



MM-400A

Desktop Resistance Weld Checker

MM-400A enables operators to monitor and manage key welding variables that result in changes in weld heat such as current, voltage, time, force and displacement. The compact unit supports a wide range of resistance welding technologies including AC, DC inverter, AC inverter, transistor and capacitive discharge. It features a simple and intuitive user interface and color touch panel display.

COMMON APPLICATIONS:

Process Development

- Correlate waveform and numeric data with process results
- Provides detailed weld data for process optimization and validation

Production Environment

- Reduces scrap
 - Detects drifts in the weld process and alerts operators before process failure
- Reduces frequency of destructive testing
 - Welds that pass the set parameter limits indicate the process is in control
- Independent monitoring of welding power supply
 - Detects drifts in welding power supply calibration.

KEY FEATURES

- Envelope function allows the operator to set upper and lower segmented or continuous limits around the entire waveform
- Seam welding mode- Monitor AC current and voltage or DC voltage for up to 5 minutes
- ISO17657-compliant measurement for current
 - Requires ISO-compliant toroidal coil
- Ethernet (TCP/IP), and RS-232/485 communication
- Pre-weld displacement measures workpiece thickness prior to welding and supplies OK/ NG output
- Multi-language support: English, Spanish, Japanese, Chinese, Korean, German and French

ACCESSORIES



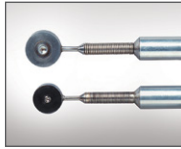
Toroidal coil
MB-400M/MB-800M



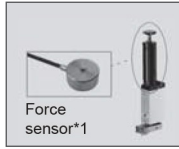
MB-45F



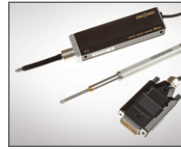
Shunt resistor



Force sensors
Top: MA-522
Bottom: MA-521/
MA-520



Built-in force sensor



Displacement sensors



Weld thru sensor
MA-770A MA-771A
Simultaneous
measurement of
applied force

TECHNICAL SPECIFICATIONS

MODEL(S)	3-400-01 (Basic) 3-400-02 (Force and displacement)		
Current	Range	1x sensitivity toroidal coil~0.100~2.000 kA/0.30~6.00 kA/1.00~20.00 kA/3.0~60.0 kA/10.0~200.0 kA (MB-400 M/800 M) 10x sensitivity toroidal coil~0.01~0.2 kA/0.03~0.6 kA/0.1~2.0 kA/0.3~6.0 kA/1.0~20.0 kA (MB-45F) Shunt resistor~0.025 kA~0.5 kA/0.05~1.0 kA	
	Measurement	PEAK/RMS*2 / Arithmetic mean RMS. Accuracy $\pm 1\%$ Full scale	
Voltage	Range	0.30~6.00 V/1.0~20.0 V. Accuracy $\pm 1\%$ Full scale	
	Measurement	PEAK/RMS*2 / Arithmetic mean RMS. Accuracy $\pm 1\%$ Full scale	
Displacement*1	Range	When the SENSOR STEP setting is 1 μm : ± 30.000 mm. Accuracy ± 30.000 mm range: ± 15 μm (sensor with 1 μm or less resolution) When the SENSOR STEP setting is 10 μm : ± 300.00 mm. Accuracy ± 300.00 mm range: ± 150 μm (sensor with 10 μm or less resolution)	
	Measurement	Before welding / After welding / Constant	
Force*1	Range	0.49~98.06 N (MA-520) / 0.49~980.6 N (MA-521) / 245~4903 N (MA-770) $\pm 3\%$ Full scale	
	Measurement	Mean RMS / maximum (peak) Before welding / After welding / Constant. Accuracy $\pm 3\%$ Full scale	
	Input voltage / current range	-10 to +10 V / 4 to 20 mA	
External	Range	5% to 100% of rated setting	
	Measurement	Mean RMS/maximum (peak) Before welding / After welding / Constant. Accuracy $\pm 3\%$ Full scale	
Measurement time	Current	AC	ms-AC 1 to 5000 ms
		DC	CYC-DC 0.5 to 100.0 CYC (50 Hz) 0.5 to 120.0 CYC (60 Hz)
	Voltage	AC	CYC-AC 0.5 to 250.0 CYC (50 Hz) 0.5 to 300.0 CYC (60 Hz)
		DC	ms-DC 1 to 2000 ms
Displacement	AC	CYC***Hz-AC 0.5 to 200.0 CYC (M050 : 50Hz) 0.5 to 300.0CYC (M063 : 63 Hz) 0.5 to 2000.0 CYC (M500 : 500 Hz)	
	DC	LONG CYC-AC 0.5 to 500.0 CYC (50 Hz) 0.5 to 600.0 CYC (60 Hz)	
Power	AC	CYC-DC 0.5 to 100.0 CYC (50 Hz) 0.5 to 120.0 CYC (60 Hz)	
	DC	ms-DC 1 to 2000 ms	
Resistance	AC	SHORT ms-DC 0.50 to 100.00 ms (0.05 ms increment)	
	DC	SHORT ms-DC 0.50 to 100.00 ms (0.05 ms increment)	
Force external		1 to 10000 ms	
Conduction angle		0 to 180 degrees. Accuracy ± 9 degrees	
Units		V / N / kgf / lbf / °F / Mpa / bar / psi	
Input power		Single-phase 100 to 240 VAC $\pm 10\%$ (50/60 Hz) or 24 VDC+/-10%	
External data output		RS-232C/RS-485/Ethernet	
Languages		Japanese, English, Chinese, Korean, German, French, Spanish	
No. of schedules		127	
Power usage		41 W (49 W with printer running)	

*1 Force and displacement model only *2 ISO17657 compliant

WEIGHT & DIMENSIONS

Dimensions (L x W x H)	11.3 in x 6.8 in x 10.5 in (288 mm x 172 mm x 266 mm (excluding protrusions))
Weight	Approx. 11 lb (5 kg)



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866-RES-WELD

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