



## 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

# 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.

## ACCESSORIES



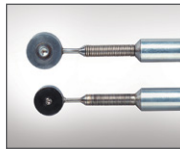
**Toroidal coil**  
MB-400M/MB-800M



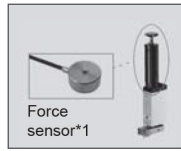
**MB-45F**



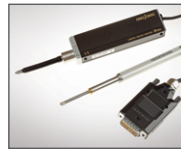
**Shunt resistor**



**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)	
<b>Current</b>	<b>Range</b>	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	
	<b>Measurement</b>	PEAK/RMS*2 / Arithmetic mean RMS. Accuracy ±1% Full scale	
<b>Voltage</b>	<b>Range</b>	0.30~6.00 V/1.0~20.0 V. Accuracy ±1% Full scale	
	<b>Measurement</b>	PEAK/RMS*2 / Arithmetic mean RMS. Accuracy ±1% Full scale	
<b>Displacement*1</b>	<b>Range</b>	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)	
	<b>Measurement</b>	Before welding / After welding / Constant	
<b>Force*1</b>	<b>Range</b>	0.49~98.06 N (MA-520) / 0.49~980.6 N (MA-521) / 245~4903 N (MA-770) ±3% Full scale	
	<b>Measurement</b>	Mean RMS / maximum (peak) Before welding / After welding / Constant. Accuracy ±3% Full scale	
	<b>Input voltage / current range</b>	-10 to +10 V / 4 to 20 mA	
<b>External</b>	<b>Range</b>	5% to 100% of rated setting	
	<b>Measurement</b>	Mean RMS/maximum (peak) Before welding / After welding / Constant. Accuracy ±3% Full scale	
<b>Measurement time</b>	<b>Current</b>	<b>AC</b>	ms-AC CYC-AC CYC***Hz-AC LONG CYC-AC
		<b>DC</b>	CYC-DC ms-DC SHORT ms-DC
	<b>Voltage</b>	1 to 5000 ms 0.5 to 250.0 CYC (50 Hz) 0.5 to 300.0 CYC (60 Hz) 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) 0.5 to 500.0 CYC (50 Hz) 0.5 to 600.0 CYC (60 Hz)	
		0.5 to 100.0 CYC (50 Hz) 0.5 to 120.0 CYC (60 Hz) 1 to 2000 ms 0.50 to 100.00 ms (0.05 ms increment)	
<b>Displacement</b>	1 to 10000 ms		
<b>Power Resistance</b>	1 to 10000 ms		
<b>Force external</b>	1 to 10000 ms		
<b>Conduction angle</b>	0 to 180 degrees. Accuracy ±9 degrees		
<b>Units</b>	V / N / kgf / lbf / °F / Mpa / bar / psi		
<b>Input power</b>	Single-phase 100 to 240 VAC±10% (50/60 Hz) or 24 VDC+/-10%		
<b>External data output</b>	RS-232C/RS-485/Ethernet		
<b>Languages</b>	Japanese, English, Chinese, Korean, German, French, Spanish		
<b>No. of schedules</b>	127		
<b>Power usage</b>	41 W (49 W with printer running)		

\*1 Force and displacement model only \*2 ISO17657 compliant

## WEIGHT & DIMENSIONS

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



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