SHIMPO FGP-20

SHIMPO FGP-20 High-Performance Digital Force Gauge User Manual

Model: FGP-20

Overview Safety Information Product Features Setup Operating Instructions Maintenance Troubleshooting Specifications Warranty & Support

1. Overview

The SHIMPO FGP-20 is a high-performance digital force gauge designed for precise and efficient force measurement. This device offers advanced features such as high-speed data sampling, multiple memory modes, and a comparator function, making it suitable for various industrial and research applications. Its USB interface ensures easy connectivity for data acquisition and analysis.

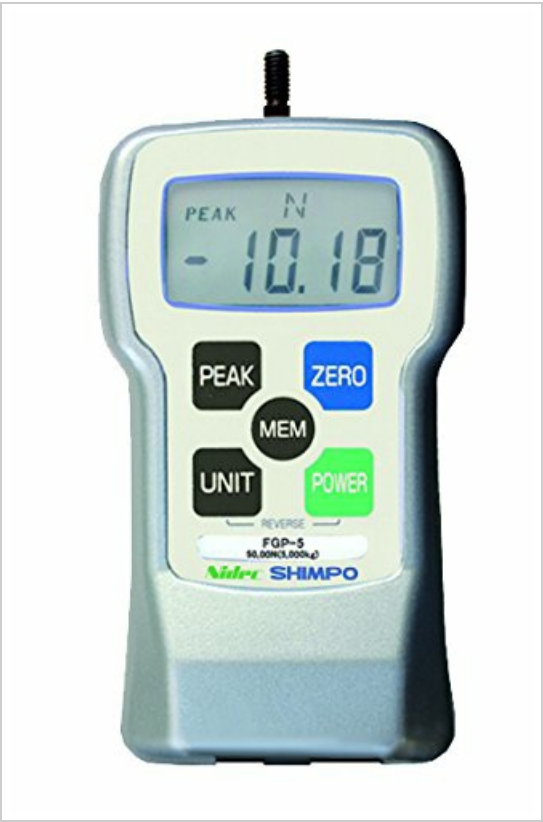


Figure 1: SHIMPO FGP-20 Digital Force Gauge. This image shows the front view of the FGP-20 device, highlighting its display screen and control buttons.

2. Safety Information

Please read and understand all safety instructions before operating the FGP-20 force gauge to prevent injury or damage to the device.

- **Do not exceed the rated capacity:** Applying force beyond the specified limit (±200N) can cause permanent damage to the sensor.
- **Handle with care:** Avoid dropping or subjecting the device to strong impacts.
- **Keep dry:** Do not expose the device to water or excessive humidity.
- **Use in a stable environment:** Operate the force gauge on a stable, level surface to ensure accurate readings.
- **Power supply:** Use only the specified power adapter or batteries.
- **Maintenance:** Refer to the maintenance section for proper cleaning and care. Do not attempt to disassemble the device.

3. Product Features

The SHIMPO FGP-20 Digital Force Gauge incorporates several advanced features for versatile and accurate force measurement:

- **High-Speed Data Acquisition to Excel:** The 'Torii-mon USB' add-in software facilitates importing measurement data into Excel at 100 times/second, enabling efficient editing and analysis on a PC. (Excel is a trademark of Microsoft.)
- **High-Speed Sampling:** Capable of high-speed data acquisition, including peak measurements at 1000 times/second.
- **Memory Function:** Features three distinct modes: continuous memory, single memory, and standard memory. The device can store up to 1000 data points in continuous memory mode.
- **USB Functionality:** Equipped with a versatile USB interface for straightforward data acquisition and seamless PC connectivity.
- **Comparator Function:** Allows for pass/fail judgment of measured values by setting user-defined upper and lower limits.
- **Measurement Variations:** Expanded measurement capabilities when integrated with an electric test stand.

4. Setup

Follow these steps for the initial setup of your FGP-20 Digital Force Gauge:

1. **Unpacking:** Carefully remove the force gauge and all accessories from the packaging. Verify that all components are present according to the packing list.
2. **Power Supply:** Insert the specified batteries into the battery compartment, observing correct polarity. Alternatively, connect the AC adapter to the device and a power outlet.
3. **Initial Power On:** Press the power button to turn on the device. The display should illuminate.
4. **Unit Selection:** If necessary, adjust the measurement unit (N, kg(g)) using the unit selection button as described in the operating instructions.
5. **Attachment Installation:** Securely attach any required measurement accessories (e.g., hooks, flat heads) to the load cell shaft. Ensure they are tightened properly to prevent slippage during measurement.

5. Operating Instructions

This section details the various operating modes and functions of the FGP-20.

5.1 Basic Measurement

1. Turn on the device.
2. Select the desired measurement unit (N, kg(g)). The display can also be inverted if needed.
3. Apply force to the load cell. The current force value will be displayed.
4. For normal measurement, the display updates at the selected display cycle (1 to 20 times/second).

5.2 Peak Measurement

The FGP-20 supports both Plus Peak and Minus Peak measurement modes.

- **Plus Peak Measurement:** Records the maximum tensile (pulling) force applied.
- **Minus Peak Measurement:** Records the maximum compressive (pushing) force applied.

To activate a peak measurement mode, press the corresponding button (e.g., 'PEAK+' or 'PEAK-'). The device will capture and hold the peak value. Press the button again to clear the peak and resume normal measurement.

5.3 Memory Function

The FGP-20 offers three memory modes:

- **Continuous Memory:** Stores data points sequentially at a high sampling rate (1000 times/second). Up to 1000 data points can be stored.
- **Single Memory:** Stores individual measurement values manually.
- **Standard Memory:** Stores specific measurement values based on predefined criteria.

Refer to the detailed instructions in the full manual for specific steps on activating and managing data in each memory mode.

5.4 Comparator Function

The comparator function allows you to set upper and lower limits for pass/fail judgment.

1. Enter the settings menu to define the upper and lower force limits.
2. Activate the comparator function.
3. During measurement, the device will indicate whether the measured value falls within the acceptable range (pass) or outside it (fail).

5.5 USB Data Acquisition

Connect the FGP-20 to a PC using a USB cable. Utilize the 'Torii-mon USB' add-in software for Excel to acquire and manage measurement data efficiently. Ensure the software is installed on your PC before connecting the device.

6. Maintenance

Proper maintenance ensures the longevity and accuracy of your FGP-20 Digital Force Gauge.

- **Cleaning:** Wipe the device with a soft, dry cloth. For stubborn dirt, use a cloth lightly dampened with mild detergent, then wipe dry immediately. Do not use abrasive cleaners or solvents.
- **Storage:** Store the force gauge in a cool, dry place away from direct sunlight, extreme temperatures, and high humidity. If storing for an extended period, remove the batteries to prevent leakage.
- **Calibration:** Regular calibration is recommended to maintain measurement accuracy. Refer to your local SHIMPO service center for calibration services.
- **Battery Replacement:** Replace batteries when the low battery indicator appears on the display. Ensure correct polarity when inserting new batteries.

7. Troubleshooting

This section provides solutions to common issues you might encounter with your FGP-20.

Problem	Possible Cause	Solution
Device does not power on	Dead batteries or incorrect battery insertion; AC adapter not connected or faulty.	Replace batteries, ensuring correct polarity. Check AC adapter connection and functionality.
Inaccurate readings	Overload applied; device needs calibration; unstable measurement environment.	Ensure force is within rated capacity. Contact service for calibration. Use on a stable surface.
USB data transfer not working	USB cable faulty; 'Torii-mon USB' software not installed or running; driver issues.	Try a different USB cable. Install or restart the 'Torii-mon USB' software. Check device drivers on your PC.
Display shows 'OVER'	Force applied exceeds the rated capacity.	Remove the excessive load immediately to prevent damage.

If the problem persists after attempting these solutions, please contact SHIMPO customer support.

8. Specifications

Detailed technical specifications for the SHIMPO FGP-20 Digital Force Gauge:

- **Brand:** SHIMPO
- **Model Number:** FGP-20
- **Rated Capacity:** ±200N
- **Units:** N, kg(g) (invertible display possible)
- **Measurement Method:** Normal measurement, Plus peak measurement, Minus peak measurement
- **Display Cycle:** 1 time/second, 2 times/second, 3 times/second, 5 times/second, 10 times/second, 20 times/second
- **Sampling Cycle:** 1000 times/second
- **Accuracy:** 0.2% R.C. and ±1/2 digit (at 23 degrees Celsius)
- **Material:** Polycarbonate (PC)
- **Interface:** USB
- **Memory Capacity:** Up to 1000 data points (in continuous memory mode)

9. Warranty and Support

For warranty information, technical support, or service inquiries regarding your SHIMPO FGP-20 Digital Force Gauge, please refer to the warranty card included with your product or visit the official SHIMPO website. Contact details for customer service are typically provided in the product packaging or on the manufacturer's website.
Please have your model number (FGP-20) and purchase date available when contacting support.

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Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question