Thank you for purchasing the HAKKO FM-203 soldering station. Please read this manual before operating the HAKKO FM-203. Keep this manual readily accessible for reference.

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1. PACKING LIST AND PART NAMES

Please check to make sure that all items listed below are included in the package.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
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<tr>
<td>Power cord</td>
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</tr>
<tr>
<td>Control card</td>
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<tr>
<td>Heat resistant pad</td>
<td>1</td>
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<tr>
<td>Iron holder with tip cleaner</td>
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<tr>
<td>Connecting cable</td>
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<td>Instruction manual</td>
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<td>Card slot</td>
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<td>Joint band</td>
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<td>Connecting cable</td>
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<tr>
<td>Tip cleaner</td>
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<tr>
<td>Tip (not included)</td>
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</tr>
<tr>
<td>Sleeve assembly</td>
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<tr>
<td>HAKKO FM-2027 Connector assembly</td>
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<td>Power cord</td>
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<td>Heat resistant pad</td>
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<table>
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<td>T13-BCF2</td>
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<tr>
<td>T13-BCM2</td>
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<td>2BC型 溝付 半田メッキ1MM</td>
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<tr>
<td>T13-BCM3</td>
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<td>T13-BL</td>
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<td>BL型</td>
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<tr>
<td>T13-D08</td>
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<td>T13-D16</td>
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<td>T13-D24</td>
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<td>FM-2022用 ねじ付</td>
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<tr>
<td>B3413</td>
<td>こてホールダ組品</td>
<td>FM-2024用 ねじ付</td>
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</table>
2. SPECIFICATIONS

**HAKKO FM-203 soldering station**

- **Power Consumption**: 140 W
- **Temperature Range**: 200 to 450ºC (400 to 840ºF)
- **Temperature Stability**: ±5°C (±9°F) at idle temperature

**Station**

- **Output**: 24 V
- **Dimensions (W x H x D)**: 120 × 120 × 190 mm (4.7 × 4.7 × 7.5 in)
- **Weight**: 2.7 kg (5.9 lb.)

---

**HAKKO FM-2027**

- **Power Consumption**: 70 W (24 V)
- **Tip to Ground Resistance**: < 2 Ω
- **Tip to Ground Potential**: < 2 mV
- **Total Length (w/o cord)**: 188 mm (7.4 in.) with 2.4D tip
- **Weight (w/o cord)**: 30 g (0.067 lb./1.07 oz.) with 2.4D tip
- **Cord**: 1.2 m (4 ft)

* The temperature was measured using the FG-101 thermometer.
* This product is protected against electrostatic discharge.

---

**CAUTION**

This product includes such features as electrically conductive plastic parts and grounding of the handpiece and station as measures to protect the device to be soldered from the effects of static electricity. Be sure to observe the following instructions:

1. The handle and other plastic parts are not insulators, they are conductors. When replacing parts or repairing, take sufficient care not to expose live electrical parts or damage insulation materials.
2. Be sure to ground the unit during use.

* Specifications and design are subject to change without notice.

---

13. 部品リスト

### Option

<table>
<thead>
<tr>
<th>品番</th>
<th>品名</th>
<th>備考</th>
</tr>
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<tbody>
<tr>
<td>FM2022-02</td>
<td>モデルFM-2022</td>
<td>24V 140W</td>
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<td>FH2000-06</td>
<td>こて/FM-2024</td>
<td>スポンジ付</td>
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※1：スリープ機能付にてホルダー、中継コード、耐熱バッド、クリーニングスポンジ付き
※2：スリープ機能付にてホルダー、中継コード、耐熱バッド、599B付
※3：スリープ機能付にてホルダー、中継コード、クリーニングスポンジ付き

### 日本語

#### モデルFM-2022 用こて先

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### モデルFM-2024 用ノズル

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</table>
3. WARNINGS, CAUTIONS, NOTES AND EXAMPLES

Warnings, cautions and notes are placed at critical points in this manual to direct the operator's attention to significant items. They are defined as follows:

⚠️ **WARNING**: Failure to comply with a WARNING may result in serious injury or death.

⚠️ **CAUTION**: Failure to comply with a CAUTION may result in injury to the operator, or damage to the items involved.

**NOTE**: A NOTE indicates a procedure or point that is important to the process being described.

**EXAMPLE**: An EXAMPLE is given to demonstrate a particular procedure, point or process.

⚠️ **CAUTION**

When power is ON, tip temperatures will be between 200 and 450°C. To avoid injury or damage to personnel and items in the work area, observe the following:

- Do not touch the tip or the metal parts near the tip.
- Do not allow the tip to come close to, or touch, flammable materials.
- Inform others in the area that the unit is hot and should not be touched.
- Turn the power off when not in use, or left unattended.
- Turn the power off when connecting the HAKKO FM-2027 or storing the HAKKO FM-203.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.

⚠️ **CAUTION**

To prevent accidents or damage to the HAKKO FM-203, be sure to observe the following:

- Do not use the HAKKO FM-203 for applications other than soldering.
- Do not strike the iron against hard objects to remove excess solder. This will damage the iron.
- Do not modify the HAKKO FM-203.
- Use only genuine Hakko replacement parts.
- Do not allow the HAKKO FM-203 to become wet, or use it with wet hands.
- Do not bend or damage the control card. If the card does become damaged, do not force the card into the station slot.
- Remove power and iron cords by holding the plug – not the wires.
- Be sure the work area is well ventilated. Soldering produces smoke.
- While using HAKKO FM-203, don’t do anything which may cause bodily harm or physical damage.
A. Iron holder

Loosen the adjusting screws to change the angle of the iron receptacle as you like, then tighten the screws.

1. Assemble as shown:
   - Insert the holder assembly securely into the Iron holder base.

2. Operation:
   First, remove any excess solder from the tip by thrusting the tip into the cleaning wire.
   (Do not wipe the tip against the wire. This may cause molten solder to spatter.)
   When the wire becomes dirty or loaded with solder, turn the wire until a clean surface is presented.
   When changing the cleaning wire, lift the case top vertically to prevent solder debris from falling out.

3. Place the spare tips in the tip tray.

Use of the sleep function
When using the sleep function, insert one end of the connecting cable into the jack at the back of the iron holder and the other end into the jack at the back of the soldering station to connect them.

CAUTION
- Be sure to turn off the power before connecting or disconnecting the connecting cable.
- Securely insert the connecting cable all the way in to the jack.

B. Connector cord

Pass the connector cord through the hole in the heat resistant pad.
C. Soldering station

**CAUTION**
Be sure to unplug the cord by holding the plug.

- The HAKKO FM-203 detects when the iron is removed from the iron holder and sends this data to the station via the connecting cable. That data is then used for various functions.

**NOTE:**
The channel for connecting the connecting cable to the station must be the same as the channel for connecting the iron set in the iron holder.

**CAUTION**
Securely insert the connecting cable all the way into the jack.

1. Connect the power cord to the power receptacle on the rear of the station.
2. Connect the connector cord to the receptacle.
3. Set the iron in the iron holder.
4. Plug the power cord into a grounded wall socket.

**CAUTION**
This unit is protected against electrostatic discharge and must be grounded for full efficiency.

---

1. Connect the power cord to the power receptacle on the rear of the station.
2. Connect the connector cord to the receptacle.
3. Set the iron in the iron holder.
4. Plug the power cord into a grounded wall socket.

**CAUTION**
This unit is protected against electrostatic discharge and must be grounded for full efficiency.
5. OPERATION

Controls and displays

The front panel of the HAKKO FM-203 has four controls.

**......** End of sequence signal (terminates a phase of a data entry mode). When pressed for less than one second, displays settings already stored.

**......** Initiates a data entry mode.

**......** Changes the display to channel D.
  ● Press and hold to turn ON or OFF the temperature display for channel D and the power to the iron tip.
  ● Increases the displayed value when a setting is changed.

**......** Changes the display to channel S.
  ● Press and hold to turn on or off the temperature display for channel S and the power to the iron tip.
  ● Decreases the displayed value when a setting is changed.

Displays

The HAKKO FM-203 has a three-digit display element.

Depending on the selected mode, it will display:

● Sensor temperature (of the iron tip)

● Data entry:
  Selected quantity (See the data entry procedures.)

● Temperature scale:
  °C or °F, depending on selection

● Error detection (See ERROR MESSAGES.)

An audible buzzer is provided to alert the operator:

● When the station has reached the set temperature, the buzzer will sound once. (Default setting)

● When the low temperature threshold has been crossed, the buzzer will sound continuously. This buzzer will shut off when the sensed temperature returns to the acceptable range.

● When a foreign substance, an incompatible tip, or the soldering end of the tip is inserted into the HAKKO FM-2027, the display will blink and the buzzer will sound continuously.

● When the auto-power shutoff function is activated and power to the heater is shut off, the buzzer sounds three times.

**NOTE:**

Holding down the button of the used channel (D/UP or S/DOWN) turns off the power and changes the display.

Holding down the button again turns on the power.

Holding down the button of the unused channel changes the display only.
Channel operation

You can connect the HAKKO FM-2027 or MODEL FM-2022/2023/2024 to the channel D connector, and the HAKKO FM-2027 or MODEL FM-2024 to the channel S connector.

<table>
<thead>
<tr>
<th>Model</th>
<th>Channel D</th>
<th>Channel S</th>
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<td>☐</td>
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<td>FM-2027</td>
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<td>☐</td>
</tr>
<tr>
<td>FM-2029</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

The displays of the channel display lamps differ depending on the use of the channels.

Note:
When the temperature rises for one channel and a grip is connected to the other channel, it may take time to correctly determine the temperature. This is not a malfunction.

Model (Ch. D) | Channel | Dual channel control | Dual channel control
-------------|---------|----------------------|----------------------
FM-2022      | Display side | Lights | Lights |
|             | Non-display side | Off    | Off    |
FM-2023      | Display side | Lights | Lights |
|             | Non-display side | Off    | Off    |
FM-2024      | Display side | Blinks | Lights |
|             | Non-display side | Off    | Off    |
FM-2026      | Display side | Blinks | Lights |
|             | Non-display side | Off    | Off    |
FM-2027      | Display side | Blinks | Lights |
|             | Non-display side | Off    | Off    |
FM-2029      | Display side | Blinks | Lights |
|             | Non-display side | Off    | Off    |

* When dual channel control is off, one channel (either channel D or S) is controlled. The other channel (not being displayed) automatically enters sleep mode. The setting can be switched between on and off in the parameter setting.

When MODEL FM-2022/2023 is connected to the channel D connector, the other channel automatically enters sleep mode regardless of on/off setting of dual channel control.

When the button or button is pressed, or when the iron is removed from the iron holder, the channel for temperature control is switched to that channel (Factory default setting).

The lamp on the grip operates as follows.

In use ................. Lights
Sleep mode .......... Blinks slowly
Off mode .......... Off
Error ................. Blinks quickly

Dual channel control is On
FM-2024/2026/2027

Dual channel control is Off

Dual channel control is On
FM-2022/2023
10. トラブル発生時に

⚠️ 警告
内部点検や部品交換の際、電源プラグは必ず抜いてください。感電の恐れがあります。

●電源スイッチを入れても動作しない。

ポイント
- 電源コードおよび/または接続プラグが外れていませんか。
- 接続する。
- ヒューズが切れていませんか。
- なぜヒューズが切れたのか原因を確認した後、ヒューズを交換してください。原因がわからない場合にも、交換してください。再びヒューズが切れる場合には、修理のため本体ごと送り返してください。

●これ先が熱くならない。

ポイント
- これ先はしっかりと差し込まれていますか。
- これ先を最後まで差し込んでください。
- 接続コードが断線しているか。ヒーター／センサーは切れていませんか。
- 本書の接続コードの断線およびヒーター／センサー切れの調べ方の項を参照してください。

●これ先にはんだのがららない。

ポイント
- これ先の設定温度が高すぎませんか。
- 準正温度に設定してください。
- これ先に酸化物が付着していますか。
- 酸化物を取り除いてください。(16ページの「メンテナンス」の項を参照してください。)

●これ温度が高すぎる。

ポイント
- これ温度が高すぎるか。
- 適正温度に設定してください。
- これ温度が高すぎるか。
- 酸化物を取り除いてください。(16ページの「メンテナンス」の項を参照してください。)

●はんだがエラーのE-Ωが表示される。

ポイント
- はんだがエラーのE-Ωが表示されるか。
- 電源スイッチを切り、グリップを接続し直し、電源スイッチを入れます。
- はんだ付け対象物に対してこれ先が小さすぎませんか。
- もっと熱容量の大きい先を使用してください。
- 下限設定温度エラーの設定が低すぎませんか。
- 設定値を大きくしてください。

●When the HAKKO FM-2027/MODEL 2024 is reconnected to the channel D connector

When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

Operation
1. Turn the power switch ON.

CAUTION
When not in use, set the iron in the iron holder.
The MODEL FM-2024 does not function properly if the power is turned on with the trigger pressed. Release the trigger and then turn the power ON.

2. By default, when the set temperature is reached, the buzzer sounds, indicating that the unit is ready.

When using only one soldering iron:

Example:
- When not using channel S

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

CAUTION
By default, the temperature is set to 350ºC.
You can confirm the set temperature by pressing the button.
The set temperature will be displayed for two seconds.

CAUTION
When not in use, set the iron in the iron holder.

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.

NOTE:
When the MODEL FM-2022/2023 is disconnected and reconnected, the operation mode may change automatically. In this case, the unit is reset to a new operation mode, thereby canceling sleep mode. This is not a malfunction.
9. Setting/changing the temperature

Temperature setting range

<table>
<thead>
<tr>
<th>°C</th>
<th>200 to 450°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>400 to 840°F</td>
</tr>
</tbody>
</table>

Example: Changing the temperature for channel D from 350°C to 400°C

1. Check that the current temperature display is set to channel D. See "Channel operation" (preceding pages).

2. Insert the control card into the station.

3. Enter the hundreds digit.
   - Press the UP or DOWN button to set the hundreds digit. When the desired figure is displayed, press the button. The tens digit begins to flash.

4. Enter the tens digit.
   - Press the UP or DOWN button to set the tens digit. When the desired figure is displayed, press the button. The units digit begins to flash.

5. Enter the units digit.
   - Set the desired units digit in the same way as for the tens digit, and then press the button. The temperature is recorded to the internal memory, and heater control begins after the new set temperature is displayed.

To change the set temperature with the control card in the station:

- Press and hold the button for at least one second. The current temperature setting is displayed, and then the hundreds digit begins to flash one second later. This indicates that the station has entered the temperature setting mode. Follow steps 3-5 above to set the temperature.

NOTE:
If the button is not pressed and held for at least one second, the current set temperature is displayed, and then the tip temperature is displayed.

CAUTION
If the power is turned off without completing the temperature setting, the new set temperature will not be recorded.

NOTE:
If the button is not pressed and held for at least one second, the current set temperature is displayed, and then the tip temperature is displayed.

Example: Changing the temperature for channel D from 350°C to 400°C

1. Check that the current temperature display is set to channel D.

2. Insert the control card into the station.

3. Enter the hundreds digit.
   - Press the UP or DOWN button to set the hundreds digit. When the desired figure is displayed, press the button. The tens digit begins to flash.

4. Enter the tens digit.
   - Press the UP or DOWN button to set the tens digit. When the desired figure is displayed, press the button. The units digit begins to flash.

5. Enter the units digit.
   - Set the desired units digit in the same way as for the tens digit, and then press the button. The temperature is recorded to the internal memory, and heater control begins after the new set temperature is displayed.

To change the set temperature with the control card in the station:

- Press and hold the button for at least one second. The current temperature setting is displayed, and then the hundreds digit begins to flash one second later. This indicates that the station has entered the temperature setting mode. Follow steps 3-5 above to set the temperature.

NOTE:
If the button is not pressed and held for at least one second, the current set temperature is displayed, and then the tip temperature is displayed.

CAUTION
If the power is turned off without completing the temperature setting, the new set temperature will not be recorded.

NOTE:
If the button is not pressed and held for at least one second, the current set temperature is displayed, and then the tip temperature is displayed.
8. 点検

警告
特に指示がない限り、下記の手順は電源スイッチを切り、電源プラグを抜いて行ってください。

ヒーター・センサー切れ

1. ヒーター・センサー切れ
この間のヒーター・センサーの抵抗値を測定します。

ヒーターとセンサーに電気的異常がないことを確認してください。
ヒーターとセンサーの抵抗は、常温（15～25℃：59～77°F）で測定してください。正確値は8Ω±10%です。抵抗値が異常な場合
には、ここで覚える必要がある。

アースラインの点検

1. ここでアースコードのプラグをステーションから外します。
2. ピン2を抜きに抵抗値を測定します。
2. 抵抗値が2Ω（常温時）を超える場合、ヒーターの抵抗値を測定してください。それとも抵抗値が上がらない時は電流の断線を

接続コード断線の調べ方

1. ここからスリープ線を取り外します。
2. ハッコ FM-2027の前部部品を取り出してカバーを取り外します。
3. コネクタとソケットリード線の間の抵抗を次で

ヒューズ交換方法

1. 電源コードをインレットより取り外します。
2. ヒューズホルダーを引き抜きます。
3. 新しいヒューズと交換します。
4. ヒューズホルダーを元どおりに組み立て

エンジントップオフセット値

例:
当の設定温度がchannel Dは400℃と実際の温度は410℃です。

1. 現在の温度設定がchannel Dの方。
2. 温度が設定されているchannel Sの方。
3. 現在の温度設定がchannel Dの方。

1. Check that the current temperature display is set to channel D.
2. If the temperature for channel S is displayed, press the button to change the channel.
3. Insert the control card into the station.
4. Press the button.
5. The station enters the temperature setting mode.
6. Select and press the button.

MSC允许的设定值范围

允许的设定温度范围。

CAUTION

在设定模式（显示屏闪烁）下，设定的温度被控制的当前的设定值。

5. Verify the tip temperature.

NOTE:

・The station stores the offset values for each tip type.
For example, connect the HAKKO FM-2027 to the station and enter the offset value (–10℃). Next, change it to the MODEL FM-2023 and enter the offset value (–20℃).

When you reconnect the HAKKO FM-2027, the offset value is set to –10℃ automatically.

・The station stores the offset values for each channel.
For example, connect two HAKKO FM-2027 units to channels D and S and enter the offset values. Now both HAKKO FM-2027 units will be controlled using separate offset values. However, when a HAKKO FM-2027 unit set to an offset value on channel D is connected to channel S instead, the offset value of channel D is not applied to channel S.
To change the offset value with the control card in the station:

- Press and hold the button for at least one second.
  The current offset value is displayed, and then the hundreds digit begins to flash one second later. This indicates that the station has entered the offset entry mode.

Follow the steps on page 10 for setting the offset value of the tip temperature.

- Replacing the tip

⚠️ CAUTION
The tip may be hot. Avoid holding the hot tip for a long time even if using the heat-resistant pad. Otherwise burns may result.

Removing the tip:
- Hold down the lock release buttons in the sleeve assembly, pull out the tip together with the sleeve assembly from the connector.

⚠️ CAUTION
- Be sure to keep the lock release buttons held down while pulling out the sleeve assembly. Failure to do so will damage the locking mechanism.
- Be sure to pull out the tip only after separating the sleeve assembly from the connector. Otherwise, the sleeve assembly may fall down and break.

- While holding the front end of the sleeve assembly, pull out the tip.

Inserting the tip:
- Holding the front end of the tip, insert it into the sleeve assembly.

⚠️ CAUTION
- Insert the tip into the sleeve assembly until it clicks into place. When you hear it clicks, avoid forcing the tip into the sleeve assembly.

- Insert the tip securely into the connector.

NOTE: Improper insertion of the tip will cause the symbol to appear on the display.

7. メンテナンス

● ここで先について

1 ここで先温度

2. クリーニング

3. 終了後

4. 中断（オートパワーシャットオフ機能を使用していない時）

5. メンテナンス

NOTE:
- If the button is not pressed and held for at least one second, the current set temperature is displayed, and then the tip temperature is displayed.
- The default offset value is 0.

CAUTION
- The tip may be hot. Avoid holding the hot tip for a long time even if using the heat-resistant pad. Otherwise burns may result.

Removing the tip:
- Hold down the lock release buttons in the sleeve assembly, pull out the tip together with the sleeve assembly from the connector.

CAUTION
- Be sure to keep the lock release buttons held down while pulling out the sleeve assembly. Failure to do so will damage the locking mechanism.
- Be sure to pull out the tip only after separating the sleeve assembly from the connector. Otherwise, the sleeve assembly may fall down and break.

- While holding the front end of the sleeve assembly, pull out the tip.

Inserting the tip:
- Holding the front end of the tip, insert it into the sleeve assembly.

CAUTION
- Insert the tip into the sleeve assembly until it clicks into place. When you hear it clicks, avoid forcing the tip into the sleeve assembly.

- Insert the tip securely into the connector.

NOTE: Improper insertion of the tip will cause the symbol to appear on the display.

CAUTION
- Insert the tip into the sleeve assembly until it clicks into place. Be sure to use the heat-resistant pad.

- Insert the tip securely into the connector.

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- Insert the tip securely into the connector.

NOTE:
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6. PARAMETER SETTINGS

Parameter entry mode process
Select the parameter entry mode using the following operation.

1) Press the SET button. The station enters the parameter entry mode.

2) Select the parameter number.

- The parameter entry mode is initially displayed, and the tens digit begins to flash. Use the \(\uparrow\) and \(\downarrow\) buttons to change the parameter setting, or press the \(\leftarrow\) button to select the units digit. Enter the parameter number and press the button to go to the next step.

3) Select the number for setting the parameter setting set in the preceding step.

- The current setting is initially displayed. Use the \(\uparrow\), \(\downarrow\), \(\uparrow\) or \(\downarrow\) button to enter the parameter setting. Press the \(\leftarrow\) button in steps 2 or 3 to return to step 2.

- After the necessary parameters are set, press and hold the \(\leftarrow\) button in steps 2 or 3 above for two seconds.

- The display changes to \(\sqrt{3}\) and the station asks whether to exit the parameter entry mode. Select \(\sqrt{3}\) and press the \(\square\) button to exit the parameter entry mode.

\(\sqrt{3}\) / Temperature display (°C or °F)

The HAKKO FM-203 has the following parameters.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>LED display</th>
<th>Setting</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature display</td>
<td>°C</td>
<td>Off</td>
<td>7°C display</td>
<td>Off</td>
</tr>
<tr>
<td>Auto sleep time setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Low temperature entry setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Custom input setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Display setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Auto shut off on/off setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Auto channel switch on/off setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Dual channel control setting</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
</tbody>
</table>

NOTE: Auto sleep can be set separately for channels D and S.

NOTE: Each time the \(\uparrow\) or \(\downarrow\) button is pressed, the display toggles between the following displays: \(\sqrt{3}\)

CAUTION
- Do not leave the HAKKO FM-203 for a long time with the auto shutoff function activated. Turn the power off when you do not use the HAKKO FM-203 for a long time.

\(\sqrt{3}\) / Celsius

- When the display changes to \(\sqrt{3}\), press the \(\leftarrow\) button to switch the display alternately between \(\sqrt{3}\) (Fahrenheit) and \(\sqrt{3}\) (Celsius).
**02: Auto sleep setting**
Set the time until the auto sleep function activates after the soldering iron is set on the iron holder.

**Auto sleep examples:**
- (immediately after the iron is set on the iron holder)
- Sleep (10 minutes after the iron is set on the iron holder)

**NOTE:**
- The auto sleep time can be set in units of minutes (up to 29 minutes).
- The auto sleep time can be set separately for channels D and S. The channel that can be set is the channel for which the channel display lamp is lighting during parameter entry.

The tip temperature is reduced to approximately 200°C during sleep mode. The tip temperature varies significantly, depending on the ambient environment, tip type and iron types. 200°C (400°F) should only be used as a guide.

When the display is , press the or button, or remove the soldering iron from the iron holder to resume power to the heater.

**03: Lower temperature error setting**
Lower temperature error
When the temperature drops below a set limit, an error is displayed and the buzzer sounds. When the temperature returns within the allowable range, the buzzer stops.

**Low temperature setting range**
for Celsius: 30 to 150°C
for Fahrenheit: 50 to 300°F

Example:
When the set temperature is 350°C and the low temperature error setting is 100°C, a warning buzzer sounds when the temperature drops to 250°C.

**04: オフセットフリ設定モード**
オフセットフリ設定モードに移るとが表示されます。
またはが表示されます。
- カードを差し込まれないとオフセットできません。
- カードを差し込まれなくてもオフセット値入力できます。
またはのボタンで選択しボタンを押します。

**05: S-E, C-E ブザー音設定モード**
センサー、はんだでエラー時のブザー音設定モードに移るとまたはが表示されます。
- エラーボタンが出ません。
- エラーボタンが出力されます。
またはのボタンで選択しボタンを押します。

**06: 設定温度到達音設定モード**
設定温度到達時のブザー音設定モードに移るとまたはが表示されます。
- はんだで設定温度に到達してもブザーは鳴りません。
- はんだで設定温度に到達するとブザーが鳴ります。
またはのボタンで選択しボタンを押します。

**07: オートスリープ機能のON/OFF設定モード**
オートスリープ機能のON/OFF設定モードに移るとまたはが表示されます。
- オートスリープ機能が働いている際は、はんだからコップを取り上げるか、またはのボタンを押すことで復帰します。
- オートスリープ機能がオフになります。
- オートスリープ機能がオンになりオートスリープ時間が有効になります。
またはのボタンで選択しボタンを押します。
● **03**: Offset-free mode

- When the station is in the offset-free mode, either 0 or 1 is displayed.
  - 0: The offset value cannot be entered without the control card inserted into the station.
  - 1: The offset value can be entered without the control card inserted into the station.

Select UP or DOWN and press the button.

● **04**: S-E, C-E buzzer sound setting mode

- In the buzzer sound setting mode, which sets whether to sound the buzzer when a sensor error or soldering iron error occurs, either 0 or 1 is displayed.
  - 0: The buzzer does not sound.
  - 1: The buzzer sounds.

Select UP or DOWN and press the button.

● **05**: Set temperature alert setting mode

- In the set temperature alert setting mode, either 0 or 1 is displayed.
  - 0: The buzzer does not sound when the soldering iron reaches the set temperature.
  - 1: The buzzer sounds when the soldering iron reaches the set temperature.

Select UP or DOWN and press the button.

● **06**: Auto sleep function setting mode

- In the auto sleep setting mode, either 0 or 1 is displayed.
  - 0: The auto sleep function is off, regardless of the auto sleep set time.
  - 1: The auto sleep function is on, and the auto sleep time is activated.

Select UP or DOWN and press the button.

● **07**: Auto shutoff function setting mode

- In the auto shutoff setting mode, either 0 or 1 is displayed.
  - 0: The auto shutoff function is off, regardless of the auto shutoff function set time.
  - 1: The auto shutoff function is on, and the auto shutoff time is activated.

Select UP or DOWN and press the button.

---

**NOTE:**

When the auto sleep function is on, removing the iron from the iron holder or pressing the UP or DOWN button resumes operations.

---

**On:**

- When the station is in the offset-free mode, either 0 or 1 is displayed.
  - 0: The offset value cannot be entered without the control card inserted into the station.
  - 1: The offset value can be entered without the control card inserted into the station.

Select UP or DOWN and press the button.

In the buzzer sound setting mode, which sets whether to sound the buzzer when a sensor error or soldering iron error occurs, either 0 or 1 is displayed.

0: The buzzer does not sound.
1: The buzzer sounds.

Select UP or DOWN and press the button.

In the set temperature alert setting mode, either 0 or 1 is displayed.

0: The buzzer does not sound when the soldering iron reaches the set temperature.
1: The buzzer sounds when the soldering iron reaches the set temperature.

Select UP or DOWN and press the button.

In the auto sleep setting mode, either 0 or 1 is displayed.

0: The auto sleep function is off, regardless of the auto sleep set time.
1: The auto sleep function is on, and the auto sleep time is activated.

Select UP or DOWN and press the button.

In the auto shutoff setting mode, either 0 or 1 is displayed.

0: The auto shutoff function is off, regardless of the auto shutoff function set time.
1: The auto shutoff function is on, and the auto shutoff time is activated.

Select UP or DOWN and press the button.
6. パラメーター設定

● パラメータ入力モードの流れ
パラメータ入力モードは次の通りに行います。
あらかじめカートは差し込んでおいてください。

① またはボタンを押しながら電源 ON
パラメータ入力モードへ移行します。

② パラメータ番号を選択する
最初はと表示し、3桁目が点滅しています。
ボタンで数値の変更、またはボタンで2桁目へ移動する事ができます。
パラメータ番号を入力し、ボタンを押すと次のステップに移行します。

③ 上記で設定したパラメータの内容を設定する番号を選択する
最初に設定が表示されます。
パラメータの内容は、またはボタンを使って入力します。
最後にボタンを押すと①のステップに戻ります。

必要なパラメータを設定したら、①～③の操作中はボタンを長押し（2秒）します。

④ と表示が切り替え、パラメータ入力モードを終了するか聞いてきます。
を選択し、ボタンを押すとパラメータ入力モードを終了します。

● 1：温度表示℃、℉切り替え

ハッコー FM-203 は以下のパラメータを持っています。

<table>
<thead>
<tr>
<th>LED 表示</th>
<th>設定内容</th>
<th>画面表示が</th>
</tr>
</thead>
<tbody>
<tr>
<td>表示温度単位</td>
<td>℃</td>
<td>℉</td>
</tr>
<tr>
<td>オートスリープ時</td>
<td>2分</td>
<td>2分</td>
</tr>
<tr>
<td>下限温度設定</td>
<td>℃</td>
<td>℉</td>
</tr>
<tr>
<td>入力設定</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>フューウ設定</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>フューウ設定</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>オートスリープ設定</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>オートシャットオフ設定</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>本体時モード設定</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

注記：
オートスリープは D チャンネル、S チャンネル個々に設定が可能です。

注意
オートシャットオフの状態で長時間放置しないでください。長時間使用しない場合は必ず電源を切ってください。

● 表示がととなっていたら、表示温度単位の切り換えモードになっています。
またはのボタンを押すと、表示が（華氏）、（摂氏）交互に切り替えられます。
7. MAINTENANCE

● Tip maintenance

1. Tip temperature

High temperatures shorten tip life and may cause thermal shock to components. Always use the lowest possible temperature when soldering. The excellent thermal recovery characteristics of the HAKKO FM-203 ensure effective soldering at low temperatures.

Always clean the soldering tip before use, to remove any residual solder or flux adhering to it. Use the 599B tip cleaner (provided with the HAKKO FM-203) or use a clean and moist cleaning sponge (part no. A1536). Contaminants on the tip have many deleterious effects, including reduced heat conductivity, which contribute to poor soldering performance.

Never allow the unit to idle at a high temperature for extended periods. This will allow the tip to become oxidized. Turn the power switch OFF. If it is to be out of service for several hours, it is advisable to pull the power plug as well.

This procedure, if followed daily, will materially add to tip life.

a. Set the temperature to 250°C (482°F).

b. When the temperature stabilizes, clean the tip (see 2, above) and check the condition of the tip. If the tip is badly worn or deformed, replace it.

c. If the solder plated part of the tip is covered with black oxide, apply fresh solder, containing flux, and clean the tip again. Repeat until all the oxide is removed, then coat the tip with fresh solder.

CAUTION
NEVER file the tip to remove oxides!

d. Turn the power OFF and remove the tip, using the heat resistant pad. Set the tip aside to cool.

e. Remaining oxides, such as the yellow discoloration on the tip shaft, are not harmful but can be removed with isopropyl alcohol.

3. After use

Always clean the tip and coat it with fresh solder after use. This guards against oxidation.

4. When the unit is not being used and the auto power shutoff is not active.

5. Inspecting and cleaning the tip
Checking Procedure

1. Check for a broken heater or sensor
   - Measure the resistance across this position.
   - Verify the electrical integrity of the heater and sensor.
   - Measure the resistance of the heater and sensor while at room temperature (15 to 25°C; 59 to 77°F). It should be 8Ω ±10%. If the resistance exceeds these limits, replace the tip.

2. Check the grounding line
   - Unplug the connection cord from the station.
   - Measure the resistance value between Pin 2 and the tip.
   - If the value exceeds 2Ω (at room temperature), perform the tip maintenance described on p.16. If the value still does not decrease, check the connection cord for breakage.

3. Check the connection cord for breakage
   - Remove the soldering tip and the sleeve assembly.
   - Turn the front piece of the HAKKO FM-2027 clockwise and remove the cover.
   - Measure the resistance values between the connector and the lead wires at the socket as follows:
     - Pin 1 – Red
     - Pin 2 – Green
     - Pin 3 – Black
     - Pin 5 – White
   - If any value exceeds 0Ω or is ∞, replace the HAKKO FM-2027.

4. Replacing the fuse
   - Unplug the power cord from the power receptacle.
   - Remove the fuse holder.
   - Replace the fuse.
   - Put the fuse holder back in place.

**WARNING**

Unless otherwise directed, carry out these procedures with the power switch OFF and the power UNPLUGGED.

---

Checking Procedure

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Measure the resistance of the heater and sensor while at room temperature (15 to 25°C; 59 to 77°F). It should be 8Ω ±10%. If the resistance exceeds these limits, replace the tip.

1. 表示がDチャンネルであることを確認します。
   - Sチャンネルを表示している場合はSボタンを押して切り替えます。

2. カードをステーションに差し込む
   - 湿度設定モードに入ります。

3. Sボタンを押す
   - オフセットモードに入ります。
   - オフセット値を入力します。

4. Sボタンを長押しSボタンを押す
   - ボタンを押し2桁目に移ります。オフセット値を入力します。
   - 入力可能な数値は0（プラスの場合）と－（マイナスの場合）です。（下モードでも同じです）。

5. 表示値が読み出されない場合
   - Sボタンを押す
   - オフセット値を入力します。

オフセット値入力可能範囲
- Dチャンネルの温度設定範囲

オフセット値入力可能範囲を超える数値を入力すると再度3桁目にに戻りますので、正しい数値を入れ直してください。

注意

オフセット値入力モード（表示する場合）は、現在のオフセット値で制限されます。

5. 表示値を確認します。
8. ERROR MESSAGES

When there is the possibility that a failure has occurred in the sensor or heater (including the sensor circuit), S-E is displayed and the power is shut down.

NOTE: The sensor error also occurs if the tip is not inserted properly. S-E may be displayed for a moment when the tip is connected. This is not an error.

If the sensor temperature falls below the difference between the current temperature setting and the low-temperature alarm tolerance, H-E is displayed and the warning buzzer sounds. When the tip temperature rises to a value within the set tolerance, the buzzer will stop sounding.

EXAMPLE:
Assume that the temperature setting is 400°C/750°F and the tolerance 50°C/100°F. If the temperature continues to decrease and finally falls below the value indicated below while the heating element is on, the displayed value starts blinking to indicate that the tip temperature has dropped.

- Sensor Error
- Low-temperature alarm tolerance error
- Heater terminal short circuit error
- Soldering iron error
- Detection error

When there is the possibility that a failure has occurred in the sensor or heater (including the sensor circuit), S-E is displayed and the power is shut down.

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- Sensor Error
- Low-temperature alarm tolerance error
- Heater terminal short circuit error
- Soldering iron error
- Detection error
9. TROUBLE SHOOTING GUIDE

⚠️ WARNING
Before checking the inside of the HAKKO FM-203 or replacing parts, be sure to disconnect the power plug. Failure to do so may result in electric shock.

● The unit does not operate when the power switch is turned on.
  CHECK: Is the power cord and/or the connection plug disconnected?
  ACTION: Connect it.
  CHECK: Is the fuse blown?
  ACTION: Investigate why the fuse blew and then replace the fuse. If the cause cannot be determined, replace the fuse. If the fuse blows again, send the unit in for repair.

● The tip does not heat up.
  The sensor error [S-C] is displayed.

● Solder does not wet the tip.

● The tip temperature is too high.
  CHECK: Is the connection cord broken?
  ACTION: See “Checking the connection cord for breakage” on P. 17.

● The tip temperature is too low.

● The soldering iron error [E-E] is displayed.
チャンネル操作


<table>
<thead>
<tr>
<th>機種</th>
<th>Dチャンネル</th>
<th>Sチャンネル</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM-2022</td>
<td>○</td>
<td>〇</td>
</tr>
<tr>
<td>FM-2023</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>FM-2024</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>FM-2026</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>FM-2027</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>FM-2028</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>

チャンネル表示ランプは使用状況によって表示方法が変化します。

<table>
<thead>
<tr>
<th>2本同時使用モード OFF</th>
<th>2本同時使用 ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dチャンネル接続コネクタ</td>
<td>Sチャンネル接続コネクタ</td>
</tr>
</tbody>
</table>

- The low-temperature alarm tolerance error occurs frequently.

<table>
<thead>
<tr>
<th>CHECK</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the tip too small for the items to be soldered?</td>
<td>Use a tip with a larger thermal capacity.</td>
</tr>
</tbody>
</table>

- Heater terminal short circuit error is displayed.

<table>
<thead>
<tr>
<th>CHECK</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the tip for HAKKO FM-2027?</td>
<td>Turn the power switch OFF and insert the genuine HAKKO FM-2027 tip. Turn the power switch ON.</td>
</tr>
</tbody>
</table>

- Power to the heater is shut off and the tip does not heat up.

<table>
<thead>
<tr>
<th>CHECK</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power to the heater is shut off for the channel that loses power.</td>
<td>Hold down the button (either D/UP or S/DOWN) on the display. Holding down the button turns the power on.</td>
</tr>
</tbody>
</table>
10. PARTS LIST

NOTE: 
Spare or repair parts do not include mounting screws, if they are not listed on the description. Screws must be ordered separately.

● HAKKO FM-203 soldering station

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>B2384</td>
<td>Power switch</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>B2387</td>
<td>Power cord, 3 wired &amp; American plug</td>
<td>240V, 100V, 110V-220V</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>B2437</td>
<td>Power cord, 3 wired &amp; Japanese plug</td>
<td>110-230V, 240V</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>B2431</td>
<td>Power cord, 3 wired &amp; no plug</td>
<td>200-240V</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>B2407</td>
<td>Power cord, 3 wired &amp; BS plug</td>
<td>200V, 230V</td>
</tr>
<tr>
<td>6</td>
<td>9</td>
<td>B2404</td>
<td>Power cord, 3 wired &amp; European plug</td>
<td>200V, 230V CE</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>B2405</td>
<td>Power cord, 3 wired &amp; American plug</td>
<td>230V, 110-220V</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>B2406</td>
<td>Power cord, 3 wired &amp; American plug</td>
<td>230V, 110-220V</td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>B2407</td>
<td>Power cord, 3 wired &amp; European plug</td>
<td>230V, 110-220V</td>
</tr>
</tbody>
</table>

5. 使用方法

操作と表示

スイッチと操作ボタン

ハッコー FM-203 のフロントパネルには 4 つの操作ボタンがあります。

・表示を D チャンネルに切り替えます。
  ● 長押しすると D チャンネルの温度表示を先頭の通電が ON/OFF できます。
  ● 各種設定変更時は表示されている値を上げます。

・表示を S チャンネルに切り替えます。
  ● 長押しすると S チャンネルの温度表示を先頭の通電が ON/OFF できます。
  ● 各種設定変更時は表示されている値を下げます。

ブラザーデ使用者に次のことを教えてくれます。

・設定温度に達した場合、ブラザーが 1 回鳴ります。（工場出荷時の設定）
・センサー温度が設定温度より下限設定値、低くなった場合に警報ブラザーが鳴ります。
センサー温度が下限設定範囲内に戻ればブラザーは停止します。
・異物、この商品では使用しないでください。またはこれ、ほんの破損するとハッコー FM-2027 に挿入してしまった場合、表示器が点滅し、ブラザーが連続して鳴ります。
・オートパワーシャットオフ機能が働き、ヒーターへの通電を停止した場合、ブラザーが 3 回鳴ります。
C. ステーション

⚠️注意
コードの抜き差しはプラグを持って行ってください。

●ハッコーFM-203は台から台を取ったことを検知し、中継コードを経由してステーションに情報を送ります。そしてその情報を各種機能に使用しています。

注意:
中継コードは断線するのを防ぐために、中継コードを接続するチャンネルと、その中継コードを接続するチャンネルの両方で使用してください。

1. 電源コードをステーション後面のインレットに接続します。中継コードと熱帯クーラーを接続します。
2. ご使用のケーブルをコンセントに差し込みます。
3. 電源プラグをコンセントに差し込みます。

⚠️注意
本機に静電気対策が施されていますので、必ず接地してご使用ください。

中継コード接続ジャック

【HAKKO FM-2027】

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>FM2027-02</td>
<td>Connector assembly</td>
<td>Yellow</td>
</tr>
<tr>
<td>②</td>
<td>B3215</td>
<td>Connector cover</td>
<td>Orange</td>
</tr>
<tr>
<td>③</td>
<td>E3216</td>
<td>Sleeve assembly</td>
<td>Blue</td>
</tr>
<tr>
<td>④</td>
<td>B3217</td>
<td>Sleeve assembly</td>
<td>Green</td>
</tr>
<tr>
<td>⑤</td>
<td>B3218</td>
<td>Sleeve assembly</td>
<td></td>
</tr>
<tr>
<td>⑥</td>
<td>B3219</td>
<td>Sleeve assembly</td>
<td></td>
</tr>
<tr>
<td>⑦</td>
<td>B3220</td>
<td>Sleeve assembly</td>
<td></td>
</tr>
<tr>
<td>⑧</td>
<td>B2300</td>
<td>Heat resistant pad</td>
<td></td>
</tr>
</tbody>
</table>

【Iron Holder】

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>①-⑨</td>
<td>FH200-01</td>
<td>Iron holder</td>
<td></td>
</tr>
</tbody>
</table>

【Iron Holder Parts】

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>B3001</td>
<td>Iron receptacle With screws</td>
<td></td>
</tr>
<tr>
<td>②</td>
<td>B2791</td>
<td>Tip fixing spring</td>
<td></td>
</tr>
<tr>
<td>③</td>
<td>B3248</td>
<td>Retaining clip</td>
<td></td>
</tr>
<tr>
<td>④</td>
<td>B3251</td>
<td>Iron holder base With rubber feet</td>
<td></td>
</tr>
<tr>
<td>⑤</td>
<td>B3249</td>
<td>Cleaner base With rubber feet</td>
<td></td>
</tr>
<tr>
<td>⑥</td>
<td>B3250</td>
<td>Stay</td>
<td></td>
</tr>
<tr>
<td>⑦</td>
<td>B3252</td>
<td>Switch case assembly</td>
<td></td>
</tr>
<tr>
<td>⑧</td>
<td>599B-02</td>
<td>Tip cleaner</td>
<td></td>
</tr>
<tr>
<td>⑨</td>
<td>599-029</td>
<td>Cleaning wire</td>
<td></td>
</tr>
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</table>

【Optional Parts】

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>B2756</td>
<td>Tip tray</td>
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11. TIP STYLES

<table>
<thead>
<tr>
<th>SHAPE B</th>
<th>SHAPE BC</th>
<th>SHAPE C</th>
<th>SHAPE D</th>
<th>SHAPE E</th>
<th>SHAPE F</th>
<th>SHAPE J</th>
<th>SHAPE K</th>
<th>TUNNEL</th>
</tr>
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<tbody>
<tr>
<td>T12-SH</td>
<td>T12-SC</td>
<td>T12-SC</td>
<td>T12-SC</td>
<td>T12-SC</td>
<td>T12-SC</td>
<td>T12-SC</td>
<td>T12-SC</td>
<td>T12-T1</td>
</tr>
<tr>
<td>T12-SC1</td>
<td>T12-SC2</td>
<td>T12-SC3</td>
<td>T12-SC4</td>
<td>T12-SC5</td>
<td>T12-SC6</td>
<td>T12-SC7</td>
<td>T12-SC8</td>
<td>T12-T2</td>
</tr>
</tbody>
</table>

Unit: mm (in.)

4. 組み立て

A. こで台

- 差しこみ口（口金）をとめている2本のねじをゆるめてお好きな角度に固定してください。
- クリーニングスポンジの使い方
  本品は圧縮タイプのスポンジを使用しています。水に濡らすと膨張します。必ず水で濡らしてお使いください。

1. スポンジ小をこで台ベースのいずれかの穴に入れます。
2. こで台ベースに水を適量入れます。スポンジ小が水を吸い上げ、いつも湿った状態を保てます。
3. スポンジ大を水に濡らし、こで台ベースに置きます。

- 手前のかで先は、こで先置き台に置いてください。
- スリープ機能を使用する場合
  スリープ機能を使用する場合はこで台とはんだこでステーションの裏側のジャックに中継コードを接続してください。

⚠注意
- 中童コードを抜き差しするときは必ず電源を落とした状態で行ってください。
- 中継コードは奥までしっかり差し込んでください。

B. こて接続コード

- 耐熱バッドを取り付けます。こて先交換時に使用します。
3. 安全及び取扱い上の注意

⚠️ 警 告
この説明書では、注意事項を下記のように「警 告」 「注意」の2つに区分して表示しています。内容をよく理解されてから本文をお読みください。

⚠️ 警 告：誤った取扱いをすると、死亡または重傷を負う可能性が想定される内容を示しています。

⚠️ 注 意：誤った取扱いをすると、人が負傷を負う可能性が想定される内容および物的損傷のみの発生が想定される内容を示しています。

● 安全のため以下の注意事項を必ず守ってください。

⚠️ 注 意
電源を入れると、はて先の温度は200〜450℃の高温に達します。取扱いを誤ると、けやき・火災の恐れがありますので、以下の注意事項を必ず守ってください。

● はて先周辺の金属部に触れらない。
● 燃えやすいものの近くで使用しない。
● 周囲の人々に「高温につな危険である」とることを知らせる。
● 使用を中止・終了する時や、その場を離れ時は電源を切る。
● 部品交換時や収納時は必ず電源を切り、十分に冷えた事を確認する。
● 管理責任者の許可なく、経験や知識のない（子供を含む）が、この製品を使用しないように注意してください。
● 子供がこの製品を遊ばないように注意してください。

● 事故や故障につながりますので、以下の注意事項を必ず守ってください。

⚠️ 注 意
● はんだ付け以外の用途で使用しない。
● はんだだけを取るために、はて作業台に打ち付けるなど強い衝撃を与えない。
● 本品を改造しない。
● 交換部品には、純正部品を使用する。
● 水につけたりぬれた手で使用しない。
● カードは傷つけたり折り曲げたりしない。また折れ曲がったカードは無理に挿入しない。
● ブラシの抜き差しはブラシを持って行う。
● はんだ付けの際、圧が発生するので、よく換気をする。
● その他危険と思われる行為は行わない。
### 12. OPTIONAL PARTS LIST

#### Optional Parts

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM2022-02</td>
<td>MODEL FM-2022</td>
<td>24 V  140 W</td>
</tr>
<tr>
<td>FM2022-04</td>
<td>Conversion kit</td>
<td>America, Europe</td>
</tr>
<tr>
<td>FM2023-02</td>
<td>MODEL FM-2023</td>
<td>24 V  140 W</td>
</tr>
<tr>
<td>FM2023-04</td>
<td>Conversion kit</td>
<td></td>
</tr>
<tr>
<td>FM2024-02</td>
<td>MODEL FM-2024</td>
<td>24 V  70 W</td>
</tr>
<tr>
<td>FM2024-21</td>
<td>Conversion kit</td>
<td>120 V  3 wired cord &amp; American plug</td>
</tr>
<tr>
<td>FM2024-22</td>
<td>Conversion kit</td>
<td>100 V  3 wired cord &amp; American plug</td>
</tr>
<tr>
<td>FM2024-23</td>
<td>Conversion kit</td>
<td>110 V  3 wired cord &amp; American plug</td>
</tr>
<tr>
<td>FM2024-24</td>
<td>Conversion kit</td>
<td>110 V  3 wired cord &amp; American plug</td>
</tr>
<tr>
<td>FM2024-25</td>
<td>Conversion kit</td>
<td>110 V  3 wired cord &amp; American plug</td>
</tr>
<tr>
<td>FM2024-26</td>
<td>Conversion kit</td>
<td>120 V  3 wired cord but no plug</td>
</tr>
<tr>
<td>FM2024-27</td>
<td>Conversion kit</td>
<td>120 V  3 wired cord &amp; Chinese plug</td>
</tr>
<tr>
<td>FM2024-28</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord but no plug</td>
</tr>
<tr>
<td>FM2024-29</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; Australian plug</td>
</tr>
<tr>
<td>FM2024-30</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; BS plug</td>
</tr>
<tr>
<td>FM2024-31</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; European plug Korea</td>
</tr>
<tr>
<td>FM2024-32</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; American plug HP</td>
</tr>
<tr>
<td>FM2024-33</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; European plug CE</td>
</tr>
<tr>
<td>FM2024-34</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; European plug France</td>
</tr>
<tr>
<td>FM2024-35</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; BS plug CE</td>
</tr>
<tr>
<td>FM2024-36</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord &amp; Australian plug</td>
</tr>
<tr>
<td>FM2024-37</td>
<td>Conversion kit</td>
<td>230-240 V  3 wired cord but no plug HP</td>
</tr>
<tr>
<td>FM2026-02</td>
<td>HAKKO FM-2026</td>
<td>24 V  70 W</td>
</tr>
<tr>
<td>FM2026-05</td>
<td>Conversion kit</td>
<td></td>
</tr>
<tr>
<td>FM2026-06</td>
<td>Conversion kit</td>
<td></td>
</tr>
<tr>
<td>FM2027-03</td>
<td>Conversion kit</td>
<td></td>
</tr>
<tr>
<td>FH200-03</td>
<td>Iron holder / FM-2022</td>
<td>With cleaning sponge</td>
</tr>
<tr>
<td>FH200-04</td>
<td>Iron holder / FM-2023</td>
<td>With cleaning sponge</td>
</tr>
<tr>
<td>FH200-05</td>
<td>Iron holder / FM-2024</td>
<td>With cleaning wire</td>
</tr>
<tr>
<td>FH200-06</td>
<td>Iron holder / FM-2024</td>
<td>With cleaning sponge</td>
</tr>
</tbody>
</table>

*1: With a sleep mode iron holder, connecting cable, heat resistant pad, cleaning sponge
*2: With a sleep mode iron holder, connecting cable, heat resistant pad, 599B
*3: With a sleep mode iron holder, connecting cable, cleaning sponge
*4: With a sleep mode iron holder, connecting cable, 599B

### Tip Parts for HAKKO FM-2022

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8-1001</td>
<td>Tip / CHIP 0.5i</td>
<td></td>
</tr>
<tr>
<td>T8-1002</td>
<td>Tip / CHIP 0.5G</td>
<td></td>
</tr>
<tr>
<td>T8-1003</td>
<td>Tip / CHIP 1L</td>
<td></td>
</tr>
<tr>
<td>T8-1004</td>
<td>Tip / CHIP 2L</td>
<td></td>
</tr>
<tr>
<td>T8-1005</td>
<td>Tip / SOP 8L</td>
<td></td>
</tr>
<tr>
<td>T8-1006</td>
<td>Tip / SOP 10L</td>
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</tr>
<tr>
<td>T8-1007</td>
<td>Tip / SOP 12L</td>
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</tr>
<tr>
<td>T8-1008</td>
<td>Tip / SOP 16L</td>
<td></td>
</tr>
<tr>
<td>T8-1009</td>
<td>Tip / SOP 25L</td>
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<tr>
<td>T8-1010</td>
<td>Tip / SOP 26L</td>
<td></td>
</tr>
<tr>
<td>T8-1011</td>
<td>Tip / SOP 28L</td>
<td></td>
</tr>
<tr>
<td>T8-1012</td>
<td>Tip / SOP 35L</td>
<td></td>
</tr>
<tr>
<td>T8-1013</td>
<td>Tip / CHIP 2L</td>
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### Tip Parts for HAKKO FM-2023

<table>
<thead>
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<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>T9-1</td>
<td>Tip / CHIP 1</td>
<td></td>
</tr>
<tr>
<td>T9-1L</td>
<td>Tip / CHIP 1L</td>
<td></td>
</tr>
<tr>
<td>T9-12</td>
<td>Tip / CHIP 2L</td>
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### 2. 仕様

#### ハッコ FM-203

<table>
<thead>
<tr>
<th>電源</th>
<th>AC100V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>消費電力</td>
<td>140W</td>
</tr>
<tr>
<td>焼付け温度</td>
<td>200  450°C (400  840°F)</td>
</tr>
<tr>
<td>持続温度範囲</td>
<td>温度差 ±5°C (9°F)</td>
</tr>
<tr>
<td>仕様</td>
<td>2 D</td>
</tr>
<tr>
<td>増分電圧</td>
<td>2.2mV</td>
</tr>
<tr>
<td>コード長</td>
<td>1.2m</td>
</tr>
<tr>
<td>全長 (巻コード)</td>
<td>188 mm (2.5D をつけた場合)</td>
</tr>
<tr>
<td>質量 (巻コード)</td>
<td>35g (2.4D をつけた場合)</td>
</tr>
</tbody>
</table>

*温度表示はハッコ FM-101で計測した結果です。
*この商品は静電気対策されています。

#### 注意

本製品は、プラスチックへの導電性付与、こたえ部・ステーション部の接地といった静電気対策が施されていますので、下記の注意を厳守してください。
1. グリップなどのプラスチックは、絶縁物ではなく導電性プラスチックです。修理時には十分注意を払い、活電部を外す手順にて、絶縁の性能が保たれた状態で修理を行なうこと。
2. 必ず接地して使用すること。

※ 仕様及び構造は改良のため、予告なく変更することがありますが、あらかじめご了承ください。
## Nozzle Parts for HAKKO FM-2024

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-06</td>
<td>Nozzle / 0.6mm (0.02 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-08</td>
<td>Nozzle / 0.8mm (0.03 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-10</td>
<td>Nozzle / 1.0mm (0.04 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-13</td>
<td>Nozzle / 1.3mm (0.05 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-16</td>
<td>Nozzle / 1.6mm (0.06 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-20</td>
<td>Nozzle / 2.0mm (0.08 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-23</td>
<td>Nozzle / 2.3mm (0.10 in.)</td>
<td></td>
</tr>
<tr>
<td>N1-L10</td>
<td>Long Nozzle / 1.0mm (0.04 in.)</td>
<td></td>
</tr>
</tbody>
</table>

## Tip Parts for HAKKO FM-2026

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>T13-B2</td>
<td>SHAPE-0.5B</td>
<td></td>
</tr>
<tr>
<td>T13-BC1</td>
<td>SHAPE-1BC</td>
<td></td>
</tr>
<tr>
<td>T13-BC2</td>
<td>SHAPE-2BC</td>
<td></td>
</tr>
<tr>
<td>T13-BC3</td>
<td>SHAPE-3BC</td>
<td></td>
</tr>
<tr>
<td>T13-BCF1</td>
<td>SHAPE-1BC</td>
<td>Tinned on the soldering surface only</td>
</tr>
<tr>
<td>T13-BCF2</td>
<td>SHAPE-2BC</td>
<td>Tinned on the soldering surface only</td>
</tr>
<tr>
<td>T13-BCF3</td>
<td>SHAPE-3BC</td>
<td>Tinned on the soldering surface only</td>
</tr>
<tr>
<td>T13-BCM2</td>
<td>SHAPE-2BC</td>
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</tr>
<tr>
<td>T13-BCM3</td>
<td>SHAPE-3BC</td>
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</tr>
<tr>
<td>T13-BL</td>
<td>SHAPE-B</td>
<td></td>
</tr>
<tr>
<td>T13-08</td>
<td>SHAPE-0.8D</td>
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</tr>
<tr>
<td>T13-16</td>
<td>SHAPE-1.6D</td>
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</tr>
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<td>T13-24</td>
<td>SHAPE-2.4D</td>
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<tr>
<td>T13-02</td>
<td>SHAPE-0.2J</td>
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</tr>
<tr>
<td>T13-KU</td>
<td>SHAPE-KU</td>
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</tr>
</tbody>
</table>

## Iron Holder Parts

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Part Name</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3411</td>
<td>Iron holder assemblies / FM-2022 With screw</td>
<td></td>
</tr>
<tr>
<td>B3412</td>
<td>Iron holder assemblies / FM-2023 With screw</td>
<td></td>
</tr>
<tr>
<td>B3413</td>
<td>Iron holder assemblies / FM-2024 With screw</td>
<td></td>
</tr>
</tbody>
</table>
13. WIRING DIAGRAM