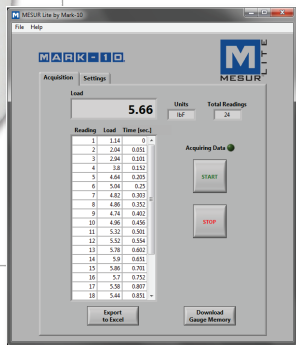




MESUR® Lite data acquisition software is included with the M51



The M51 advanced digital force / torque indicator is designed to work with a wide range of Mark-10 remote force and torque sensors (see page 3). With exclusive Plug & Test® technology, all calibration and configuration data is saved within the sensor's smart connector, not the indicator, allowing for true interchangeability. In addition, all sensors are fully compatible with other Mark-10 indicators.

The M51 shares its menu structure and most specifications with Series 5 digital force gauges. The sampling rate is a blazing fast 7,000 Hz, producing accurate results even for quick-action tests. A large, backlit graphics LCD displays large, legible characters, while the simple menu navigation allows for quick access to the indicator's many features and configurable parameters. Data can be transferred to a PC or data collectors via USB, RS-232, Mitutoyo (Digimatic), or analog outputs.

On-board data memory for up to 1,000 readings is included, as are statistical calculations with output to a PC. Integrated set points with indicators and outputs are ideal for pass-fail testing and for triggering external devices such as an alarm, relay, or test stand. An analog load bar is shown on the display for graphical representation of applied force or torque.

The M51's averaging mode addresses the need to record the average load over time, while external trigger mode makes switch activation testing simple and accurate.

The M51 includes MESUR® Lite data acquisition software. MESUR® Lite tabulates continuous or single point data. Data saved in the indicator's memory can also be downloaded in bulk. One-click export to Excel easily allows for further data manipulation.



M51 is shown mounted to an optional AC1008 tabletop stand with Series R50 torque sensor

## Features

- Interchangeable force and torque sensors through Plug & Test® technology
- Sensor password protection, for preventing use of an unauthorized sensor
- High-speed 7,000 Hz sampling rate
- USB, RS-232, Mitutoyo, and analog outputs
- 1,000-point data memory with statistics and outputs
- Live load bar graph with set point markers
- Programmable set points, with indicators and outputs
- Peak readings and set points always displayed
- Averaging mode - calculates average readings over time
- External trigger mode - for switch contact testing or remotely stopping display update
- Configurable audio alarms and key tones
- Password protection of individual keys and calibration

## Display Indicators



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## Focus on Engineering: Reversible Housing



## Focus on Engineering: Plug & Test® Technology



▲ Unique Plug & Test® technology allows for interchangeable sensors to be used with a Mark-10 model M71, M51, or M31 indicator. All calibration and configuration data is saved in the smart connector.

▲ The Plug & Test® connector locks into the receptacle in the indicator when fully inserted. Dual buttons on the indicator housing release the connector for easy removal. Gold plated spring contacts ensure long lasting and reliable connection.

## Specifications

<b>Accuracy:</b>	±0.1% of full scale + sensor
<b>Sampling Rate:</b>	7,000 Hz
<b>Power:</b>	AC adapter: 100-240VAC, 50-60 Hz, 0.3 A Battery: Rechargeable 8.4V NiMH Low battery indicator appears when battery level is low, and gauge powers off automatically when power reaches critical stage.
<b>Battery life:</b>	<b>Backlight on / off:</b> up to 7 / 24 hours of continuous use
<b>Outputs:</b>	<b>USB / RS-232:</b> Configurable up to 115,200 baud. Includes Gauge Control Language 2 for full computer control. <b>Mitutoyo (Digimatic):</b> Serial BCD suitable for all Mitutoyo SPC-compatible devices. <b>Analog:</b> ±1 VDC, ±2% of full scale at capacity. <b>General purpose:</b> Three open drain outputs, one input. <b>Set points:</b> Three open drain lines.
<b>Configurable settings:</b>	Digital filters, outputs, automatic output (via USB/RS-232), automatic shutoff, default settings, averaging mode, external trigger, passwords, key tones, audio alarms, backlight, calibration.
<b>Weight:</b>	0.7 lb [0.3 kg]
<b>Environmental requirements:</b>	40 - 100°F, max. 96% humidity, non-condensing
<b>Warranty:</b>	3 years (see individual statement for further details)



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Specifications subject to change without prior notice

## In The Box



The M5I force / torque indicator is shipped as shown at left, and includes the following accessories:

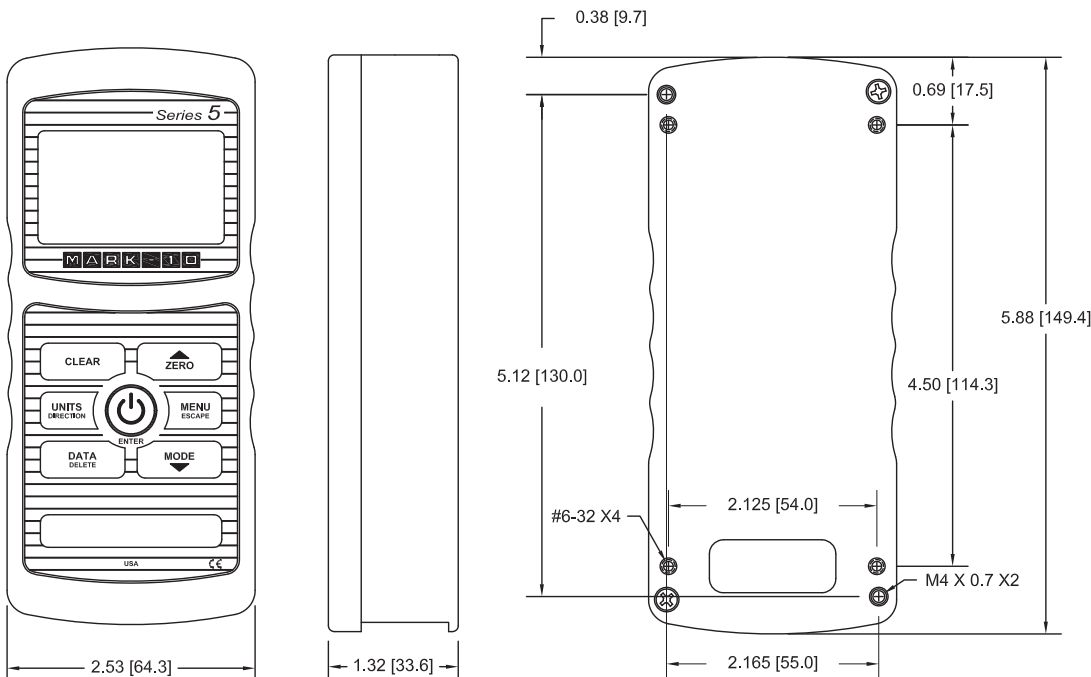
- (1) Carrying case
- (1) USB cable
- (1) AC adapter
- (1) Certificate of calibration. A combined certificate for the sensor and an indicator is available at time of order at no charge, part no. CERT-SI.

Force and torque sensors are available separately.

## Ordering Information

Model	Description
<b>M5I</b>	Advanced force / torque indicator, 110V
<b>M5IE</b>	Advanced force / torque indicator, 220V, European Plug
<b>M5IU</b>	Advanced force / torque indicator, 220V, UK Plug
<b>M5IA</b>	Advanced force / torque indicator, 220V, Australian Plug
<b>AC1008</b>	Tabletop mounting kit for M7I/M5I/M3I
<b>CERT-SI</b>	Combined certificate of calibration with data, indicator + sensor, calibrated as a set

## Dimensions in [mm]



Models M7I, M5I, and M3I force / torque indicators are designed for use with Mark-10's Plug & Test® remote force and torque sensors. All calibration and configuration data is saved within the sensors' smart connectors - not the indicator - allowing for true interchangeability. Each sensor series is available in a range of capacities, from 0.25 to 10,000 lbf (1 N to 50 kN) full scale and from 10 ozFin to 5,000 lbFin (7 Ncm to 550 Nm) full scale. Refer to individual sensor data sheets for further details.

### Series R50

Universal torque sensors, fixed chuck



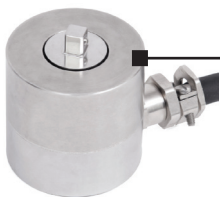
### Series R51

Universal torque sensors, interchangeable attachments



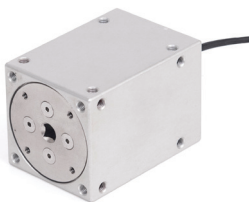
### Series R55

Torque sensors



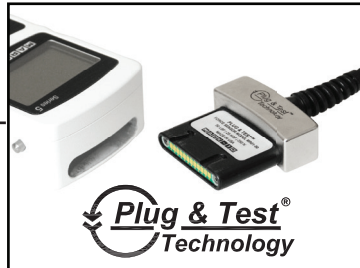
### Series R52

Static torque sensors



### Series R53

Closure torque sensors



### Model M7I

Professional Indicator



### Model M5I

Advanced Indicator



### Model M3I

Basic Indicator



### Series R01

Tension / compression sensors



### Series R03

Inline tension / compression sensors



### Series R04

Miniature tension / compression sensors



### Series R02

Compact compression sensors



### Series R05

Ergonomics testing push / pull sensors