.2 B: 20.2	A1129B QFP 28 × 28  A: 29.7 B: 29.7	A1263B QFP 28 × 40  A: 27.7 B: 39.7	A1265B QFP 32 × 32  A: 32.2 B: 32.2	A1203B QFP 35 × 35  A: 35.2 B: 35.2
A1264B QFP 40 × 40  A: 40.2 B: 40.2	A1215B QFP 42.5 × 42.5  A: 42.5 B: 42.5	A1180B BQFP 17 × 17  A: 18.2 B: 18.2	A1181B BQFP 19 × 19  A: 19.2 B: 19.2	A1182B BQFP 24 × 24  A: 24.2 B: 24.2




SOP and TSOL

A1131* SOP 4.4 × 10  4.8	A1132* SOP 5.6 × 13  5.7	A1133* SOP 7.5 × 15  7.2	A1134* SOP 7.5 × 18  7.2	A1258B SOP 7.6 × 12.7  8.2
A1260B SOP 8.6 × 18  8.7	A1257B SOP 11 × 21  11.7	A1259B SOP 13 × 28  13.5	A1185B TSOL 13 × 10  11.9	A1186B TSOL 18 × 10  18.2
A1187B TSOL 18.5 × 8  18.5				



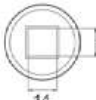






PLCC

A1188B PLCC 9 × 9 (20 pins)  A: 11 B: 11	A1140B PLCC 11.5 × 11.5 (28 pins)  A: 13 B: 13	A1141B PLCC 11.5 × 14 (32 pins)  A: 15 B: 13	A1139B PLCC 12.5 × 7.3 (18 pins)  A: 9 B: 14	A1135B PLCC 17.5 × 17.5 (44 pins)  A: 18.5 B: 18.5
A1136B PLCC 20 × 20 (52 pins)  A: 21 B: 21	A1137B PLCC 25 × 25 (68 pins)  A: 26 B: 26	A1138B PLCC 30 × 30 (84 pins)  A: 31 B: 31	A1189B PLCC 34 × 34 (100 pins)  A: 36.5 B: 36.5	



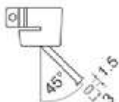

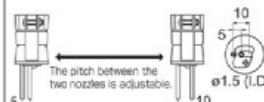
SOJ

A1214B SOJ 10 × 26 	A1183* SOJ 15 × 8 	A1184B SOJ 18 × 8 
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
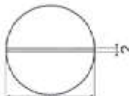
BGA

A1470 BGA 8 × 8 	A1471 BGA 12 × 12 	A1472 BGA 13 × 13 	A1473 BGA 15 × 15 	A1474 BGA 18 × 18 
A1475 BGA 27 × 27 	A1476 BGA 35 × 35 	A1477 BGA 38 × 38 	A1478 BGA 40 × 40 	

Single

A1124B* Single 2.5 	A1130* Single 4.4 	A1142B* Bent single 1.5 × 3 	A1190* Dual single 2.5 × 9.5 	A1325* Dual single ø1.5 × 5 to 10 Adjustable pitch 
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SIP

A1191* SIP 25L 	A1192* SIP 50L 
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* The vacuum function does not operate with these nozzles.