YuqiaoTime Victor 02S

YuqiaoTime Victor 02S Thermocouple Calibrator User Manual

Model: Victor 02S (YQ-VICTOR 02+)
Brand: YuqiaoTime

1. Introduction

The YuqiaoTime Victor 02S is a versatile thermocouple calibrator designed for precise input and output source measurements. It supports 8 types of thermocouple measurements (R, S, K, E, J, T, B, N) and offers high accuracy for various industrial and scientific applications.

Key Features:

- Supports 8 types of thermocouple measurement and output: R, S, K, E, J, T, B, N.
- Basic accuracy of 0.05% for both output and measurement.
- 5-digit display for measured values with 0.1℃ resolution.
- Output unit conversion between ℃ and ℉.
- Measures and outputs DC voltage.
- High-accuracy temperature compensation at the cold terminal for thermocouple operations.
- Phase compensation for output, allowing the instrument to drive loads with capacitance up to 2000μF.
- Adjustable output gain for ease of operation.
- Built-in self-tests with closed-case calibration.

2. Package Contents

Please verify that all items are present and in good condition upon unpacking:

- Victor 02S Thermocouple Calibrator
- Test Leads
- User Manual
- 1 LR44 Battery (pre-installed or included separately)

3. Setup

3.1 Battery Installation

The Victor 02S calibrator requires 1 LR44 battery for operation. If the battery is not pre-installed or needs replacement, follow these steps:

1. Ensure the calibrator is powered off.
2. Locate the battery compartment on the back of the device.
3. Use a suitable tool (e.g., a small screwdriver) to open the battery compartment cover.
4. Insert the LR44 battery, observing the correct polarity (+/-).
5. Securely close the battery compartment cover.

Figure 3.1: Rear view of the Victor 02S calibrator, displaying the battery compartment cover with safety warnings regarding electrical shock, input removal, and fuse installation. It also indicates the power supply (1.5V alkaline battery) and CE certification.

3.2 Initial Power On

Press the power button (usually marked with a power symbol) to turn on the device. The display should illuminate, indicating the calibrator is ready for use.

4. Operating Instructions

The Victor 02S can perform both measurement and output functions for various electrical and temperature signals.

Figure 4.1: Front view of the Victor 02S Thermocouple Calibrator, showing the display, control buttons, and input/output terminals.

4.1 Connection Diagrams

Refer to the following schematic diagrams for proper wire connections for different measurement and output modes.

Figure 4.2: Detailed schematic diagrams showing various wire connection methods for the Victor 02S, including general output, DC voltage/thermocouple/thermal resistance measurement (2W), and resistance/RTD measurement (3W and 4W).

4.2 DC Voltage Output

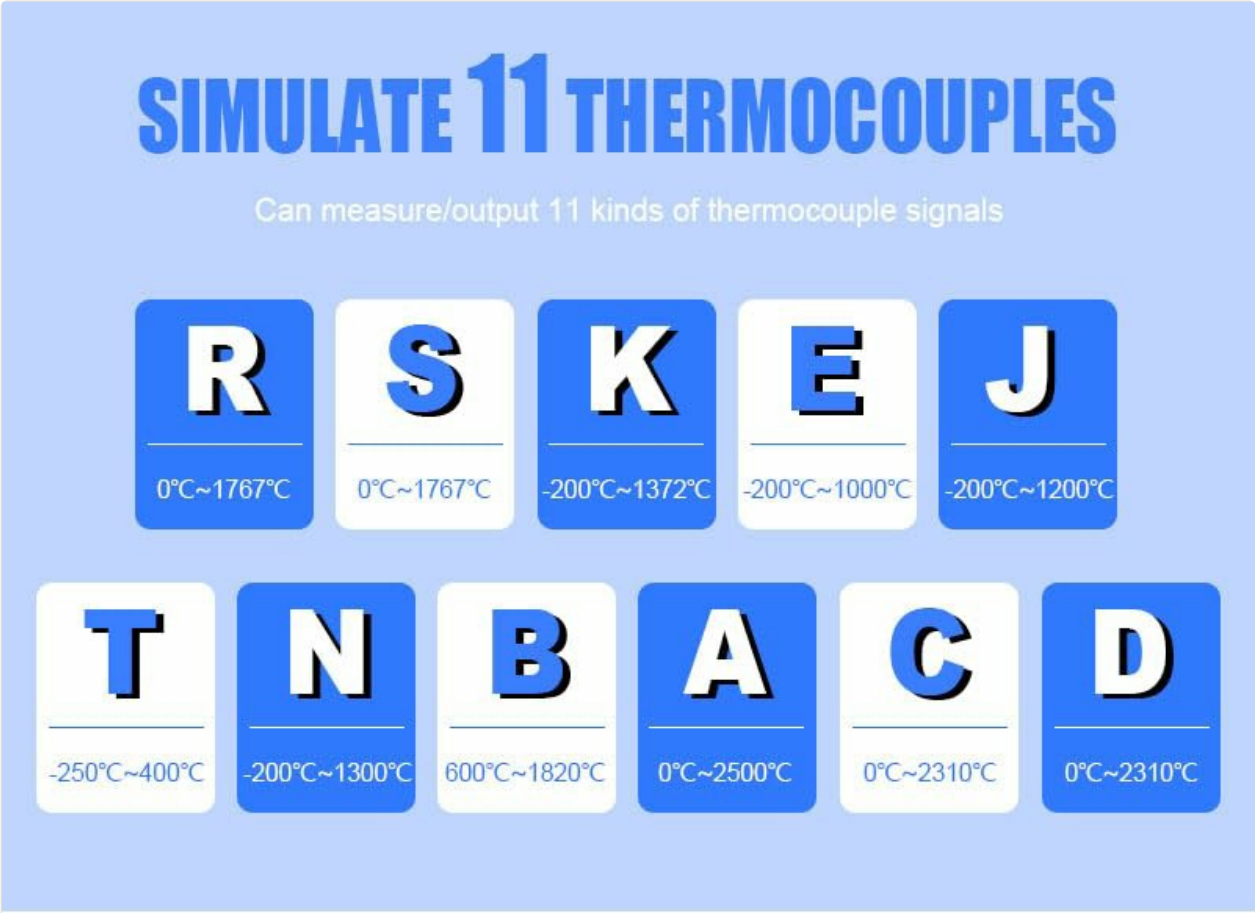
To output a specific DC voltage, connect the calibrator to a measuring device (e.g., a multimeter) using appropriate test leads. Use the navigation buttons to adjust the output voltage value on the calibrator's display. The connected device should show a corresponding reading.

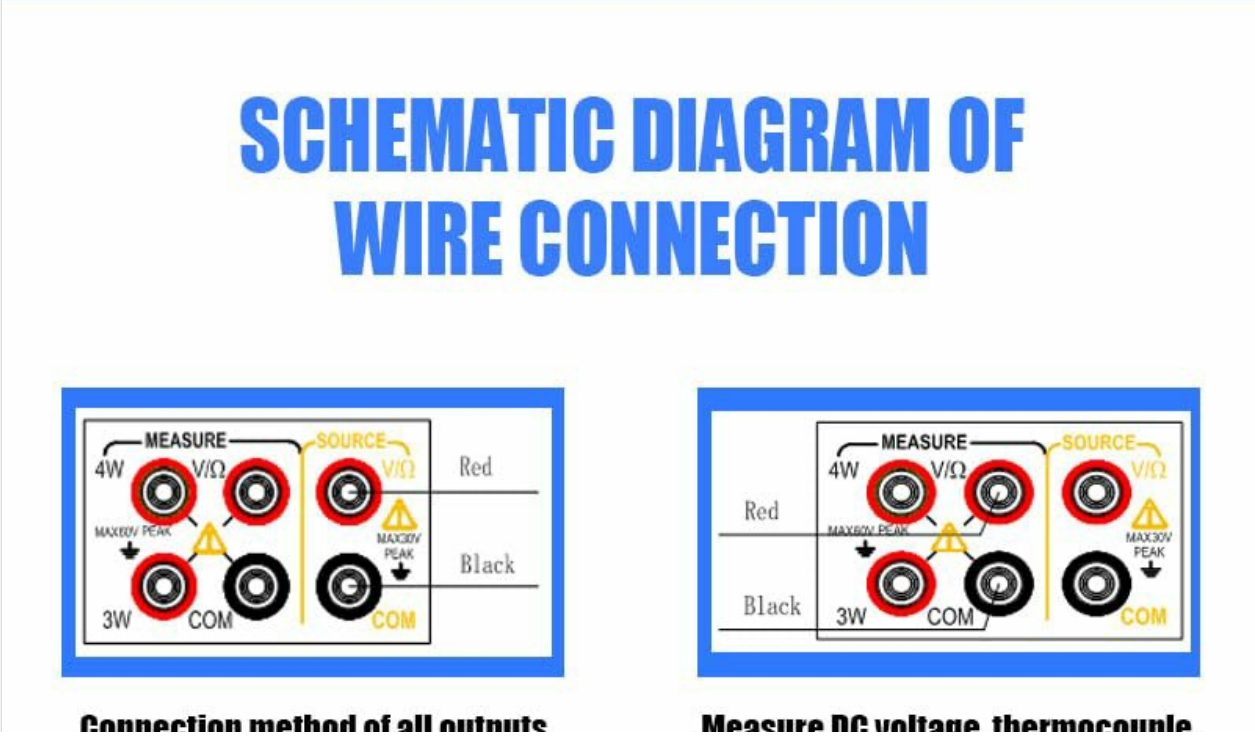
Your browser does not support the video tag.

Video 4.1: This video provides a visual guide on how to use the Victor 02+ Thermocouple Calibrator for both DC Voltage output and Temperature output. It shows the calibrator connected to a multimeter and a digital thermometer, demonstrating the adjustment of output values and the corresponding readings on the connected devices.

4.3 Temperature Output (Thermocouple/RTD)

The Victor 02S can simulate various thermocouple and RTD signals. Connect the calibrator to a temperature measuring device (e.g., a digital thermometer) compatible with the selected thermocouple or RTD type. Select the desired thermocouple or RTD type and adjust the temperature value using the calibrator's controls. The connected device will display the simulated temperature.





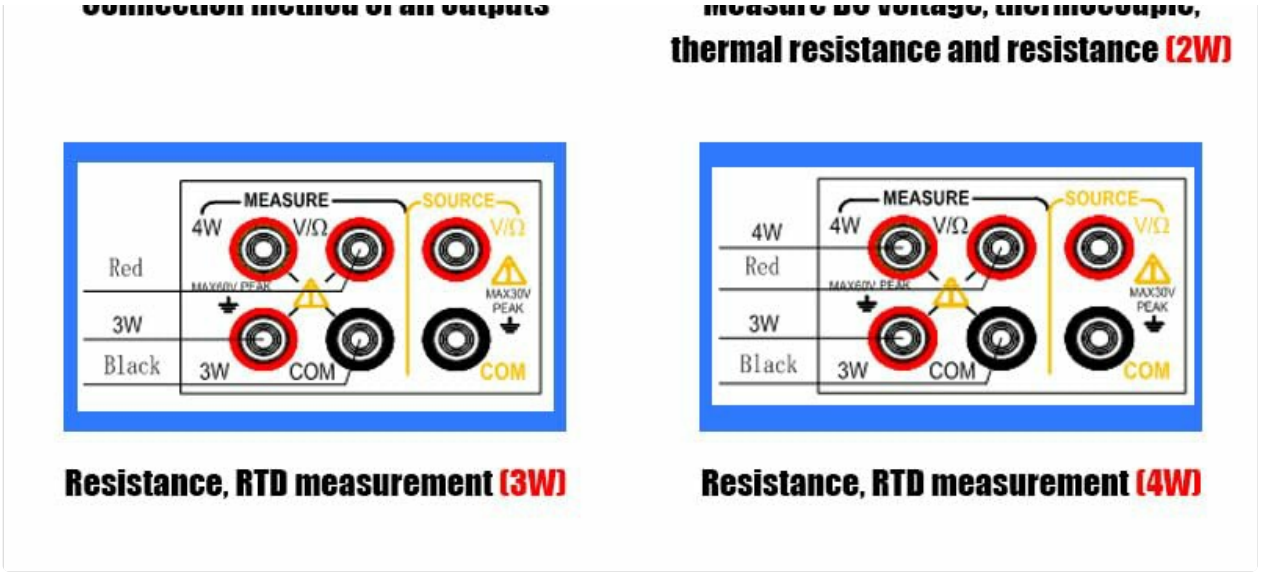


Figure 4.3: This diagram illustrates the 11 types of thermocouples that the Victor 02S calibrator can measure and output, including R, S, K, E, J, T, N, B, A, C, and D, along with their respective temperature ranges.

02 Analog output function

Used within one year after calibration, 23℃±5℃, 20-70% RH, accuracy = ± (% set value + reading)

- Uncertainty includes standard uncertainty, hysteresis, nonlinearity, repeatability, and typical long-term stability over the period mentioned (K = 2).
- Maximum applied voltage at output terminal: approximately 30Vpk; Maximum applied current at output terminal: approximately 25mA
- Output terminal protection: 100mA fuse.
- Temperature coefficient:0.1×basic accuracy/℃(temperature range < 18℃ or > 28℃)

Output	Range	Output range	Resolution	Accuracy
DCV	100mV	-10.000mV~110.00mV	0.01mV	0.05%+0.03mV
	1V	-0.1000V~1.1000V	0.0001V	0.05%+0.3mV
OMH	400Ω	0Ω~400.0Ω	0.1Ω	0.05%+0.2Ω
	4KΩ	0~4.000KΩ	1Ω	0.05%+2Ω
TC	R	0°C～1767°C	1°C	0～100℃：1.5℃ 10～1767℃：1.2℃
	S	0°C～1767°C		
	K	-200.0°C～1372.0°C	0.1°C	-200.0～400°C ：0.5°C 400～1372.0°C ：0.7°C
	E	-200.0°C～1000.0°C		-200.0°C～-100°C ：0.6°C -100.0～1000.0°C ：0.4°C
	J	-200.0°C～1200.0°C		-200.0～-100°C ：0.6°C -100.0～1200.0°C ：0.7°C
	T	-250.0°C～400.0°C		-250.0～400.0°C ：0.6°C
	N	-200.0°C～1300.0°C		-200.0～900°C ：0.7°C 900.0～1300.0°C ：0.8°C
	B	600°C～1820°C	1°C	600～800°C ：1.5°C 800～1820°C ：1.1°C
	A	0°C～2500°C	1°C	0.0C～1600C :2.0°C 1600C～2500.0C :2.4°C
	C	0°C～2310°C	1°C	0.0C～1600.0C :2.0°C 1600.0C～2310.0C :2.2°C
	D	0°C～2310°C	1°C	0.0～270.0°C: 2.4°C 270.0～2310.0°C: 2.2°C
RTD	Pt100(385)	-200.0°C～800.0°C	0.1°C	-200.0～400.0°C: 0.5°C 400.0～800.0°C: 0.8°C
	Pt200(385)	-200.0°C～630.0°C		-200.0～300.0°C: 0.8°C 300.0～630.0°C: 1.0°C
	Pt500(385)	-200.0°C～630.0°C		-200.0～300.0°C: 0.5°C 300.0～630.0°C: 0.7°C
	Pt1000(385)	-200.0°C～630.0°C		-200.0～300.0°C: 0.5°C 300.0～630.0°C: 0.7°C
	Cu50	-50.0°C～150.0°C		-50.0～150.0°C ：0.6°C

Figure 4.4: This diagram highlights the 5 types of thermal resistance (RTD) signals that the Victor 02S can simulate and measure: Pt100, Cu50, Pt200, Pt500, and Pt1000, with their corresponding temperature ranges.

5. Maintenance

5.1 Cleaning

Wipe the device with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure the device is not soaked in any liquid.

5.2 Storage

Store the calibrator in a cool, dry place away from direct sunlight and extreme temperatures. If storing for extended periods, remove the battery to prevent leakage.

5.3 Calibration

The Victor 02S features built-in self-tests and closed-case calibration. For professional calibration or service, contact the manufacturer or an authorized service center.

6. Troubleshooting

6.1 Device Not Powering On

- Check if the battery is correctly installed with proper polarity.
- Replace the battery with a new LR44 battery.

6.2 Inaccurate Readings/Output

- Ensure test leads are securely connected to both the calibrator and the measuring device.
- Verify that the correct measurement or output type (e.g., K-type thermocouple, DCV) is selected on both devices.
- Check for any damage to the test leads or connectors.
- Perform a self-test or refer to the calibration section if accuracy issues persist.

6.3 Display Issues

- If the display is dim, replace the battery.
- If the display shows error codes, consult the full manufacturer's manual for specific error definitions.

7. Specifications

The following tables detail the analog output, measurement, and general technical specifications of the Victor 02S Thermocouple Calibrator.

7.1 Analog Output Function

Figure 7.1: A comprehensive table detailing the analog output functions of the Victor 02S, including output types (DCV, OMH, TC, RTD), ranges, output ranges, resolution, and accuracy.

7.2 Measurement Specifications

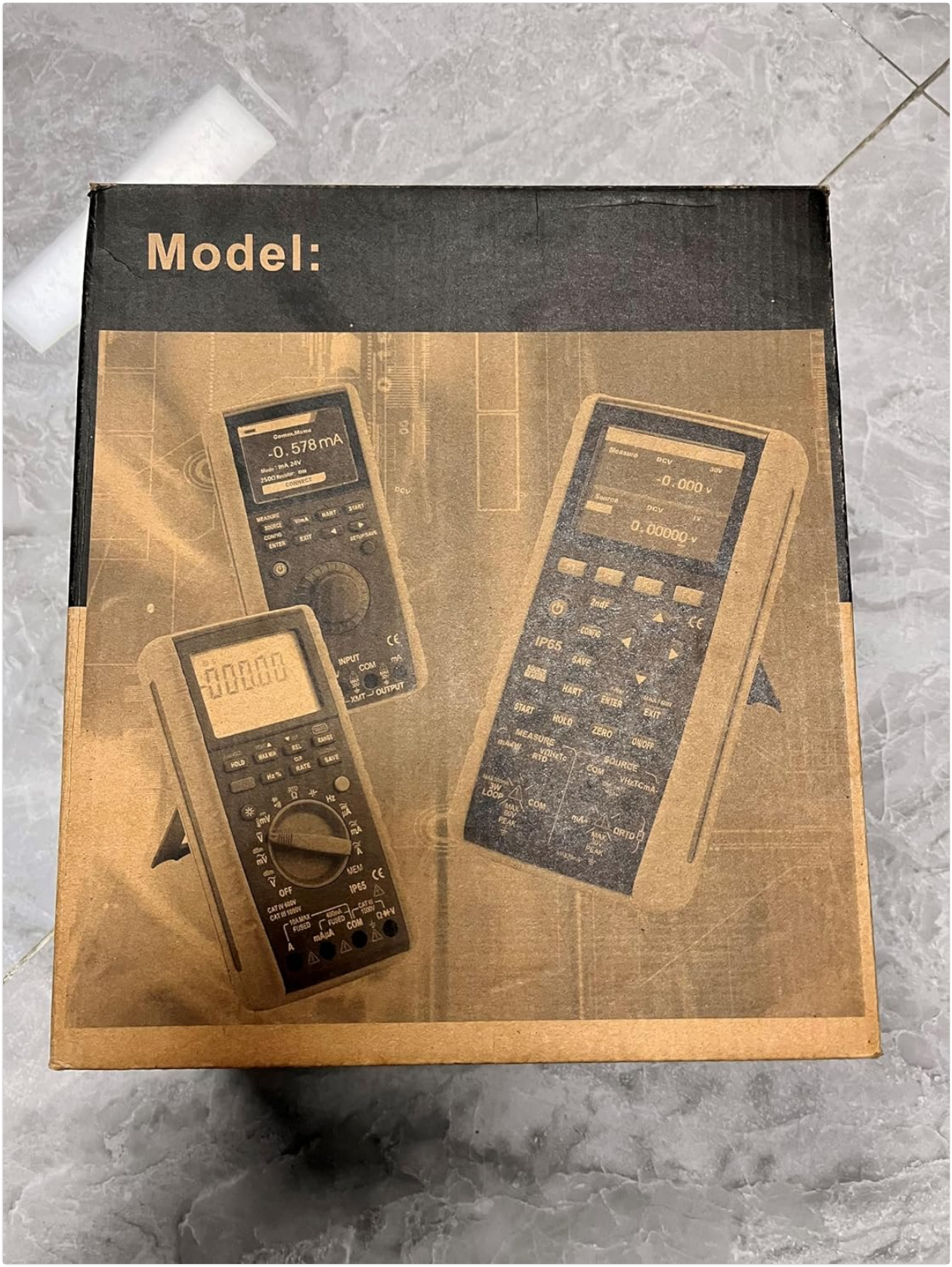


Figure 7.2: A detailed table outlining the measurement capabilities of the Victor 02S, including DCV, OMH, TC, RTD (3W), and On/off detection, with their respective ranges, measuring ranges, resolution, and accuracy.

7.3 General Technical Specifications

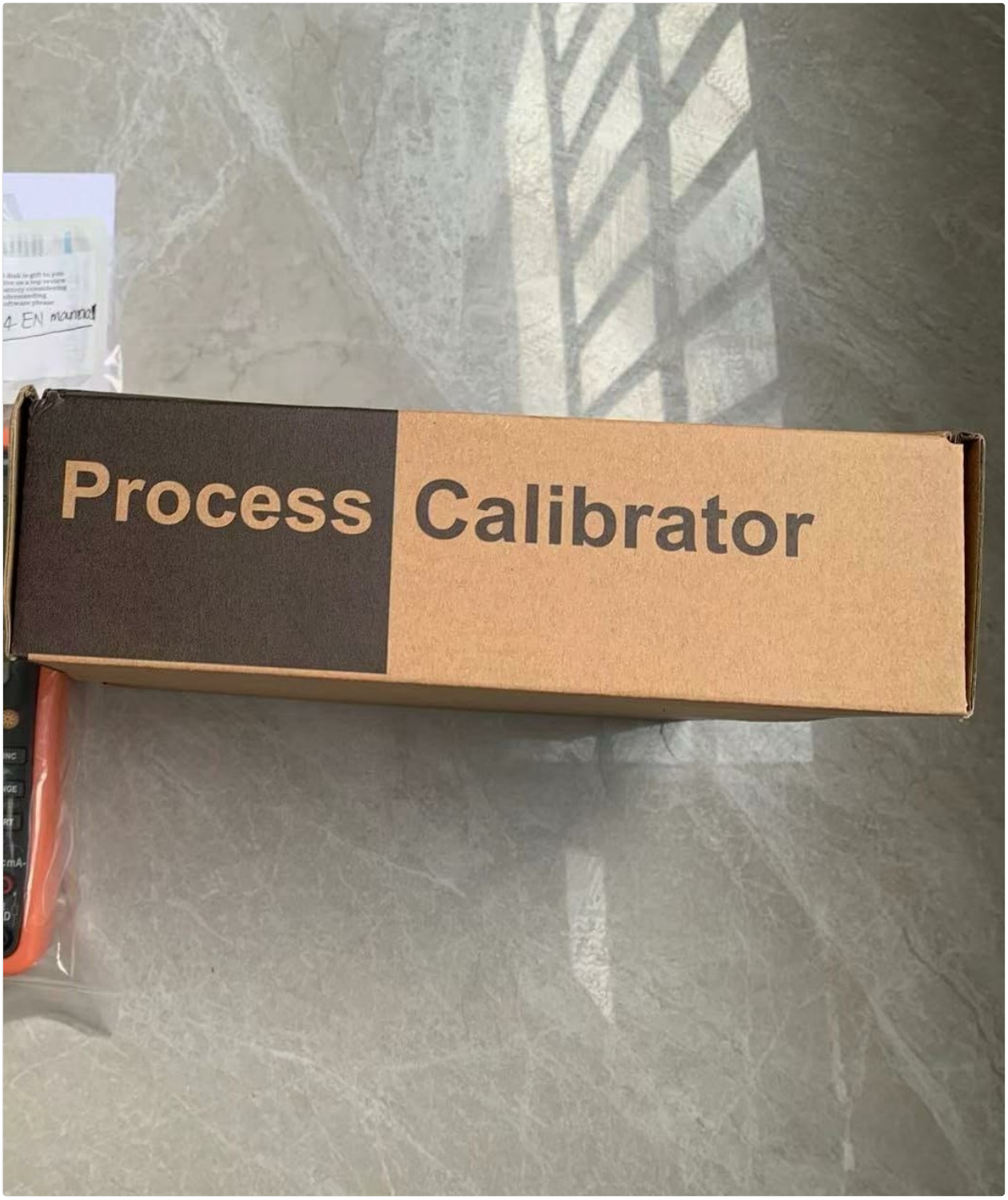


Figure 7.3: A technical specifications table comparing different models (01+, 02+, 03+, 04+, 05+) of Victor calibrators, detailing features like DC voltage, resistance, DC current, thermocouple, RTD, loop detection, and general characteristics.

Additional Product Specifications

Specification	Value
Product Dimensions	7.87 x 5.91 x 7.09 inches; 1.1 Pounds
Item Model Number	YQ-VICTOR 02+
Batteries Required	1 LR44 batteries (included)
Date First Available	August 20, 2023
Manufacturer	VICTOR
Special Feature	Light
Color	Multicolored
Specification Met	CE, FCC, ISO 9001, RoHS
Display Type	Digital
Connectivity Technology	USB
Product Care Instructions	Do Not Soak
Unit Count	1.0 Count

8. Warranty Information

Warranty information for the YuqiaoTime Victor 02S Thermocouple Calibrator is not explicitly detailed in the provided product data. Please refer to the manufacturer's official website or contact the seller directly for specific warranty terms and conditions.

9. Support

For technical assistance, troubleshooting, or service inquiries regarding your Victor 02S Thermocouple Calibrator, please contact YuqiaoTime customer support or visit their official website. Contact details are typically found in the packaging or on the manufacturer's website.