

## MEASURE

Current, voltage, weld time, force and conduction angle

## KEY FEATURES

- Improved accuracy through ISO 17657 compliant toroidal coil
- Easy setup via 5.7" color touch panel
- 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
- Data storage via on-board flash drive
- Ethernet (TCP/IP), and USB communication
- Multi-language support: English, Spanish, Japanese, Chinese, Korean, German and French

# MM-410A

## Handheld Resistance Weld Checker

MM-410A enables operators to monitor and manage key welding variables that result in changes in weld heat such as current, voltage, time, and force. The compact, handheld 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 (SOLD SEPARATELY)



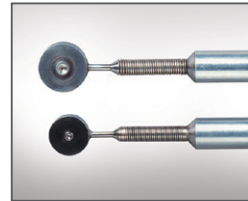
**Toroidal coil  
MB-400M**  
(ISO 17657-compliant)



**Toroidal coil  
MB-800M**  
(ISO 17657-compliant)



**Toroidal coil  
MB-45F** (10x sensitivity)  
(conversion cable  
SK-1193305 is required)



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



**Current / force sensor**  
MA-770A / MA-771A  
(conversion cable  
SK-1200918 is required)

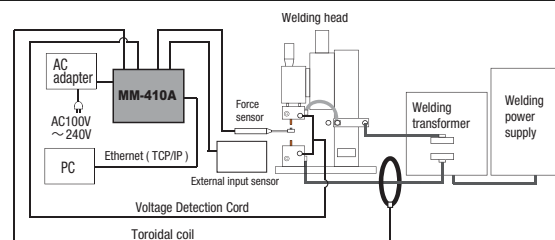
## TECHNICAL SPECIFICATIONS

MODEL		MM-410A		
Current	Range	1×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 10×Sensitivity toroidal coil: 0.010-0.200 kA / 0.030-0.600 kA / 0.100-2.000 kA / 0.30-6.00 kA / 01.00-20.00 kA		
	Item	PEAK / RMS* / Arithmetic mean RMS	Accuracy ±1% Full scale	
Voltage	Range	0.30-6.00 V / 1.0-20.0 V		
	Item	PEAK / RMS* / Arithmetic mean RMS	Accuracy ±1% Full scale	
Force	Range	4.90-98.06 N (MA-520B), 49.0-980.6N (MA-521B), 245-4903 N (MA-770A), 490-9806 N (MA-522B, MA-771A)		
	Item	Mean RMS/maximum (peak) Before welding / After welding / Constant	Accuracy ±3% Full scale	
External	Input voltage / current range	-10 to +10 V / 4 to 20 mA		
	Range	±0.5 to 10 V or 4.8 to 20 mA (5% to 100% of rated setting)		
	Item	Mean RMS/maximum (peak) Before welding / After welding / Constant	Accuracy ±3% Full scale	
	Units	V / N / kgf / lbf / °C / °F / Mpa / bar / psi		
Measurement time	Current Voltage Power Resistance	AC	ms-AC CYC-AC CYC***Hz-AC LONG CYC-AC	1-5000ms 0.5-250.0CYC (50 Hz), 0.5-300.0CYC (60 Hz) 0.5-200.0CYC (M050: 50 Hz), 0.5-300.0CYC (M063: 63Hz), 0.5-2000.0CYC (M500: 500 Hz) 0.5-500.0CYC (50 Hz), 0.5-600.0CYC (60 Hz)
		DC	CYC-DC ms-DC SHORT ms-DC	0.5-100.0CYC (50 Hz), 0.5-120.0CYC (60 Hz) 1-2000 ms 0.50-300.00 ms (0.05 ms increment)
		Force external	1 to 10000 ms	Accuracy ±9 degrees
		Conduction angle	0-180 degrees	
	Power supply voltage	Single-phase 100 to 240 V (50/60 Hz) AC adapter output 9 V DC		
External data output	USB / Ethernet (Protocol; TCP/IP)			
Languages	Japanese, English, Chinese, Korean, German, French, Spanish			
No. of schedules	127 schedules			

\*ISO17657 compliant

## WEIGHT & DIMENSIONS

Dimensions (L x W x H)	1.85 in x 8.82 in x 6.18 in (47 mm x 224 mm x 157 mm)
Weight	Approx. 1.98 lb (0.9 kg)



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