ENGLISH

INSTRUCTION MANUAL - USB DIGITAL METER & TESTER - TYPE A

ET910

GENERAL SPECIFICATIONS

The Klein Tools ET910 is a USB digital multi-meter and tester combination for USB Type-A ports only. It simultaneously measures and displays the USB port voltage, current, capacity, energy, and resistance. It can also test the maximum current delivery capability of the USB port with internally built-in fixed loads-so user need not connect to an external load. It will function with any USB Type-A port that has the ability to deliver power. It requires NO batteries and uses minimal power from the power source to function, ensuring accurate and reliable readings.

- **Measurement Range:**
  Voltage: 3 to 20V DC **Current:** 0.05 to 3A
  Capacity used: 99,999mAh MAX* **Energy delivered:** 999Wh MAX*
  Resistance: 400Ω MAX
  Elapsed Time: Up to 999 hours, 59 min, 59 sec*
  ** Based on display layout*
- **Operating and Storage Altitude:** Up to 6562 ft. (2000 m)
- **Operating and Storage Temp:** 14° to 122°F (-10° to 50°C)
- **Relative Humidity:** <95% non-condensing
- **Dimensions:** Tester: 4.31" x 2.15" x 0.98" (110 x 54 x 25 mm)
  Cable: Approx. 4" (100 mm)
- **Weight:** 2.8 oz. (78 g) **Pollution degree:** 2
- **Drop Protection:** 6.6 ft. (2 m) **Ingress Protection:** IP20
- **Compatibility:** Qualcomm Quick Charge® Compatible
- **Standards:** EN 61326-1, EN61326-2-2, FCC Part 15B VOC.
  Conforms to UL STD. 61010-1, 61010-2-030.
  Certified to CSA STD. C22.2 No. 61010-1, 61010-2-030.

Specifications subject to change.

FUNCTION BUTTONS (FIG. 1)

MODE BUTTON ④ (Screen Toggle/Data Storage/Memory reset)

The Mode button serves three purposes:

1. Switch between screens (FIG. 2):

- From the default screen, pressing and releasing once will switch to the Enhanced Screen.
- From the default screen, pressing and releasing twice will switch to the Memory Screen.
- When in the Memory Screen, repeated pressing will cycle through all 10 memory locations, beginning with M:1.

2. Data/Memory Storage and Recall:

- To record a reading during live monitoring event, press and hold the Mode button for 3 seconds. Release the button after the memory location (i.e. **M:1**) flashes momentarily on the screen. The next set of readings will be stored at the next available location until all 10 memory locations are used. ***NOTE: After all 10 locations are used, subsequent readings will overwrite the original 10 stored readings, beginning with M:1.***

3. Memory Reset:

- To reset or erase all data in memory, press and hold the Mode button for 5 seconds from the Memory screen until the letters **CLR** flash in the upper right corner (Fig. 2). All data in memory will be erased in all 10 memory locations.

FUNCTION BUTTONS (FIG. 1)

TEST LOAD BUTTON ③ (Selects current load to output)

Available test load values are 0.5A, 1.0A, 2.0A, and 3.0A. Quick presses of the Test Load button will toggle through the values. Default testing load at power-on is 0.5A; to select 1.0 A press once, for 2.0A press twice, and for 3.0A press three times.

The selected load value is indicated by the red LEDs beneath the display. Testing will initiate at the indicated load after about three seconds of releasing the Test Load button, so it is important to select the desired load quickly. If no load is selected within one second after powering on, testing will initiate at 0.5A.

NOTE: The output USB ② is disabled when the test load is used.

⚠ WARNINGS

To ensure safe operation and service of the tester, follow these instructions. Failure to observe these warnings can result in severe injury or death.

- This tester will **NOT** display current below 50 mA, even if it is allowing this to pass through. ***NOTE: The display will show zero current.***
- **DO NOT** use with ports that operate outside of the rated voltage and current.
- Before each use verify tester operation by measuring a known voltage or current.
- **NEVER** use on a circuit with voltage or current that exceeds the maximums specified for this device. (Display will read "OVERLOAD" in this condition)
- **DO NOT** use during electrical storms or in wet weather.
- **DO NOT** use if tester appears to be damaged.
- Use caution when working with voltages above 25V AC RMS or 60V DC. Such voltages pose a shock hazard. ***NOTE: Voltage above 24V DC will damage product.***
- Always adhere to local and national safety codes. Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

⚠ CAUTION

- **DO NOT** attempt to repair this tester. there are no serviceable parts.
- **DO NOT** modify this tester in any way.
- **DO NOT** expose to extremes in temperature or high humidity.
- This tester will **NOT** be able to monitor a source port if any of the following conditions occur:
  - The USB port or plug is not properly connected.
  - The source device shuts down. Some portable storage batteries have auto-shutdown or standby modes to save power if no load is detected from downstream device.

SYMBOLS ON TESTER

Important information: It is important that users of this tester read, understand, and follow all warnings, cautions, safety information, and instructions in this manual before operating this tester. Failure to follow instructions could result in death or serious injury.	**Warning** – Risk of electric shock
	This product has been independently tested by Intertek and meets applicable published standards
	Conformité Européenne: Conforms with European Economic Area directives
	Read instructions before using
	USB

OPERATING INSTRUCTIONS

MONITORING MODE

NOTE: The input plug must be connected to a powered USB device before the downstream device is connected to the output port. "Downstream device" refers to any device that has the ability to draw current over USB.

1. Connect the input connector to the USB port to be monitored
   - The display will turn on with Klein Tools logo screen and move quickly to the Default Screen (FIG 2).
   - If the source port has power, it should only display a live voltage reading within the operating range, 3-20V DC. ***NOTE: Most USB ports deliver ~5V DC.***
2. Connect the device being charged at output port. The display will show actual readings (FIG. 2).
3. User can monitor in either default or enhanced screens. Information displayed will differ (FIG. 2).

TESTING MODE

NOTE: Disconnect external load to operate in this mode.

The ET910 USB digital multi-meter can be used to test the maximum current that may be delivered from a powered USB port.

1. Connect the input connector to the USB port to be monitored.
   - The display will turn on with Klein Tools logo screen and move quickly to the Default Screen (FIG 2).
   - If the source port has power, it should only display a live voltage reading within the operating range, 3 – 20V DC. ***NOTE: Most USB ports deliver ~5V DC.***
2. Press the Test Load button to select test load.
3. Testing loads under 10V will take 3 seconds; loads over 10V will take 1 second. The red LED remains lit during testing. Once complete, the results will be displayed, including "PASS" or "FAIL". "PASS" indicates that the USB port delivered up to the load current being tested. LED shuts off after testing is complete.

NOTE: Some USB power sources have integrated self-protection circuitry which the tester may trigger, shutting off the source output, resulting in the tester also shutting off, failing the test.
NOTE: If the tester heats up beyond operating temperature following multiple current measurements, test mode will automatically deactivate and "HOT" will show on the display. If this occurs, disconnect all external input and output devices until the tester returns to normal operating temperature.

4. To save the test data, see **Data/Memory Storage and Recall** in the **FUNCTION BUTTONS** section.
5. To move on to the next test, press and release the **Test Load** or **Mode** button. The "PASS" or "FAIL" indicator will disappear. The tester is now ready for the next test. To switch to Monitoring mode, see **MONITORING MODE** section. ***NOTE: "mAh" resets only when source is disconnected.***

CLEANING

Be sure the tester is disconnected from both the input and output port. Use clean, dry, soft lint-free cloth to wipe down the entire unit.

- ***Do NOT use abrasive cleaners or solvents.***

STORAGE

Do not expose to high temperatures or humidity. After a period of storage in extreme conditions exceeding the limits mentioned in the General Specifications section, allow the tester to return to normal operating conditions before using.

DISPOSAL / RECYCLE

Do not place equipment and its accessories in the trash. Items must be properly disposed of in accordance with local regulations. Please see **www.epa.gov** or **www.erecycle.org** for additional information.

1. Power source INPUT (USB-A)
2. Load OUTPUT (USB-A)
3. Current Test Load button
4. Mode button
5. Current Test Load LED Indicator
6. LCD display
7. Ventilation slots (front & back)

A. DC voltage
B. DC current
C. Capacity/Charge delivered (mAh)
D. Elapsed Time (Hour:Min:Sec)
E. Memory cleared indicator
F. **PASS/FAIL** indicator
G. Energy delivered (Wh)
H. Resistance (Ω)
I. Memory Location (M:1, M:2, etc)

NOTE: No user-serviceable parts inside.

FIG. 1

FIG. 2