IMADA DTXA-10N

IMADA Manual Screw Cap Tester DTXA-10N User Manual

Model: DTXA-10N | Brand: IMADA

1. Introduction and Overview

The IMADA DTXA-10N is a high-performance desktop torque meter specifically designed for accurately measuring the opening and closing torque of various container caps. Manufactured by IMADA Co., Ltd., a specialist in force measurement, this device is an essential tool for quality control, research, and development in industries dealing with bottled or capped products.

It features a robust design, an intuitive interface with a high-brightness organic EL display, and advanced functions such as peak hold, pass/fail judgment, and data output capabilities. The standard package includes a versatile table and pins accommodating samples with diameters from 20mm to 160mm, making it suitable for a wide range of items like PET bottles, cans, and jars.

Figure 1.1: The IMADA DTXA-10N Manual Screw Cap Tester with its standard table and pins.

2. Product Features

- **Country of Origin:** Japan
- **Accuracy:** ±0.5% F.S. ±1 digit
- **Measurement Range:** 0 to 10 N-m (1000 N-cm)
- **Measurement Units:** N-m / N-cm (Switchable)
- **Sampling Rate:** Max 2000 times/second
- **Display:** High-brightness organic EL display, multi-display (2-stage selectable), screen display inversion, sign inversion.
- **Measurement Modes:** Peak hold (for maximum value, clockwise and counter-clockwise), Normal mode (for current value).
- **Data Management:** Internal memory (1000 data points), continuous data saving to USB memory (USB memory not included), data acquisition software (ZT-Logger) for PC with CSV export.
- **Quality Control Functions:** Comparator (Pass/Fail judgment with 3 levels: -NG/OK/+NG), +NG alarm, Overload warning, Sub-comparator (2 levels for High/Low judgment output).
- **Advanced Functions:** Zero clear timer, Sensitivity setting, Date/time display, 1st/2nd peak detection, Angle

detection at torque peak (requires separate angle meter), Angle reset at specified torque, Setting lock.

- **Output Interfaces:** USB, RS232C, ±2VDC analog output (D/A), Mitutoyo Digimatic (compatibility may vary).
- **Power:** Dedicated battery model BP-308 (user-replaceable), AC adapter.
- **Battery Life:** Approx. 8 hours operation (approx. 2 hours for full charge).
- **Operating Environment:** Temperature 0~+40°C / Humidity 20~80%RH.
- **Included Accessories:** ZT-Logger software, USB cable, AC adapter, Instruction manual, Inspection report, Standard table and standard pins, USB memory adapter.
- **Optional Accessories (Sold Separately):** Various DTXS/DTXA dedicated tables and attachments (e.g., Drill Chucks, Serrated Pin, Long Clamp Pin), Sample fixing stand TB-SP.

3. Setup

Follow these steps to set up your DTXA-10N unit for operation:

1. **Unpacking:** Carefully remove all components from the packaging. Verify that all standard accessories listed in Section 2 are present.
2. **Power Connection:** Connect the provided AC adapter to the unit's power input and plug it into a suitable power outlet. The unit can also operate on its internal BP-308 battery. Ensure the battery is charged before initial use.
3. **Table and Pin Installation:** The standard table and pins are pre-installed. If using optional tables or attachments, refer to their specific instructions for installation. Ensure the table is securely fastened.
4. **Placement:** Place the DTXA-10N on a stable, level surface to ensure accurate measurements.
5. **Initial Power On:** Press the power button to turn on the unit. The organic EL display should illuminate.

Figure 3.1: A sample bottle placed on the DTXA-10N's standard table, ready for testing.

4. Operating Instructions

The DTXA-10N offers various modes and functions for precise torque measurement:

1. **Sample Placement:** Place the cap or container to be tested securely on the standard table, ensuring it is centered and stable. The adjustable pins can be moved to accommodate samples from φ20mm to 160mm.

Figure 4.1: Proper placement of a sample jar on the tester's platform.

2. **Mode Selection:** Use the mode button to switch between Peak Hold mode (displays the maximum torque value achieved during the test) and Normal mode (displays the current torque value).
3. **Unit Selection:** Toggle between N-m and N-cm measurement units as required for your application.
4. **Performing a Test:** Apply torque to the cap (either opening or closing) while observing the display. The unit will capture and display the torque value according to the selected mode.
5. **Pass/Fail Judgment:** Set upper and lower torque limits in the settings. During a test, if the measured torque falls within the set range, an "OK" indicator will light up. If it's outside the range, "+NG" (over) or "-NG" (under) lamps will illuminate, providing immediate feedback for quality control.
6. **Screen Orientation:** The display can be inverted vertically to suit the user's viewing angle or operational direction.
7. **Data Logging:**
    - **Internal Memory:** The unit can store up to 1000 data points internally.
    - **USB Memory:** For continuous data saving, connect a USB memory stick (not included) to the unit via the provided adapter. Data can be saved at a sampling speed of 100 times per second.
    - **PC Connection:** Use the included ZT-Logger software and USB cable to connect the DTXA-10N to a PC. Data can be transmitted at 10 data points per second and saved in CSV format for further analysis.
8. **Angle Measurement (Optional):** If angle input/output is required, connect a compatible angle meter (sold separately) to the unit.

5. Maintenance

Proper maintenance ensures the longevity and accuracy of your DTXA-10N unit:

- **Cleaning:** Regularly wipe the unit's exterior with a soft, dry cloth. Avoid using abrasive cleaners or solvents that could damage the display or casing.
- **Battery Replacement:** The dedicated BP-308 battery is user-replaceable. If the battery life significantly decreases, replace it with an original IMADA BP-308 battery. Refer to the battery replacement guide in the full instruction manual for detailed steps.
- **Storage:** When not in use for extended periods, store the unit in a clean, dry environment within the specified operating temperature and humidity ranges.
- **Calibration:** For continued accuracy, periodic calibration by an authorized service center is recommended.

6. Troubleshooting

This section addresses common issues you might encounter. For problems not listed here, please contact IMADA customer support.

Problem	Possible Cause	Solution
Unit does not power on.	Low battery or AC adapter not connected/faulty.	Connect AC adapter and ensure power outlet is active. Charge battery. If issue persists, replace battery.
Inaccurate readings.	Unit not calibrated, unstable surface, or incorrect sample placement.	Ensure unit is on a stable, level surface. Verify sample is correctly placed. Consider professional calibration.
Display is dim or unreadable.	Display brightness setting, or unit malfunction.	Adjust display brightness in settings. If issue persists, contact support.
Data not saving to USB.	USB memory not inserted correctly, incompatible format, or full.	Ensure USB memory is properly inserted. Check USB memory format (FAT32 recommended). Delete old data or use a new USB.

7. Specifications

Specification	Detail
Manufacturer	IMADA
Part Number	DTXA-10N
Item Weight	4.5 Kilograms
Package Dimensions	44 x 32 x 21 cm
Batteries	1 Product specific battery (included)

Specification	Detail
Size (Unit Only)	Approx. W233 x D305 x H87mm (excluding standard table and standard pins)
Power Type	Battery operated
Battery Type	Nickel-hydrogen
ASIN	B01NBV9F50
Date First Available on Amazon.co.jp	2017/1/16

8. Warranty and Support

For information regarding product warranty, please refer to the warranty card included with your purchase or visit the official IMADA website. For technical support, service, or inquiries about optional accessories and calibration services, please contact IMADA customer service directly. Contact details can typically be found on the manufacturer's website or in the full instruction manual.