

Mastech MS2203

Mastech MS2203 3-Phase Digital Power Clamp Meter Instruction Manual

Model: MS2203

1. INTRODUCTION

The Mastech MS2203 is a professional 3-Phase Digital Power Clamp Meter designed for accurate measurement of electrical parameters in three-phase systems. This instrument features high sensitivity, True-RMS measurement, power factor correction, and a USB interface for data logging. This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your MS2203 meter.

2. SAFETY INFORMATION

To ensure safe operation and service of the meter, follow these safety precautions:

- Always adhere to local and national safety codes.
- Do not use the meter if it appears damaged or if the insulation on the test leads is compromised.
- Ensure the rotary switch is in the correct position for the desired measurement before connecting to the circuit.
- Do not exceed the maximum input ratings for any function.
- Exercise extreme caution when working with live circuits.
- Keep fingers behind the finger guards on the test leads during measurements.
- Replace batteries when the low battery indicator appears to ensure accurate readings.

3. PRODUCT OVERVIEW

The Mastech MS2203 is a versatile clamp meter capable of measuring AC voltage, AC current, frequency, active power, apparent power, reactive power, and power factor. It features a large LCD display with backlight, data hold, MAX/MIN recording, and a bar graph for quick visual indication.



Image 3.1: The Mastech MS2203 3-Phase Digital Power Clamp Meter and its accessories, neatly organized within its protective carrying case. The kit includes the clamp meter, test leads, USB cable, and user manual.


Key Features:

- Display: 9999 counts
- Jaw Opening: $\Phi 50\text{mm}/2.0''$
- Auto & Manual Ranging
- Data Logging: 28 groups
- True Root Mean Square (True-RMS) measurement
- Bar Graph display
- MAX/MIN Measurement function
- Data Hold function
- Display Backlight for low-light conditions
- Low Battery Display indicator
- RS232 Interface for Windows OS connectivity

4. UNPACKING AND CONTENTS

Carefully unpack the meter and check for any damage. Verify that all items listed below are present. If any

item is missing or damaged, contact your dealer immediately.



CE
ETL Intertek
RoHS
CAT II 600V

THREE PHASE DIGITAL POWER CLAMP METER

MS2203

SKU NO.: MS2203CBGLO
UPC CODE: 810053672570
EAN CODE: 8435394778211

FEATURE

- Auto & Manual Ranging.
- Data Logging 28 groups.
- True Root Mean Square.
- Bar Graph.

SPECIFICATIONS






AC Voltage 600V	AC Current 1000A	Frequency 1000Hz
Active Power 600kW	Apparent Power 600kVA	Reactive Power 600kVAr
Jaw Opening 50mm/2.0"	Display Counts 9999	

MAIN APPLICATIONS

INDUSTRIAL

V A

CONTENTS

 300x103x51mm 11.8"x4.1"x2.0" 640g/1.4lb	 4x1.5V AAA Batteries
 Test Leads Alligator clip RS232C interface cable PC data record graph software Carry Case Battery	 Calibration Certificate
	 Quick Start Guide

PACKAGING INFORMATION




 Color Box L370xW140xH324mm	
 Carton Box 58x39x35cm	 X 4PCS

Image 4.1: An illustrative diagram detailing the contents included with the Mastech MS2203, such as the main unit, test leads, alligator clips, RS232 cable, software, carrying case, and batteries.

Package Contents:

- Mastech MS2203 3-Phase Digital Power Clamp Meter
- Test Leads (Red, Yellow, Green, Black)
- Alligator Clips
- RS232 Interface Cable
- PC data record graph software (CD-ROM)
- Carrying Case
- Batteries (2 x LR44, included)
- Quick Start Guide

- Calibration Certificate

5. SETUP

5.1 Battery Installation

1. Locate the battery compartment cover on the back of the meter.
2. Use a screwdriver to loosen the screw(s) and remove the cover.
3. Insert the two LR44 batteries, observing the correct polarity (+/-) as indicated inside the compartment.
4. Replace the battery cover and secure it with the screw(s).

5.2 Connecting Test Leads

Insert the banana plugs of the test leads into the appropriate input jacks on the meter. For most measurements, the common (COM) jack will be used with the black lead, and the V1, V2, V3, or A jacks will be used with the colored leads (red, yellow, green) depending on the measurement type and phase configuration.

5.3 USB/RS232 Interface Setup

To connect the meter to a computer for data logging and analysis:

1. Install the provided PC data record graph software from the CD-ROM onto your Windows OS computer.
2. Connect one end of the RS232 interface cable to the meter's RS232 port.
3. Connect the other end of the cable to an available USB port on your computer (an RS232-to-USB adapter may be required if your computer lacks an RS232 port).
4. Follow the software instructions to establish communication with the meter.

6. OPERATING INSTRUCTIONS



Image 6.1: The Mastech MS2203 in use, highlighting the digital display and the rotary selector for various measurement functions.

6.1 Power On/Off

To power on the meter, rotate the function switch from the 'OFF' position to any desired measurement function. To power off, rotate the switch back to 'OFF'.

6.2 Function Selection

The rotary switch allows selection of different measurement modes. Ensure the switch is set to the appropriate function before taking a measurement.

6.3 Measurement Procedures

AC Current Measurement:

1. Rotate the function switch to the 'A' (AC Current) position.
2. Open the clamp jaws by pressing the trigger.
3. Enclose only one conductor of the circuit within the jaws. Ensure the jaws are fully closed.
4. Read the current value on the display.

AC Voltage Measurement (3-Phase):

1. Rotate the function switch to the 'V' (AC Voltage) position.
2. Connect the test leads to the V1, V2, V3, and COM input jacks.

3. Connect the test leads to the respective phase conductors and neutral/ground of the 3-phase system.
4. The meter will display the voltage readings for each phase.

Power Measurement (Active, Apparent, Reactive, Power Factor):

1. Rotate the function switch to the 'W/PF' (Power/Power Factor) position.
2. Connect the test leads and clamp the current jaws as required for 3-phase power measurement.
3. The meter will display active power (W), apparent power (VA), reactive power (VAR), and power factor (PF).

6.4 Special Functions

- **Data Hold:** Press the 'HOLD' button to freeze the current reading on the display. Press again to release.
- **MAX/MIN Measurement:** Press the 'MAX/MIN' button to record the maximum and minimum values during a measurement session. Press again to cycle through MAX, MIN, and current readings.
- **Data Logging:** The meter can store up to 28 groups of data. Refer to the detailed software manual for instructions on logging and retrieving data via the RS232 interface.
- **Backlight:** Press the backlight button to illuminate the display for use in dimly lit environments.
- **True-RMS:** The MS2203 provides True-RMS measurements for accurate readings on non-sinusoidal waveforms.

7. MAINTENANCE

7.1 Cleaning

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

7.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 5.1. Remove batteries if the meter is not to be used for an extended period.

7.3 Storage

Store the meter in its carrying case in a cool, dry environment, away from direct sunlight and extreme temperatures.

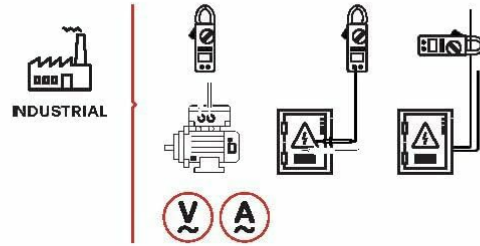
8. TROUBLESHOOTING

- **No Display:** Check battery installation and charge. Ensure the rotary switch is not in the 'OFF' position.
- **Inaccurate Readings:** Verify correct function selection and proper test lead connection. Ensure the clamp jaws are fully closed around a single conductor for current measurements. Check for low battery.
- **No PC Communication:** Ensure the RS232 cable is correctly connected and the software drivers are installed. Check COM port settings in the software.

9. SPECIFICATIONS



MAIN APPLICATIONS



CONTENTS



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11.8"x4.1"x2.0"
640g/1.4lb



4x1.5V AAA
Batteries



Test Leads
Alligator clip
RS232C interface cable
PC data record graph
software
Carry Case
Battery



Calibration
Certificate



Quick Start
Guide

PACKAGING INFORMATION



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Image 9.1: A detailed overview of the Mastech MS2203's technical specifications, including measurement ranges and display capabilities.





Parameter	Value
Display	9999 counts
Jaw Opening	50mm / 2.0"
AC Voltage	600V
AC Current	1000A
Frequency	1000Hz
Active Power	600kW

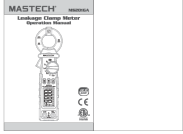
Parameter	Value
Apparent Power	600kVA
Reactive Power	600kVAR
Item Model Number	YQ-MS2203
Product Dimensions	7.87 x 5.91 x 9.84 inches
Item Weight	1 Kilogram (2.2 Pounds)
Batteries	2 LR44 batteries (included)

10. WARRANTY AND SUPPORT

Mastech products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the warranty card included with your product or visit the official Mastech website. Do not attempt to repair the meter yourself, as this may void the warranty and pose a safety risk.

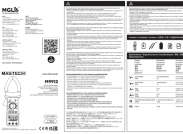
Related Documents - MS2203

	<p>MASTECH MS2203 Three Phase Power Clamp Meter Quick Start Guide</p> <p>This document provides a quick start guide for the MASTECH MS2203 Three Phase Power Clamp Meter. It includes essential safety precautions, detailed specifications, and step-by-step instructions for measuring AC voltage, AC current, and single-phase/three-phase power. Learn how to use the meter for various electrical testing applications.</p>
	<p>MASTECH MS2205 Digital Clamp Meter Operation Manual - Power & Harmonic Measurement Guide</p> <p>Comprehensive operation manual for the MASTECH MS2205 Digital Clamp Meter. This guide covers safety instructions, features, operation procedures for AC voltage, current, power, harmonics, and phase sequence measurements, along with technical specifications and maintenance details.</p>
	<p>MASTECH MS2205 Three Phase Power Clamp Meter Quick Start Guide</p> <p>A quick start guide for the MASTECH MS2205 Three Phase Power Clamp Meter, covering safety precautions, specifications, and connection diagrams for single-phase and three-phase power measurements.</p>
	<p>MASTECH Catalogue 2024: Electrical Test & Measurement Instruments</p> <p>The MASTECH Catalogue 2024 provides a comprehensive overview of MASTECH's extensive line of electrical test and measurement instruments. Featuring digital multimeters, clamp meters, infrared thermometers, and more, this catalog is designed for professionals and DIY enthusiasts. Discover detailed specifications, fast selection charts, and innovative solutions for industrial, construction, and general applications. Visit www.mastech-group.com for further details.</p>



[MASTECH MS2016A Leakage Clamp Meter Operation Manual](#)

Comprehensive operation manual for the MASTECH MS2016A AC Leakage Clamp Meter, covering safety information, specifications, operating guidance, maintenance, and accessories. Features include AC/DC voltage, resistance, capacitance, continuity, diode, and temperature measurements.



[MASTECH M9912 AC/DC Clamp Meter Quick Start Guide](#)

Quick start guide for the MASTECH M9912 AC/DC Clamp Meter, providing essential information on usage, specifications, and safety precautions.