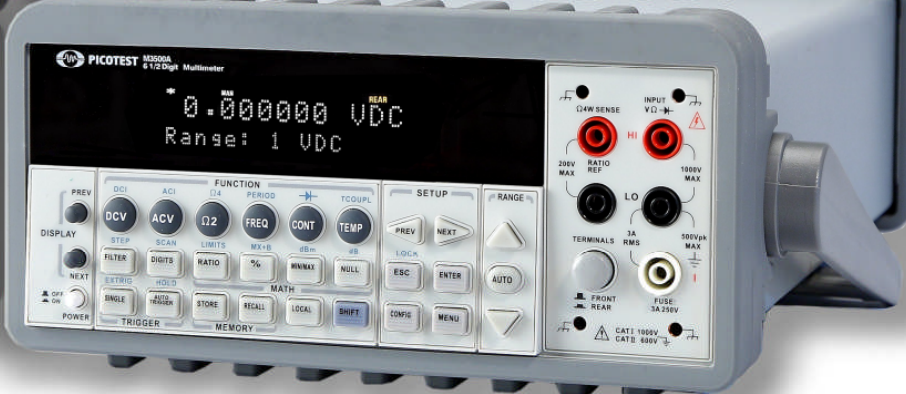
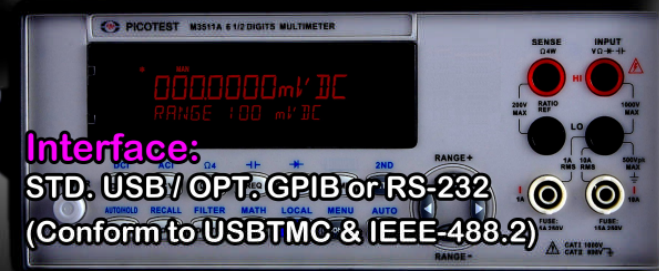


# M35 Series

## 6.5 Digital Multimeter



**Interface:**  
 STD. USB / OPT: GPIB or RS-232  
 (Conform to USBTMC & IEEE-488.2)

Dual Measurements



### M3510A/M3511A High Speed/ Economy 6.5 Digital Multimeter

- **General Functions:**  
 DCV, ACV, DCI, ACI (up to 10A), 2WΩ, 4WΩ, Frequency, Period, Capacitance, Diode, Continuity, Thermocouple, RTD, Limits, Ratio, MX+B, %, dBm, dB, Min/Max, Null, Trigger, Filter, Memory
- **Features:**
  - High Speed: 50 K Readings/Sec. (M3510A)
  - Dual Displays & Dual Measurements
  - Capacitance Measurement
  - Wide Range Current Measurement (Max. 10 A)
  - Thermocouple Measurement (M3510A) (Built-In a Cold Junction Compensator)
  - Basic DCV Accuracy: 0.009 % (1 Year)
  - Free Software: PT-TOOL (SCPI Commands) & PT-LINK
  - Rack-Mounted Compatibility
- **Dimension & Weight:** (for Rack)  
 214.6(W) x 88.6(H) x 280.7(D) mm, 2230 g
- **Optional Accessories:**
  - M3500-opt04: GPIB Card
  - M3500-opt06: RS-232 Card
  - M3500-opt07: Kelvin Probe
  - M3500-opt08: 4-Wire Test Leads
  - M3500-opt10: Shorting Plug
  - M3500-opt11: K Type Thermocouple Cable (M3510A)

### M3500A High Precision 6.5 Digital Multimeter

- **Stability & Accuracy:**  
 7.5 Digits Technology
- **General Functions:**  
 DCV, ACV, DCI, ACI (up to 3A), 2WΩ, 4WΩ, Frequency, Period, Diode, Continuity, Thermocouple, RTD, Limits, Ratio, MX+B, %, dBm, dB, Min/Max, Null, Trigger, Filter, Memory
- **Features:**
  - Support 10/20-Channel Scanner Card for Data Log Application
  - Data Transfer Rate: 2000 Readings/Sec.
  - Basic DCV Accuracy: 0.0035 % (1 Year)
  - Basic ACV Accuracy: 0.06 % (1 Year)
  - 6.5 Digits Measurement: 1 PLC
  - High Noise Immunity Capability
  - Free Software: PT-TOOL (SCPI Commands) & PT-LINK
  - Rack-Mounted Compatibility
- **Dimension & Weight:** (for Rack)  
 213.6(W) x 88.6(H) x 370(D) mm, 3706 g
- **Optional Accessories:**
  - M3500-opt01: 10-Channel Scanner Card
  - M3500-opt03: BNC to Banana Adapter
  - M3500-opt04: GPIB Card
  - M3500-opt05: RTD Adapter
  - M3500-opt06: RS-232 Card
  - M3500-opt07: Kelvin Probe
  - M3500-opt08: 4-Wire Test Leads
  - M3500-opt09: 20-Channel Scanner Card
  - M3500-opt10: Shorting Plug



For more information, link our website.  
<http://www.picotest.com.tw>

### M3500A - Characteristics

Function	Range <sup>2</sup>	Resolution	Input Resistance	1 Year Accuracy
DCV <sup>3</sup>	100.0000 mV	0.1 $\mu$ V	> 10 G $\Omega$	0.0050+0.0035
	1.000000 V	1.0 $\mu$ V	> 10 G $\Omega$	0.0040+0.0007
	10.00000 V	10 $\mu$ V	> 10 G $\Omega$	0.0035+0.0005
	100.0000 V	100 $\mu$ V	10 M $\Omega$	0.0045+0.0006
	1000.000 V	1 mV	10 M $\Omega$	0.0045+0.0010
Function	Range	Resolution	Shunt Resistance	1 Year Accuracy
DCI	10.00000 mA	10 nA	5.1 $\Omega$	0.050+0.020
	100.0000 mA	100 nA	5.1 $\Omega$	0.050+0.005
	1.000000 A	1 $\mu$ A	0.1 $\Omega$	0.100+0.010
	3.00000 A	10 $\mu$ A	0.1 $\Omega$	0.120+0.020
Function	Range	Resolution	Test Current	1 Year Accuracy
Ohm (2&4W)	100.0000 $\Omega$	100 $\mu$ $\Omega$	1 mA	0.010+0.004
	1.000000 K $\Omega$	1 m $\Omega$	1 mA	0.010+0.001
	10.00000 K $\Omega$	10 m $\Omega$	100 $\mu$ A	0.010+0.001
	100.0000 K $\Omega$	100 m $\Omega$	10 $\mu$ A	0.010+0.001
	1.000000 M $\Omega$	1 $\Omega$	5 $\mu$ A	0.010+0.001
	10.00000 M $\Omega$	10 $\Omega$	500 nA	0.040+0.001
100.0000 M $\Omega$	100 $\Omega$	500 nA/10 M $\Omega$	0.800+0.010	
Diode	1.00000 V	10 $\mu$ V	1 mA	0.010+0.020
Continuity	1000.00 $\Omega$	10 m $\Omega$	1 mA	0.010+0.030
Function	Range	Resolution	Frequency (Hz)	1 Year Accuracy
ACV (TRMS)	100.0000 mV	0.1 $\mu$ V	3 - 5	1.00+0.04
			5 - 10	0.35+0.04
			10 - 20 K	0.06+0.04
			20 K - 50 K	0.12+0.05
			50 K - 100 K	0.60+0.08
			100 K - 300 K	4.00+0.50
1.000000 V	1.0 $\mu$ V	3 - 5	1.00+0.03	
		5 - 10	0.35+0.03	
		10 - 20 K	0.06+0.03	
		20 K - 50 K	0.12+0.05	
		50 K - 100 K	0.60+0.08	
		100 K - 300 K	4.00+0.50	
750.0000 V	1 mV	3 - 5	1.00+0.04	
		5 - 10	0.30+0.04	
		10 - 5 K	0.10+0.04	
		3 - 5	1.10+0.06	
		5 - 10	0.35+0.06	
		10 - 5 K	0.15+0.06	
ACI (TRMS)	1.000000 A	1 $\mu$ A	3 - 5	1.00+0.04
			5 - 10	0.30+0.04
			10 - 5 K	0.10+0.04
3.000000 A	10 $\mu$ A	3 - 5	1.10+0.06	
		5 - 10	0.35+0.06	
		10 - 5 K	0.15+0.06	
Function	Range	Frequency (Hz)	1 Year Accuracy	
Frequency & Period	100 mV	3 - 5	0.10	
		5 - 10	0.05	
		10 - 40	0.03	
		40 - 300 K	0.01	
750 V		3 - 5	0.10	
		5 - 10	0.05	
		10 - 40	0.03	
		40 - 300 K	0.01	

### M3500A - General Specifications

Item	Description	Item	Description
Power Supply	100V/120V/220V/240V $\pm$ 10 %	Warm-Up Time	2 Hours
Power Cord Freq.	50Hz/60Hz $\pm$ 10 %	Language	SCPI-1993, IEEE-488.2
Power Consumption	25 VA Max. (16 W Average)	Dimension	213.6(W) x 88.6(H) x 370.0(D) mm
Operating Environment	0 ~ 40°C	Weight	3706 g
Storage Environment	-40°C ~ 70°C	Safety	IEC61010-1 EN61010-1 UL61010-1
Operating Altitude	Up to 2000 m	EMC	EN61326
Operating Humidity	Max. Relative Humidity 80 % for Temp. up to 31°C Decreasing Linearly to 50 % Relative Humidity at 40°C	Interface	STD. USB OPT. GPIB or RS-232
		Warranty	1 Year
		Certificate	CE & UL
Recycle Level			

- $\pm$  (% of Reading + % of Range, 23°C $\pm$ 5°C), at 6 1/2 digits with 2-hour warm-up.
- Measurement over 20 % at all ranges is allowable except the ranges 750 ACV, 1000 DCV & 3 A/10 A (M3510A & M3511A). The range 750V is limited to 100 KHz.
- Use continuous integrating A/D converter. Input bias current: Less than 30 pA at 25°C. Input protection: 1000 V at all ranges.
- The specifications are for 2-hour warm-up condition, 10 PLC and they're relative to calibration standards. The accuracy is  $\pm$  (% of Reading + % of Range, 23°C $\pm$ 5°C).
- M3511A neither provides the selection of the range 3A, nor supports the thermocouple measurement.
- Bandwidth: 3 Hz. Specifications are for sine wave input > 5 % of range. For < 50 KHz and inputs within 1 % to 5 % of range, the error 0.3 % of range must be added. For inputs within 50 KHz to 100 KHz, the 0.35 % of range must be added.

### M3510A & M3511A - Characteristics

Function	Range	Resolution	Input Resistance	1 Year Accuracy
DCV	100.0000 mV	0.1 $\mu$ V	10 M $\Omega$	0.0080+0.0045
	1.000000 V	1.0 $\mu$ V	10 M $\Omega$	0.0090+0.0010
	10.00000 V	10 $\mu$ V	10 M $\Omega$	0.0120+0.0020
	100.0000 V	100 $\mu$ V	10 M $\Omega$	0.0120+0.0020
	1000.000 V	1 mV	10 M $\Omega$	0.0200+0.0030
Function	Range	Resolution	Shunt Resistance	1 Year Accuracy
DCI	10.00000 mA	10 nA	5.1 $\Omega$	0.050+0.020
	100.0000 mA	100 nA	5.1 $\Omega$	0.050+0.010
	1.000000 A	1 $\mu$ A	0.1 $\Omega$	0.150+0.020
	3.00000 A	10 $\mu$ A	0.1 $\Omega$	0.200+0.030
10.00000 A	10 $\mu$ A	0.005 $\Omega$	0.250+0.050	
Function	Range	Resolution	Test Current	1 Year Accuracy
Ohm (2&4W)	100.0000 $\Omega$	100 $\mu$ $\Omega$	1 mA	0.020+0.005
	1.000000 K $\Omega$	1 m $\Omega$	1 mA	0.020+0.002
	10.00000 K $\Omega$	10 m $\Omega$	100 $\mu$ A	0.020+0.002
	100.0000 K $\Omega$	100 m $\Omega$	10 $\mu$ A	0.020+0.002
	1.000000 M $\Omega$	1 $\Omega$	1 $\mu$ A	0.020+0.004
	10.00000 M $\Omega$	10 $\Omega$	0.1 $\mu$ A	0.100+0.004
100.0000 M $\Omega$	100 $\Omega$	0.1 $\mu$ A/10 M $\Omega$	1.500+0.005	
Diode	1.00000 V	10 $\mu$ V	1 mA	0.020+0.020
Continuity	1000.00 $\Omega$	10 m $\Omega$	1 mA	0.020+0.030
Function	Range	Resolution	Frequency (Hz)	1 Year Accuracy
ACV <sup>6</sup> (TRMS)	100.0000 mV	0.1 $\mu$ V	10 - 20 K	0.12+0.05
			20 K - 50 K	0.25+0.05
			50 K - 100 K	0.65+0.08
			100 K - 300 K	4.80+0.80
			10 - 20 K	0.12+0.04
			20 K - 50 K	0.25+0.05
750.0000 V	1 mV	50 K - 100 K	0.65+0.08	
		100 K - 300 K	4.80+0.80	
		10 - 1 K	0.20+0.04	
		1 K - 5 K	1.00+0.10	
		10 - 1 K	0.30+0.06	
		1 K - 5 K	1.50+0.15	
ACI <sup>6</sup> (TRMS)	1.000000 A	1 $\mu$ A	10 - 1 K	0.50+0.12
			1 K - 5 K	2.50+0.20
			10 - 1 K	0.50+0.12
10.00000 A	10 $\mu$ A	1 K - 5 K	2.50+0.20	
Function	Range	Frequency (Hz)	1 Year Accuracy	
Freq. & Period	100 mV ~ 750 V	10 - 40	0.03	
		40 - 300 K	0.02	
Function	Range	Test Current	1 Year Accuracy	
Capacitance	100 nF	1 nF	2.0+0.80	
		10 nF	1.0+0.50	
		100 nF	1.0+0.50	
		1 $\mu$ F	1.0+0.50	
		10 $\mu$ F	1.0+0.50	
		100 $\mu$ F	1.0+0.50	
		1000 $\mu$ F	1.0+0.50	
		10000 $\mu$ F	1.0+0.50	
			2.0+0.50	
			2.0+0.50	
Function	Type	Range	1 Year Accuracy	
Thermocouple <sup>5</sup>	B	600°C ~ 1820°C	1.5°C	
	C	0°C ~ 2316°C	1.5°C	
	E	-250°C ~ 1000°C	1.5°C	
	J	-210°C ~ 1200°C	1.0°C	
	K	-200°C ~ 1372°C	1.0°C	
	N	-200°C ~ 1300°C	1.0°C	
	R	0°C ~ 1767°C	1.5°C	
	S	0°C ~ 1767°C	1.5°C	
	T	-250°C ~ 400°C	1.5°C	

### M3510A & M3511A - General Specifications

Item	Description	Item	Description
Power Supply	100V/120V/220V/240V $\pm$ 10 %	Warm-Up Time	2 Hours
Power Cord Freq.	50Hz/60Hz $\pm$ 10 %	Language	SCPI-1993, IEEE-488.2
Power Consumption	25 VA Max. (5 W Average)	Dimension	214.6(W) x 88.6(H) x 280.7(D) mm
Operating Environment	0 ~ 50°C	Weight	2230 g
Storage Environment	-40°C ~ 70°C	Safety	IEC61010-1, EN61010-1, Meas. CAT II 600 V, CAT I 1000 V, Pollution Degree 2
Operating Altitude	Up to 2000 m	EMC	EN61326
Operating Humidity	The Same as M3500A	Interface	STD. USB OPT. GPIB or RS-232
		Warranty	1 Year
		Certificate	CE
Recycle Level			

For more information, please refer to the user's manuals.