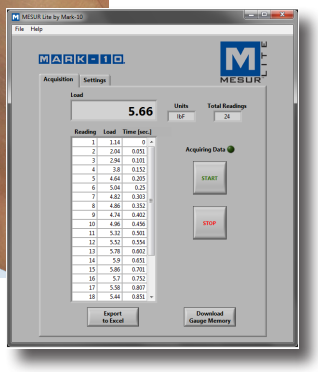
Data Sheet

Digital Force Gauges **Series 4**

32-1116 REV 0926





▶ MESUR® Lite data acquisition software is included with Series 4 gauges

Series 4 digital force gauges are designed for tension and compression force testing in numerous applications across virtually every industry, with capacities from 0.12 lb to 500 lb (0.5 N to 2500 N). The gauges feature a sampling rate of 3,000 Hz, producing accurate results under a wide range of test conditions. Accuracy is ±0.2% of full scale, and resolution is 1/2000. A large, backlit graphics LCD displays large, legible characters, while the simple menu navigation allows for quick access to the gauges' 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 50 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. The gauges are overload protected to 200% of capacity, and an analog load bar is shown on the display for graphical representation of applied force.

An ergonomic, reversible aluminum design allows for hand held use or test stand mounting for more sophisticated testing requirements. Series 4 digital force gauges are directly compatible with Mark-10 test stands, grips, and software.



▲ Shown with an ES30 test stand and G1008 film & paper grips

Series 4 gauges include MESUR® Lite data acquisition software. MESUR® Lite tabulates continuous or single point data from Series 5 and 4 gauges. Data saved in the gauge's memory can also be downloaded in bulk. One-click export to Excel button easily allows for further data manipulation.

Features

- **3,000 Hz sampling rate**
- **USB, RS-232, Mitutoyo, and analog outputs**
- **Large backlit graphic display**
- **50-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**
- **Configurable audio alarms and key tones**
- **5 selectable units of measurement**
- **MESUR® Lite data collection software included**

Display Indicators



Set points

Pass/fail indicators

Battery indicator

Number of saved data points

Tension / compression indicator

Peak readings

Current reading

Measurement mode

Units of measurement

Analog load bar w/set point markers

MARK-10®

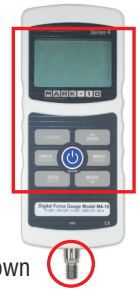
Mark-10 Corporation ■ **www.mark-10.com** ■ **info@mark-10.com**
Toll-free: 888-MARK-TEN ■ **Tel: 631-842-9200** ■ **Fax: 631-842-9201**

3 YEAR WARRANTY

Specifications subject to change without prior notice

Focus on Engineering: Reversible Housing

Display and keypad are upright



Shaft down



Housing separates into reversible halves, electrically connected by gold-plated spring contacts.

Shaft up



Reversible housing allows the gauge to be handheld or mounted to a test stand.

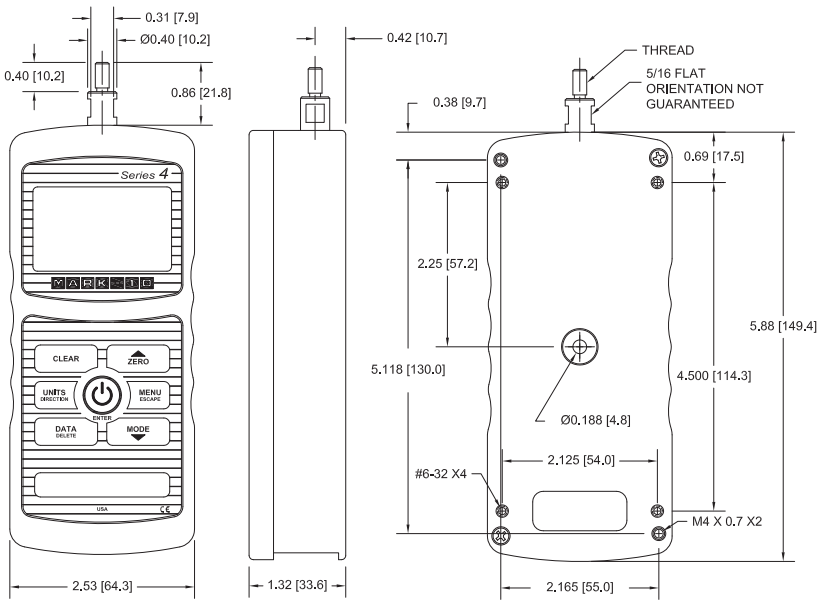
The display and keypad remain upright.

Specifications

Accuracy:	±0.2% of full scale
Sampling Rate:	3,000 Hz, pulse response of 1/1,500 sec. minimum
Power:	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.
Battery life:	Backlight on / off: up to 7 / 24 hours of continuous use
Outputs:	USB / RS-232: Configurable up to 115,200 baud. Mitutoyo (Digimatic): Serial BCD suitable for all Mitutoyo SPC-compatible devices. Analog: ±1 VDC, ±0.25% of full scale at capacity, General purpose: Three open drain outputs, one input. Set points: Three open drain lines, 40 VDC max., 100 mA DC max.
Configurable settings:	Digital filters, outputs, automatic shutoff, default settings, key tones, audio alarms, calibration
Safe overload:	200% of full scale (display shows "OVER" at 110% and above)
Weight:	M4-012 - M4-100: 1.0 lb [0.45 kg] M4-200 - M4-500: 1.2 lb [0.54 kg]
Load cell deflection:	All models 0.010 [0.25], except 0.005 [0.13] for M4-012, at full scale
Environmental requirements:	40 - 100°F, max. 96% humidity, non-condensating
Warranty:	3 years (see individual statement for further details)

Dimensions in [mm]

	Thread
M4-012 - M4-100	#10-32 UNF
M4-200 - M4-500	5/16-18 UNC



In The Box



Series 4 force gauges are shipped as shown at left, and include the following accessories:

(1) Extension rod *
(1) Hook *
(1) Cone *
(1) Chisel *
(1) V-Groove *
(1) Flat *
(1) Coupling *
(1) Carrying case
(1) USB cable
(1) AC adapter
(1) Battery
(1) Certificate of calibration with data

* The specific accessory depends on the force gauge model. Refer to the website for details.

Capacity & Resolution

Model	lbF	ozF	kgF	gF	N	kN	mN
M4-012	0.12 x 0.00005	2 x 0.001	-	50 x 0.02	0.5 x 0.0002	-	500 x 0.2
M4-025	0.25 x 0.0001	4 x 0.002	-	100 x 0.05	1 x 0.0005	-	1000 x 0.5
M4-05	0.5 x 0.0002	8 x 0.005	-	250 x 0.1	2.5 x 0.001	-	2500 x 1
M4-1	1 x 0.0005	16 x 0.01	0.5 x 0.002	500 x 0.2	0.5 x 0.002	-	-
M4-2	2 x 0.001	32 x 0.02	1 x 0.0005	1000 x 0.5	10 x 0.005	-	-
M4-5	5 x 0.002	80 x 0.05	2.5 x 0.001	2500 x 1	25 x 0.01	-	-
M4-10	10 x 0.005	160 x 0.1	5 x 0.002	5000 x 2	50 x 0.02	-	-
M4-20	20 x 0.01	320 x 0.2	10 x 0.005	10000 x 5	100 x 0.05	-	-
M4-50	50 x 0.02	800 x 0.5	25 x 0.01	25000 x 10	250 x 0.1	-	-
M4-100	100 x0.05	1600 x 1	50 x 0.02	50000 x 20	500 x 0.2	-	-
M4-200	200 x 0.1	3200 x 2	100 x 0.05	-	1000 x 0.5	1x 0.0005	-
M4-500	500 x 0.2	8000 x 5	250 x 0.1	-	2500 x 1	2.5 x 0.001	-

Alternative AC Adapter Prongs


AC1120


AC1121


AC1122

All instruments include a 110V AC adapter with US prong style.
Select an alternative prong adapter (if required) from the table below.

Model	Description
AC1120	Prong for AC adapter, 220V EUR
AC1121	Prong for AC adapter, 220V UK
AC1122	Prong for AC adapter, 220V AUS

MARK-10®

Mark-10 Corporation ■ **www.mark-10.com** ■ **info@mark-10.com**
Toll-free: 888-MARK-TEN ■ **Tel: 631-842-9200** ■ **Fax: 631-842-9201**

3 YEAR WARRANTY

Specifications subject to change without prior notice