

# M3500A Specifications

## DC Characteristics

Function	Range	Resolution	Input Resistance	1 year accuracy ± (% of reading + % of range) (23°C ± 5°C)
DCV (DC Voltage)	100.0000mV	0.1μV	>10GΩ	0.0050+0.0035
	1.000000V	1.0μV	>10GΩ	0.0040+0.0007
	10.00000V	10μV	>10GΩ	0.0035+0.0005
	100.0000V	100μV	10MΩ	0.0045+0.0006
	1000.000V	1mV	10MΩ	0.0045+0.0010

Function	Range	Resolution	Shunt Resistance	1 year accuracy ± (% of reading + % of range) (23°C ± 5°C)
DCI (DC Current)	10.00000mA	10nA	5.1Ω	0.050+0.020
	100.0000mA	100nA	5.1Ω	0.050+0.005
	1.000000A	1μA	0.1Ω	0.100+0.010
	3.00000A	10μA	0.1Ω	0.120+0.020

Function	Range	Resolution	Test Current	1 year accuracy ± (% of reading + % of range) (23°C ± 5°C)
Resistance (Specifications are for 4W or 2W when a NULL operation used.)	100.0000Ω	100μΩ	1mA	0.010+0.004
	1.000000KΩ	1mΩ	1mA	0.010+0.001
	10.00000KΩ	10mΩ	100μA	0.010+0.001
	100.0000KΩ	100mΩ	10μA	0.010+0.001
	1.000000MΩ	1Ω	5μA	0.010+0.001
	10.00000MΩ	10Ω	500nA	0.040+0.001
	100.0000MΩ	100Ω	500nA/10MΩ	0.800+0.010
Diode Test	1.00000V	10μV	1mA	0.010+0.020
Continuity	1000.00Ω	10mΩ	1mA	0.010+0.030

Dimension & Weight	85(H)x210(W)x350(D)mm Approx. 4.36kg
--------------------	---

## Frequency and Period

Function	Range	Frequency (Hz)	1 year accuracy ± (% of reading + % of range) (23°C ± 5°C)
Frequency & Period	100mV to 750V	3-5	0.10
		5-10	0.05
		10-40	0.03
		40-300K	0.01

## AC Characteristics

Function	Range	Resolution	Frequency (Hz)	1 year accuracy ± (% of reading + % of range) (23°C ± 5°C)
ACV (AC RMS Voltage)	100.0000mV	0.1μV	3-5	1.00+0.04
			5-10	0.35+0.04
			10-20K	0.06+0.04
			20K-50K	0.12+0.05
			50K-100K	0.60+0.08
	1.000000V to 750.000V	10μV to 1mV	3-5	1.00+0.03
			5-10	0.35+0.03
			10-20K	0.06+0.03
			20K-50K	0.12+0.05
			50K-100K	0.60+0.08
ACI (AC RMS Current)	1.000000A	1μA	3-5	1.00+0.04
			5-10	0.30+0.04
	3.000000A	10μA	10-5K	0.10+0.04
			3-5	1.10+0.06
			5-10	0.35+0.06
			10-5K	0.15+0.06

(※ Note1: Specifications for 2-hours warm-up at 6.5digit, slow, AC filter with Bandwidth 3Hz, sine wave input.)

(※ Note2: 750ACV Range is limited to 100Hz)

## Distributor information:



**ARRAY**

# ARRAY M3500A 6-1/2-Digit High Performance DMM



## Features

- **Resolution:** 6<sup>1</sup>/<sub>2</sub> digits.
- **Display:** 5x7 dot matrix VFD, dual displays with three-color annunciators.
- **High Speed:** Both sampling rate and data rate are at 2000 readings/sec (at 4<sup>1</sup>/<sub>2</sub> digit setting).
- **Remote Interface:** USB and GPIB (optional).
- **High Accuracy:**  
DC voltage: ±0.0015% of reading (24-hour).  
AC voltage: ±0.04% of reading (24-hour).
- **High Sensitivity:** DC voltage: 0.1 μV  
Resistance: 100 μΩ
- **AC Measurement Range:** 3Hz to 300kHz.
- **High Capacity of Internal Data Memory:**  
It can store up to 2000 readings in data memory.
- **Full-Featured Operations:** There are 11 measurements and 8 math functions.
- **Temperature Measurements:**  
The built-in function supports two measurement methods: Thermocouples and RTDs. For thermocouples, it supports up to 7 types of sensors: E, J, K, N, R, S and T.
- **Free PC Applications:**  
We provide MatLab<sup>®</sup> and LabView<sup>®</sup> applications that allows user to do a variety of tasks. Also feature the PT-Tool that can acquire data directly from the measurement into MS Word<sup>®</sup> or Excel<sup>®</sup>. Even without MS Word<sup>®</sup> or Excel<sup>®</sup>, user can choose our PT-Link, which is a stand-alone application.

## Accessories Included:

- Standard: CD (user manual and software applications), power cord, test leads and USB cable.
- Options:
  - M3500-opt01: Multi-Point Scanner Card
  - M3500-opt02: Thermocouple Adapter
  - M3500-opt03: BNC to Banana Adapter
  - M3500-opt04: GPIB Card
  - M3500-opt05: RTD Probe Adapter
  - M3500-opt06: RS232 Card
  - M3500-opt07: Kelvin Probe
  - M3500-opt08: 4-Wire Test Leads



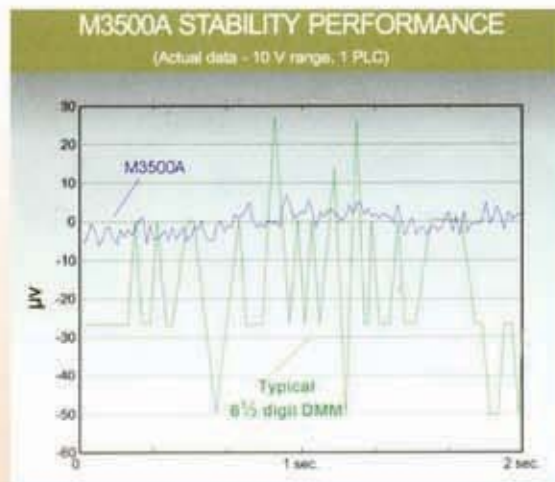
Specifications are subject to change without notice due to design improvements. Date: 2008.1

**ARRAY ELECTRONIC CO., LTD.**



## Stability, Speed and Accuracy

The 6<sup>1</sup>/<sub>2</sub> digit M3500A DMM is designed with 7<sup>1</sup>/<sub>2</sub> digit techniques to provide user a stable, faster and accurate measurement. The following figure is the stability performance comparison between the typical 6<sup>1</sup>/<sub>2</sub> digit DMM and the M3500A.



Blue: M3500A  
Green: Typical 6<sup>1</sup>/<sub>2</sub> digit DMM

## High Speed: 2000 Rdgs/Sec

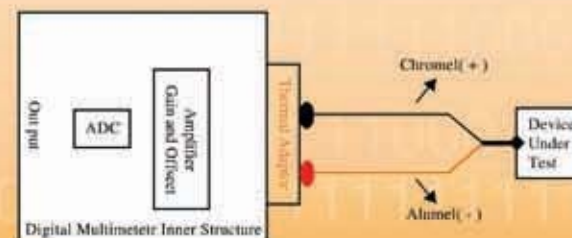
The M3500A is engineered with expertise to reach such a high performance: Both of the sampling rate and the data transfer rate can achieve 2000 readings per second.

## 19 Full-Featured Functions

There are 11 measurements and 8 math functions: DCI, DCV, ACI, ACV, 2W $\Omega$ , 4W $\Omega$ , Frequency, Period, Diode, Continuity, Temperature; Limits, Ratio, MX +B, %, dBm, dB, Min/Max, Null. In addition, Trigger and Memory functions are also involved. All functions above facilitate your measurement better.

## Temperature measurements

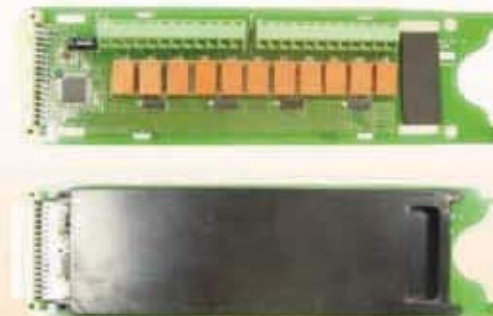
Our thermal measurement functions support two types of measurements: Thermocouples and RTDs. For the thermocouples, we support up to seven types of sensors: E, J, K, N, R, S and T, using a NIST Monograph 175 reference table. Moreover, for the RTDs temperature conversions, we adopt three types of standard: ITS-90, IEC751 and Callendar-Van Dusen standard in our thermal measurement functions. All these are made for user's convenience.



K-Type Thermocouple Temperature Measurement

## Multi-Point Scan

The M3500A supports up to 10 channels (2-pole) multi-point scan. For using this option, user needs to have an additional multi-point scanner card (Model M3500-opt01). The installation of the multi-point scanner card is very easy - just turn off the power and plug in the multi-point scanner card, and it is done!



## Built-In USB Interface

The M3500A is equipped with a standard USB interface. This easy-to-use and hot plug-in USB interface has a high data-transfer rate over 2000 readings per second. It allows your DMM to reach a truly high speed, both internal sampling rate and I/O data rate, thus increase the measurement speed of your DMM.



## Noise Immunity

This model has an excellent performance on noise immunity. The core of this DMM is a powerful multi-slope analog to digital converter (A/D converter). This special A/D converter (P.S. patent is pending) helps the DMM to reach a high-speed sampling rate, filters out most noise, and still keeps a good measurement linearity. In addition, to reduce the environmental background noise, we have added four sets of earth ground on the meter's front panel. And the copper conductors inside the meter also contribute to reducing thermal EMFs.



High performance A/D converter

## Dual Display w/3-Color Annunciators

This model comes with a unique 5x7 dot matrix, VFD dual displays with three-color annunciators. User can easily distinguish each symbols from their colors.

