

MM-400B

Desktop Resistance Weld Checker

MM-400B 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.

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
- ISO 17657– 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

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



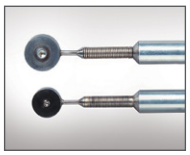
Toroidal coil MB-400P/MB-800P



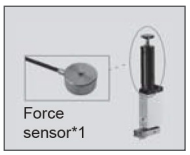
MB-45G



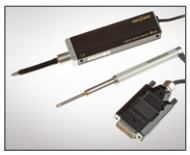
Shunt resistor



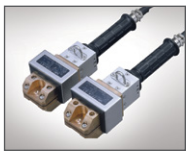
Force sensors Top: MA-522B Bottom: MA-521B/ MA-520B



Built-in force sensor



Displacement sensors



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

TECHNICAL SPECIFICATIONS

MODEL(S)			3-400-03 (Basic kit) 3-400-04 (Force and displacement kit)		3-400-10 (Extended measurement model kit)	
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-400P / 800P		Current sensor: 1.00~20.00 kA	
			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-45G)			
			Shunt resistor 0.025 kA~0.5 kA / 0.05~1.0 kA			
	Measurement		PEAK/RMS*2 / Arithmetic mean RMS. Accuracy ±1% Full scale		RMS Accuracy AC: ± (1%rdg+9dgt) kA AC/DC inverter: ± (1%rdg+15dgt) kA	
Voltage	Range		0.30~6.00 V/1.0~20.0 V			
	Measurement		PEAK/RMS*2 / Arithmetic mean RMS. Accuracy ±1% Full scale		PEAK / Arithmetic mean RMS +/- (1%rdg+3dgt) V	
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		4.90~98.06 N (MA-520) / 49.0~980.6 N (MA-521) / 245~4903 N (MA-770) ±3% Full scale 490-9806 N (MA-522B/MA-771A)			
	Measurement		Mean RMS / maximum (peak) Before welding / After welding / Constant. Accuracy ±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 ±3% Full scale			
Measurement time	Current Voltage Displace-ment Power Resistance	AC	ms-AC CYC-AC CYC***Hz-AC LONG CYC-AC	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)	ms-AC CYC-AC CYC***Hz-AC	1 to 10000 ms 0.5 to 500.0 CYC (50 Hz) 0.5 - 600.0 CYC (60 Hz) 0.5 to 500.0 CYC (M050:50 Hz) 0.5 - 600.0 CYC (M063:63 Hz) 0.5 to 3000.0 CYC (M500:500 Hz)
		DC	CYC-DC ms-DC SHORT ms-DC	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)	CYC-DC ms-DC	0.5 to 500.0 CYC (50 Hz), 0.5 to 600.0 CYC (60 Hz) 1 to 10000 ms
	Force external		1 to 10000 ms			
Conduction angle			0 to 180 degrees. Accuracy ±9 degrees			
Units			V / N / kgf / lbf / ºF / Mpa / bar / psi			
Input power			Single-phase 100 to 240 VAC ±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 *3 MA-770A/771A cannot be used with 3-400-10

WEIGHT & DIMENSIONS

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

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