KUSAM-MECO®
An ISO 9001:2015 Company

7½ DIGIT BENCH TOP TRMS DIGITAL MULTIMETER MODEL KM 3700

THINK SAFETY
THINK KUSAM-MECO®

NEW

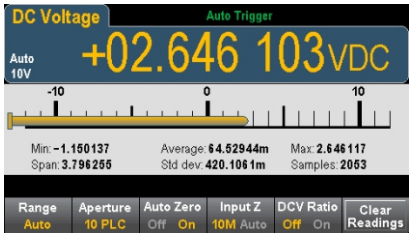
Accessories

Features

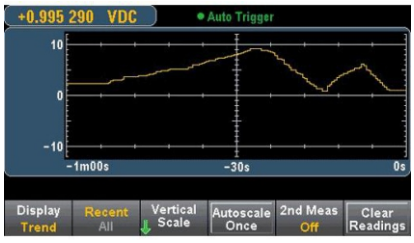
- 7½ digits digital DMM with 1nV resolution. With 20 ppm basic DCV accuracy.
- Up to 10,000 memory points. Fast reading speeds up to 30,000 readings per second.
- 4.3-inch LCD color display. True RMS AC (voltage & current) measurement.
- Measure DC current down to 1µA range and 0.1pA resolution.
- Graphical display with built-in bar, trend charts, histogram, and statistics.
- Front and rear input terminals provide ideal connection space for bench and system test.
- Dual display allows clear and quick view of voltage and frequency measurements at the same time.
- Various measurements: ACV, DCV, ACI, DCI, 2-wire and 4-wire resistance, capacitance, frequency, period, diode, continuity, temperature.
- Multiple connectivity options - USB 2.0, serial interface RS-232/485, optional LAN, optional GPIB.
- SCPI commands standard.

Number mode, the traditional "digits" view of measurements.

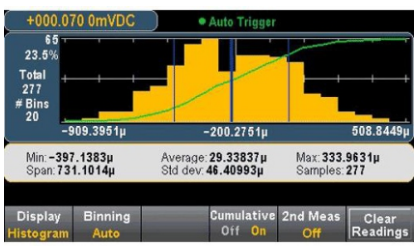
Bar meter mode, the number display along with analog meter to provide a visual view of measurements.



Trend Chart - continuous measurement mode, Provide data trends over time.

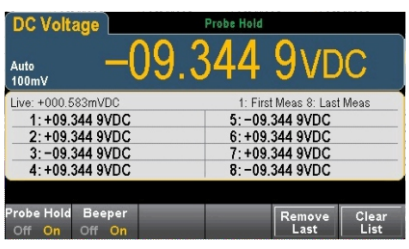


Histogram mode, a statistical view of measurements.



Built-in math functions – dB

Built-in math functions – Hold



All Specifications are subject to change without prior notice.

Overview

Digits of Resolution	7½
Basic DCV Accuracy	20 ppm
Max Reading Rate	30, 000 rdgs/s
Memory	10, 000 rdgs
DCV	100 mV to 1, 000V
ACV (RMS)	100 mV to 750 V
DCI	1 µA to 10 A
ACI	10 µA to 10 A
2-wire and 4-wire Resistance	100 Ω to 100 MΩ
Continuity, Diode	1 kΩ, 5V
Frequency, Period	3Hz to 300 kHz / 33ms to 333µs
Temperature	RTD, Thermistor
Capacitance	1.0000 nF - 100.0 µF
Dual Line Display	Yes
Display	4.3-inch LCD color display
Statistical Graphics	Histogram, bar chart, trend graph
Front Input Terminals	Available
Rear Input Terminals	Available
USB	Available
RS232/485	Available
LAN	Available
GPIB	Available

Specification

Accuracy specifications: ±(% reading + % range) [1]

Range[2]/Frequency	24 hours[3] T_{CAL} ± 1 ℃	90 days T_{CAL} ± 5 ℃	1 year T_{CAL} ± 5 ℃	2 years T_{CAL} ± 5 ℃	Temperature Coefficient/℃ [4]
DC voltage					
100 mV	0.0030 + 0.0030	0.0040 + 0.0035	0.0040 + 0.0035	0.0045 + 0.0035	0.0005 + 0.0005
1 V	0.0010 + 0.0004	0.0015 + 0.0004	0.0020 + 0.0004	0.0025 + 0.0004	0.0005 + 0.0001
10 V	0.0008 + 0.0002	0.0013 + 0.0002	0.0016 + 0.0002	0.0020 + 0.0002	0.0005 + 0.0001
100 V	0.0020 + 0.0006	0.0032 + 0.0006	0.0038 + 0.0006	0.0040 + 0.0006	0.0005 + 0.0001
1000 V[5]	0.0020 + 0.0006	0.0032 + 0.0006	0.0038 + 0.0006	0.0040 + 0.0006	0.0005 + 0.0001
Resistance[6] (Test Current)					
100 Ω	0.0030 + 0.0030	0.008 + 0.004	0.010 + 0.004	0.012 + 0.004	0.0006 + 0.0005
1k Ω	0.0020 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0006 + 0.0001
10 kΩ	0.0020 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0006 + 0.0001
100 kΩ	0.0020 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0006 + 0.0001
1 MΩ	0.002 + 0.001	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0010 + 0.0002
10 MΩ	0.015 + 0.001	0.020 + 0.001	0.040 + 0.001	0.060 + 0.001	0.0030 + 0.0004
100 MΩ	0.300 + 0.010	0.800 + 0.010	0.800 + 0.010	0.800 + 0.010	0.1500 + 0.0002

DC Current					
1 µA [7] (typ)	0.700 + 0.010	3.000 + 0.010	5.000 + 0.010	6.000 + 0.010	0.2000 + 0.0020
1 µA [8] (typ)	0.070 + 0.005	0.300 + 0.005	0.500 + 0.005	0.600 + 0.005	0.0020 + 0.0010
10 µA (typ)	0.007 + 0.002	0.030 + 0.002	0.050 + 0.002	0.060 + 0.002	0.0015 + 0.0006
100 µA (typ)	0.007 + 0.001	0.030 + 0.001	0.050 + 0.001	0.060 + 0.001	0.0015 + 0.0004
1 mA	0.007 + 0.003	0.030 + 0.005	0.050 + 0.005	0.060 + 0.005	0.0015 + 0.0005
10 mA	0.007 + 0.020	0.030 + 0.020	0.050 + 0.002	0.060 + 0.002	0.0020 + 0.0020
100 mA	0.010 + 0.004	0.030 + 0.005	0.050 + 0.005	0.060 + 0.005	0.0020 + 0.0005
1 A	0.050 + 0.006	0.070 + 0.010	0.080 + 0.010	0.100 + 0.010	0.0050 + 0.0010
3 A	0.180 + 0.020	0.200 + 0.020	0.200 + 0.020	0.230 + 0.020	0.0050 + 0.0020
10 A[9]	0.050 + 0.010	0.120 + 0.010	0.120 + 0.010	0.150 + 0.010	0.0050 + 0.0010
Continuity					
1 kΩ	0.002 + 0.030	0.008 + 0.030	0.010 + 0.030	0.012+ 0.030	0.0010 + 0.0020
Diode test[10]					
5 V	0.002 + 0.030	0.008 + 0.030	0.010 + 0.030	0.012+ 0.030	0.0010 + 0.0020
True RMS AC voltage [11,12]					
Range: 100 mV 1 V, 10 V, 100 V and 750 V					
3 Hz-5 Hz	0.50 + 0.02	0.50 + 0.02	0.50 + 0.02	0.50 + 0.02	0.010 + 0.003
5 Hz-10 Hz	0.10 + 0.02	0.10 + 0.02	0.10 + 0.02	0.11 + 0.02	0.008 + 0.003
10 Hz-20 kHz	0.02 + 0.02	0.04 + 0.02	0.05 + 0.02	0.06 + 0.02	0.007 + 0.003
20 kHz-50 kHz[7]	0.05 + 0.03	0.06 + 0.03	0.07 + 0.03	0.08 + 0.03	0.010 + 0.005
50 kHz-100 kHz	0.15 + 0.05	0.15 + 0.05	0.15 + 0.05	0.15 + 0.05	0.060 + 0.008
100 kHz-300 kHz	1.00 + 0.10	1.00 + 0.10	1.00 + 0.10	1.00 + 0.10	0.200 + 0.020
True RMS AC current[13,14]					
Range: 10 µA					
3 Hz-5 kHz		0.35 + 0.04	0.40 + 0.04	0.40 + 0.04	0.055 + 0.006
5 kHz-10 kHz (typ)		0.35 + 0.04	0.40 + 0.04	0.40 + 0.04	0.055 + 0.006
Range: 100 µA, 1 mA, 10 mA, 100 mA, 1A					
3 Hz-5 kHz	0.07 + 0.04	0.09 + 0.04	0.10 + 0.04	0.10 + 0.04	0.015 + 0.006
5 kHz-10 kHz (typ)	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.030 + 0.006
Range: 3A					
3 Hz-5 kHz	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.015 + 0.006
5 kHz-10 kHz (typ)	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.030 + 0.006
Range: 10 A					
3 Hz-5 kHz	0.10 + 0.04	0.15 + 0.04	0.15 + 0.04	0.15 + 0.04	0.015 + 0.006
5 kHz-10 kHz (typ)	0.15 + 0.04	0.15 + 0.04	0.15 + 0.04	0.15 + 0.04	0.030 + 0.006
Frequency[15,16]					
Range: 100 mV, 1 V, 10 V, 100 V and 750 V[17]					
3 Hz-40 Hz	0.070	0.070	0.070	0.070	0.035
40 Hz-100 Hz	0.030	0.030	0.030	0.030	0.035
100 Hz-1 kHz	0.003	0.006	0.007	0.010	0.015
1 kHz-300 kHz	0.002	0.005	0.007	0.009	0.015
Square Wave[15]	0.001	0.004	0.006	0.008	0.015

Additional frequency errors ±(% of reading) [15]

Aperture (resolution/range)	1 second (0.1 ppm)	0.1 second (1 ppm)	0.01 second (10 ppm)
3 Hz-40 Hz	0	0.200	0.200
40 Hz-100 Hz	0	0.060	0.200
100 Hz-1 kHz	0	0.020	0.200
1 kHz-300 kHz	0	0.004	0.030
Square Wave[15]	0	0.000	0.000

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Capacitance[16]					
1.000 nF	0.50 + 0.50	0.50 + 0.50	0.50 + 0.50	0.50 + 0.50	0.05 + 0.05
10.00 nF	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
100.0 nF	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
1.000 µF	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
10.000 µF	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
100.00 µF	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01

Temperature	
PT100 (DIN/ IEC 751) [18]	Probe accuracy + 0.05 ℃
5 kΩ Thermistor	Probe accuracy + 0.10 ℃

DC current burden voltage at full scale	
DC current range	**Burden voltage**
1 µA	< 0.11 V
10 µA	< 0.11 V
100 µA	< 0.11 V
1 mA	< 0.11 V
10 mA	< 0.11 V
100 mA	< 0.11 V
1 A	< 0.11 V
3 A	< 0.33 V
10 A	< 0.11 V

1. These specifications are valid in the following conditions: warm up for 90 minutes, aperture of 10 or 100NPLC, and auto zero on, slow AC filter.
2. Except 1,000 DCV, 750 ACV, 3A/10A Current, and diode test have 0%, 20% overrange on all ranges.
3. In relation to the calibration standards.
4. Add this for each degree (℃) outside T_{CAL} ±5 ℃.
5. For each additional volt exceeds ±500 V add 0.02 mV of error.
6. Specifications are for 4-wire ohms function or 2-wire ohms using math null for offset. Without math null, add 0.2Ω additional error in 2-wire ohms function.
7. Specifications are for DCI input ≥ 0 and ≤+20% of range, and ≤ 0 and ≥ -20% of range.
8. Specifications are for DCI input in the range other than "7" stated.
9. The 10 A range is only available from a separate connector on the front panel.
10. Specifications are for the voltage measured at the input terminals. The 1 mA test current is typical. Variation in the current source will create some variation in the voltage drop across a diode junction.
11. Specifications are for:
When sine wave frequency ≤ 100KHz, and range from 100 mV to 100 V, sine wave input > 0.3% of range and > 1 mVrms. If in 750V range, specifications are for sine wave input amplitude > 5% of range.
When sine wave frequency > 100KHz and ≤ 300KHz, sine wave input > 0.8% of range and > 1 mVrms. For each additional volt over 300 Vrms add 1 mVrms of error.
12. Low-frequency performance: three filter settings are available: 3 Hz, 20 Hz, 200 Hz. Frequencies greater than these filter settings are specified with no additional errors.
13. Specifications are for sine wave input > 1% of range and > 9 µArms.
14. Unless stated otherwise, specifications are for sine wave input.
15. Square wave input specified for 10 Hz to 300 kHz for 1 second aperture. For shorter apertures, the minimum frequency requires > 2 cycles.
16. Specifications are for using Math Null zeroing. High dissipation factor capacitors may show different results than a single frequency measurement. Film capacitors usually have lower dissipation factors than other dielectrics.
17. Input > 100 mV. For 10 mV to 100 mV inputs, multiply % of reading error x10. Amplitude 10% to 120% of range except 14% to 100% for the 750 ACV range. Specifications are for 1-second gate time (7 digits).
18. Actual measurement range and probe errors will be limited by the selected probe. Probe accuracy adder includes all measurement and ITS-90 temperature conversion errors. PT100 Ro settable to 100Ω ± 5Ω to remove the initial probe error.

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