

## Pro'sKit MT-1820

# Pro'sKit MT-1820 Professional Grade Digital Multimeter

## USER INSTRUCTION MANUAL

### 1. Introduction

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This manual provides essential information for the safe and effective operation of your Pro'sKit MT-1820 Professional Grade Digital Multimeter. The MT-1820 is a 4-digit multimeter designed for high solution and accuracy, featuring a large LCD panel and an RS232 interface for computer connectivity. It is an excellent tool for laboratory, factory, maintenance, and repair applications.

### 2. Safety Information

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**Please read all safety information carefully before using the multimeter.**

- Always ensure the multimeter is in good working condition and that test leads are not damaged.
- Do not apply voltage or current that exceeds the maximum specified limits for the selected range.
- Exercise extreme caution when working with live circuits. High voltages can be dangerous.
- Ensure the correct function and range are selected before making measurements.
- Replace batteries when the low battery indicator appears to ensure accurate readings.
- Do not operate the multimeter in explosive atmospheres.
- Always disconnect test leads from the circuit before changing the function switch.

### 3. Product Overview

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The Pro'sKit MT-1820 features a large LCD display for clear readings, a rotary switch for function selection, and various input jacks for test leads.



**Figure 1:** Front view of the Pro'sKit MT-1820 Digital Multimeter, showing the large LCD display, rotary function switch, and input terminals.



Figure 2: Angled view of the Pro'sKit MT-1820 Digital Multimeter, illustrating its compact design and integrated kickstand for convenient desktop use.

### 3.1. Components

- **LCD Display:** Shows measurement readings, units, and function indicators.
- **Function Rotary Switch:** Used to select the desired measurement function (e.g., V, A,  $\Omega$ , Hz,  $^{\circ}\text{C}$ ).
- **Function Buttons:** Include HOLD, RANGE, MAX/MIN, REL, DUTY, and SELECT for additional measurement options.
- **Input Jacks:**
  - **COM:** Common terminal for the black test lead.
  - **V $\Omega$ Hz:** Input for voltage, resistance, frequency, and diode/continuity measurements (red test lead).
  - **mA:** Input for milliampere current measurements (red test lead).
  - **10A:** Input for high current measurements up to 10A (red test lead).

## 4. Setup

### 4.1. Battery Installation

The Pro'sKit MT-1820 requires three (3) AAA batteries (not included) for operation.

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment cover on the back of the unit.
3. Unscrew the retaining screw(s) and remove the cover.
4. Insert three AAA batteries, observing the correct polarity (+/-) as indicated inside the compartment.
5. Replace the battery compartment cover and secure it with the screw(s).

### 4.2. Connecting Test Leads

Always connect the black test lead to the COM jack. Connect the red test lead to the appropriate input jack based on the desired measurement:

- For Voltage (V), Resistance ( $\Omega$ ), Frequency (Hz), Diode, and Continuity: Connect the red lead to the **V $\Omega$ Hz** jack.
- For Milliampere Current (mA): Connect the red lead to the **mA** jack.
- For High Current (10A): Connect the red lead to the **10A** jack.

## 5. Operating Instructions

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### 5.1. General Operation

1. Turn the rotary switch to the desired measurement function.
2. Connect the test leads to the circuit or component under test.
3. Read the measurement value on the LCD display.
4. After use, turn the rotary switch to the OFF position to conserve battery life. The multimeter features an Auto Power Off (APO) function.

### 5.2. Measurement Functions

The MT-1820 offers a wide range of measurement capabilities:

- **DC Voltage (V=)**: Measures direct current voltage.
- **AC Voltage (V~)**: Measures alternating current voltage.
- **DC Current (A=)**: Measures direct current.
- **AC Current (A~)**: Measures alternating current.
- **Resistance ( $\Omega$ )**: Measures electrical resistance.
- **Continuity**: Tests for a continuous electrical path with an audible buzzer.
- **Diode Test**: Checks the forward voltage drop of a diode.
- **Frequency (Hz)**: Measures the frequency of an AC signal.
- **Capacitance (F)**: Measures capacitance.
- **Temperature ( $^{\circ}\text{C}/^{\circ}\text{F}$ )**: Measures temperature using a K-type thermocouple (if included).
- **hFE**: Measures the DC current gain of transistors.

### 5.3. Special Functions

- **HOLD**: Freezes the current display reading. Press again to release.
- **RANGE**: Manually selects the measurement range instead of auto-ranging.
- **MAX/MIN**: Records the maximum and minimum readings during a measurement session.
- **REL (Relative Mode)**: Stores a reading as a reference value and displays subsequent measurements as a deviation from this reference.
- **DUTY (Duty Cycle)**: Measures the duty cycle of a pulse waveform.
- **RS232 Interface**: Allows connection to a computer for data logging and analysis. Refer to specific software instructions for usage.

## 6. Maintenance

## 6.1. Battery Replacement

When the low battery indicator appears on the display, replace the batteries promptly to ensure accurate measurements. Follow the steps outlined in Section 4.1.

## 6.2. Fuse Replacement

If the current measurement function fails, the fuse may need replacement. Fuses are located inside the multimeter. Fuse specifications are typically printed near the input jacks (e.g., 10A MAX FUSED, 600mA MAX FUSED). Fuse replacement should only be performed by qualified personnel.

## 6.3. Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the multimeter is completely dry before use.

## 7. Troubleshooting

Problem	Possible Cause	Solution
No display or faint display	Dead or low batteries	Replace batteries (Section 4.1)
Incorrect readings	Incorrect function/range selected; Damaged test leads; Low battery	Verify settings; Check/replace leads; Replace batteries
Current measurement not working	Blown fuse	Replace fuse (Section 6.2)
Multimeter does not turn on	Batteries incorrectly installed; Faulty unit	Check battery polarity; Contact support if issue persists

## 8. Specifications

**Model Number:** MT-1820

**Display:** Large LCD, 4 digits

**Power Source:** Battery Powered (3x AAA batteries, not included)

**Dimensions (L x W x H):** Approximately 2.76 x 2.01 x 0.16 inches

**Item Weight:** Approximately 0.96 ounces (27.22 g)

**Features:** Auto Power Off (APO), Data Hold, MAX/MIN, Relative Mode, RS232 Interface

**Included:** Multimeter & probes

## 9. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or visit the official Pro'sKit website. Keep your purchase receipt as proof of purchase for warranty claims.

For further assistance, you may contact Pro'sKit customer service through their official channels.

