TENMA®

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Springboro, OH 45066
MCMElectronics.com

21-10120
Thermo-Control Anti-Static

SOLDERING STATION

Operating Instructions

CE   **Digital**
SOLDERING STATION

Dear Customer:
Thank you for purchasing this Tenma product.

Before using the unit, please read through these operating instructions completely and observe all operating and safety information.

This product is EMV-tested and meets the requirements of the applicable European and national guidelines. Proof of CE conformity has been established and the corresponding declarations are obtainable from the manufacturer.

For a fast response of your technical enquiries please use the email address listed under Technical Data.

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USAGE IN ACCORDANCE WITH INTENDED PURPOSE

- The digital soldering station is temperature-controlled with an adjustable soldering tip temperature. The adjustable temperature lets you perform any soldering work in the field of electronics with various soft solders *(with/without lead or silver solder)*. The soldering tip can be exchanged.
- The display shows the nominal and the current temperature. Three programmable buttons can be assigned temperature values.
- The enclosed soldering iron was calibrated on this soldering station for temperature accuracy. If the soldering iron has to be exchanged, it must be recalibrated by the user for maximum accuracy.
- A high-impedance grounding socket on the front of the unit can be used in conjunction with ESD-safe workstations
- The soldering station is designed in protective class 2 *(double or reinforced insulation)* and may only be operated with common household voltage *(110V/60Hz)*.
- This unit was not intended to be used for soldering work on live parts.

Do not operate in unfavorable ambient conditions.
Unfavorable ambient conditions include:
- wetness or excessive humidity.
- dust or combustible gases, vapors or solvents.
- excessive heat

Uses other than those described above are not permitted. They may lead to damage to the product. Additionally misuse may lead to short circuiting, fire, electrical shocks, equipment damage, or similar hazards.

👉 *Do not attempt to modify or convert any part of this product! These safety instructions should be entirely observed during operation!*

CONTROLS AND INDICATORS

① Operating switch
② Heating output display
③ Illuminated display
④ Temperature controller
⑤ Multi-function buttons
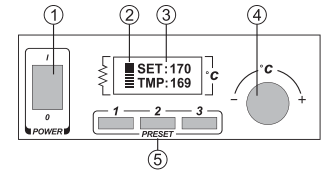
SAFETY AND HAZARD INSTRUCTIONS

Caution!

In case of damage resulting from the non observance of these operating instructions, the warranty will be void. User is responsible for any consequential damage due to misuse or abuse. We do not accept any liability for personal injury or damage to property caused by incorrect handling or non-observance of the safety instructions.

Our tight quality assurance processes insures that this device left the factory in perfect working condition, meeting our terms of safety engineering. To maintain this state and ensure safe operation, the user must observe the safety instructions and warnings contained in these operating instructions.

The following symbols must be observed:

⚠️ A triangle containing an exclamation mark indicates important information in these operating instructions which is to be observed without fail.

⚡ The lightening symbol in a triangle warns against an electric shock or the impairment of the electrical safety of the device.

👉 The "hand"symbol indicates special information and advice on operation of the appliance.

- For safety and certification *(CE, UL)* restrictions, unauthorized modifications and/or changes to the soldering station are not permitted.
- The soldering station is designed in protective class 2. Make sure the insulation of the casing is neither damaged nor destroyed.
- Electric appliances and accessories should be kept out of the reach of children. It is not a toy.
- Never connect your electronic device to the power source immediately after it has been taken from a cold climate to a warm one. The resulting condensation could, under adverse circumstances, destroy the appliance. Allow the device to reach room temperature before switching it on.
- Never touch the device with wet hands for danger of electric shock.
- Ensure sufficient ventilation when soldering. Soldering vapors may be hazardous to your health.
- Wash your hands thoroughly after working with solder containing lead. Do not put solder containing lead into your mouth and do not eat while working with it.
- Protect cables from heat and sharp edges.
- Wear suitable protective clothing and glasses when soldering.
- Do not drop, shake, or otherwise physically abuse the unit.
- Only solder on non-flammable surfaces. Protect other materials nearby from damage by heat.
- If you have reasons to assume that safe operation is no longer possible, disconnect the appliance immediately and secure it against inadvertent operation.

It can be assumed that safe operation is no longer possible if:

- The appliance is visibly damaged.
- It does not function any longer
- If it has been stored for long periods of time under unfavorable conditions.
- If it has been subject to considerable stress and shock in transit.

INITIAL OPERATION

1. Initial operation
- Unpack the soldering station and check all parts for damages. Do not use any damaged parts, call customer service for replacements.
- Situate the soldering iron holder next to the soldering station. Dampen the sponge in the sponge rest with water (should not be dripping wet).
- Plug the soldering iron into the 5-pole socket on the left side of the soldering station. The plug is notched and aligns for the right polarity.
- Place the soldering iron in the support stand. Note that the metal dish of the support stand heats up over time of use.
- Place the soldering station onto a stable surface.
- Connect the power plug with a live outlet and switch the soldering station on at the power switch *(I = ON / 0 = OFF)*.
- Set the desired soldering tip temperature at the temperature control (match to the type of solder you are using, try not to overheat).
- Alternatively you can also set the temperature via the function keys by pressing them *(PRESET 1-3)*. The buttons are pre-programmed.

2. With the following temperature values:
- This station features three preset buttons for quick temperature access. The temperatures have been preset as the following:
  — PRESET 1 = 150℃ or 302°F   (standby)
  — PRESET 2 = 270℃ or 518°F
  — PRESET 3 = 360℃ or 680°F
- To use the preset temperature, briefly press that preset button. You can return to another temperature by turning the temperature knob..
- The bar display *(2)* shows the heating output of the soldering iron. The number of bars decreases when the nominal temperature has been reached. If the temperature is exceeded when decreasing, the heating output turns off until the correct temperature has been reached again.

☞ *Only hold the soldering iron by its handle. Never touch the hot soldering tip or the metal shaft for danger of serious burns. Always place the soldering iron into the soldering iron support while it heats up and when taking breaks during soldering.*

3. Soldering Notess :

- Keep the soldering tip tinned with solder during and after the solder work.
- Wipe off excess solder on the damp cleaning sponge; only touch tip to sponge briefly to avoid thermally shocking the tip.
- Heat only the soldering spot; avoid nearby components and board area.
- Let the soldering spot cool off before advancing to the next.
- Clean the soldering tip on the damp sponge after each soldering work.
- After you have finished the soldering work, tin the tip with solder, and place the soldering iron in the stand, and switch the soldering station off.
- Never file or submerge the soldering tip in water.

> ⚠ **Allow the soldering iron to cool down after use.**
> **Never submerge part of the unit in water.**

ASSIGNMENT OF THE FUNCTION KEYS

The digital soldering station allows you to save three frequently used temperature settings on the three function keys. This avoids having to set the temperature via the control. The keys were pre-programmed by the factory and can be assigned freely.

For reassigning values, proceed as follows:

- Press the desired **PRESET** key and keep it depressed.
- The display shows the following after approx. three seconds. *(PS2 = PRESET 2)*
- Set the desired temperature with the temperature control. *(Eg: image 1)*
- The top value behind PS1 / PS2 / PS3 shows the nominal temperature for the respective memory slot.
- After letting go of the PRESET button, the new value is saved. Repeat this for the other buttons.
- The saved values are also preserved after turning the station off.

PS2 : 280
▁ TMP : 441

(Image 1)

CORRECTING THE SOLDERING TIP TEMPERATURE

The temperature was calibrated to the enclosed soldering tip type. When using a different tip, the temperature display deviates slightly from the actual temperature on the tip.
This deviation can be compensated on the digital soldering station.

Please proceed as follows:

- Press the preset buttons "**1**" and "**3**" simultaneously and keep them depressed.
- The following display appears after approx. 3 seconds. *(Eg: image 2)*
- Release both buttons.
- The replacement tip has a correction value, which you set with the button "**1**" for a negative value of up to max - 20℃ and a positive value of up to max +30℃ with the button "**3**". *(Eg: image 3)*
- Briefly press "**RESET 2**" **to** save the value.
- The value was saved.
  The display might show ->
  (Eg: image 4)
  The arrow behind "TMP" shows an active value correction (< negative / > positive)

SET : +00
☰ TMP : - - -

(Image 2)

SET : -10
☰ TMP◀ - -

(Image 3)

SET : 280
☰ TMP◀ 279

(Image 4)

👉 *A negative value means that the soldering tip draws more heat from the heating element. The set temperature requires more heating output. This works just the opposite with a positive correction value. The setting is saved after the soldering station is turned off.*

CALIBRATION

Initial operation
In order to achieve the highest possible accuracy of the temperature display, the soldering station was calibrated to the enclosed soldering iron in the factory. If you need to replace or exchange the soldering iron, you will need to re-calibrate for an accurate temperature. The procedure consists of three stages.

For calibration, proceed as follows:
- Turn the soldering station off and let the soldering iron cool down.
- Replace the old soldering iron with another one of the same type and output.
- Place the new soldering iron in the support stand.
- Press the buttons "**1**" and "**3**" and keep these depressed.
- Switch the soldering station on.
  The calibration menu starts.
  The display shows the following:
  (Eg: image 5)
- Release of both buttons.

```
SET:RUN
TMP:015
```
（ Image 5 ）

☞ *The calibration program starts with a heating up phase. This takes approx. three minutes and is displayed with a countdown from 15 to 1 in the TMP line. After this time, the soldering tip temperature is approx. 270 to 400℃.*

- The second stage starts automatically.
- The temperature of the soldering tip is controlled. This is once again indicated by a countdown from 24 to 0. *(Eg: image 6)*
- The soldering tip temperature is stable after approx. five minutes. The temperature is below 220℃ here.

```
SET:RUN
TMP:024
```
（ Image 6 ）

⚠ *Avoid drafts of air under all circumstances during the calibration phase. This could have a negative impact on the calibration process.*

- The third stage also starts automatically. Now you have to measure and set the temperature values. *(Eg: image 7)*
- The display shows the following image. The "**TMP**" line shows three dashes, the"**SET**"line shows the value of the temperature control depending on its current position.

```
SET:150
TMP:---
```
（ Image 7 ）

- Measure the temperature on the soldering tip with a precise measuring probe or soldering tip thermometer.

☞ *Use a smaller measuring probe for measuring for the best results. K-type thermal probes are well suited.*

- Set the actual value on the temperature control. By turning, you change the value in the "**SET**"line. *(Eg: image 8)*
- Briefly press the button "**2**". This terminates the setup menu and displays the current soldering iron tip temperature. *(Eg: image 9)*
- If you hold the button "**2**"longer, the unit reverts back to the preset temperature stored in Preset 2. In both cases, the calibration of the new soldering iron is finished successfully. Turn the soldering station off when it is not in use.

```
SET:170
TMP:---
```
（ Image 8 ）

```
SET:170
TMP:169
```
（ Image 9 ）

☞ *You can cancel an accidentally started calibration process at any time by turning the station off before the button "2" has been pressed.The preset values are preserved.*

MAINTENANCE AND CLEANING

Apart from occasionally exchanging the soldering tip and external cleaning, the soldering station is maintenance-free.

1. Exchanging the soldering tip

Turn the soldering station off and let the soldering iron cool down completely. Loosen the metal cap nut on the shaft of the soldering iron. First pull off the metal shaft and then the soldering tip.
Attach a new soldering tip and tighten the shaft carefully again.

> ⚠️ *If you have selected a different type of soldering tip, you have to correct the temperature of the soldering tip.*

2. Replacing the Fuse

- If the power switch is not lit when the station is turned on although the outlet is live, unplug the soldering station from the outlet.
- The fuse holder is located in the bottom of the station.
- You can remove the fuse insert by turning counter-clockwise with a matching screwdriver.
- A defective fuse may only be replaced with a fuse of the same type and with equal electric parameters.
- Ensure a tight fit when screwing in the fuse insert.

3. Cleaning

- The unit should be cleaned with a clean dry cloth or brush only when unit is completely cooled.

> ⚠️ *Do not use cleaning agents which contain abrasives, petrol, alcohol or similar substances for cleaning purposes, as products can cause corrosion on the unit. Also,the vapors from this type f product can be explosive. Never use files, knives, sharp-edged tools, screwdrivers, metal brushes etc. be used for cleaning purposes.*

DISPOSAL

When the device has become unusable, dispose of it in accordance with your local disposal regulations. Be aware that the unit could contain lead if used with lead solder.

TROUBLESHOOTING

In choosing this digital soldering station, you have acquired a product which has been designed to be state of the art and reliable.
Problems and malfunctions may, however, still arise.
Please use the following table to troubleshoot the problem before contacting our technical support team:

> ⚠️ *Always adhere to the safety instructions. Never attempt to modify this station.*

Fault	Possible cause
No display of the soldering tip temperature SET:360 TMP:---	• The temperature is outside of the measurable range. • The soldering iron is not connected. • The soldering iron is defective.

Fault	Possible cause
Appliance does not power on--power switch is not illuminated.	• The fuse has blown. Replace the fuse.
Incomprehensible characters on the display or no operation possible	• The internal processor may be disrupted. Rest the device by turning it off and then turning it back on

TECHNICAL DATA

1. Technical data

	21-10120
Operating voltage	AC110V/60Hz
Power consumption	85 W (Max)
Soldering iron voltage	24V AC
Soldering iron output	60W
Soldering tip temperature	150～450℃
Fuse	250V T400mA Slow-blow

2. Technical Support

If you have any questions about using the product, please contact our technician support team at:

Phone: (800) 824-8324

Email: tech@mcmelectronics.com

For other customer support quesitons, contact our customer support team at:

Phone (877) 626-3532

Fax (800) 765-6960

Email: customerservice@mcmelectronics.com