SDM4075A
Digital Multimeter

Data Sheet
EN01B

TELONIC
TEST INSTRUMENTS & POWER SUPPLIES
ISO 9001 QUALITY MANAGEMENT
UKAS MANAGEMENT SYSTEMS 0015
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SIGLENT TECHNOLOGIES CO., LTD.

SDM4075A

Product Overview

SDM4075A is a 7½ digits digital multimeter, with outstanding measurement accuracy, linearity, long term stability, ultra-low baseline noise, multiple graphic display modes, and touchable screen. It is a product designed for high-precision, multifunctional, and automatic measurement needs.

Main Functions

Basic Measurement Functions

- DC voltage measurement
- DC current measurement
- True-RMS AC voltage measurement
- True-RMS AC current measurement
- 2/4-Wire resistance measurement
- Capacitance measurement
- Continuity test
- Diode test
- Frequency measurement
- Period measurement
- Temperature measurement

Extended Function

DCV ratio measurement, statistics, limits, dB/dBm, relative measurement; Bar meter, histogram, trend chart, dual display, probe hold and user-defined sensor measurement

Data Log Function

The logging interval is configurable from 1 ms to 3600 s. The instrument supports logging a maximum of 2,000,000 readings to internal memory and 360,000,000 readings to an external file, enabling a total logging duration of up to 100 hours (depending on the selected interval and sample rate)

Digitize Function

The instrument offers a maximum sampling rate of 2 MSa/s and a bandwidth of 15 kHz. In a single acquisition, it can capture up to a maximum of 2,000,000 readings.

Application fields

- Research laboratory
- Development laboratory
- Repair and maintenance
- Calibration laboratory
- Automatic production test

Main Features

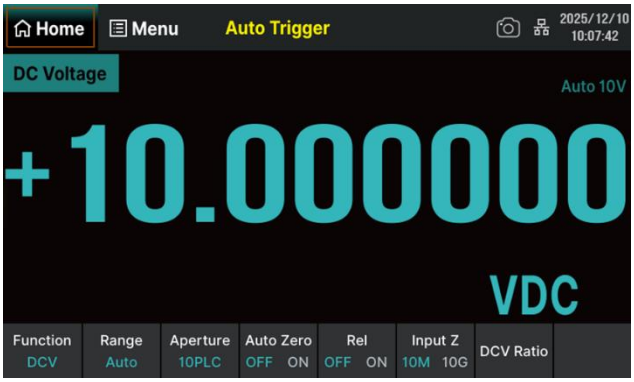
- Front/rear mechanical switch selects the terminals set to be used
- 5-inch true color TFT-LCD display with a resolution of 800*480
- Real 7½ digit (11,000,000 count) readings resolution
- High-speed measurement at 50,000 rdgs/s, with sampling interval adjustable from 0.001 PLC to 100 PLC
- Internal memory stores up to 2,000,000 readings with time-stamping for each record
- 4 trigger modes: Auto, Single, External and Level
- 4 display modes: Number, Bar, Trend and Histogram
- DC measurements support autozero function
- True-RMS AC voltage and AC current measurement
- Automatically switches between 10 A and 3 A current ranges, and supports up to 30 A with an external shunt
- Support RTD, thermocouple and user-defined sensor
- Offers dual-display and probe-hold functions
- Complies with standard SCPI remote control commands
- Comes with EasyDMM-X host computer control and sampling software
- Communications interface: USB Device (optional USB-GPIB adapter), USB Host, LAN
- Supports BNC VMC output, Trigger input
- Supports VNC, Web-server
- Chinese and English menu, and built-in help system for easy information retrieval

Model and Key Specifications

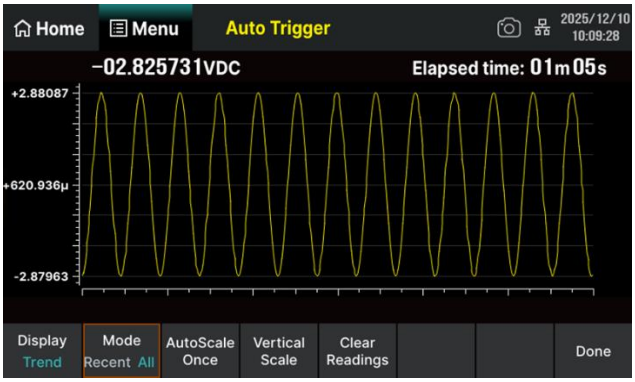
Model	SDM4075A
Number of Digits	7½
DCV Basic Accuracy	16 ppm
Max Reading Rate	50,000 rdgs/s
Max Logging Memory	2,000,000 readings
DCV Range	100 mV to 1000 V
ACV Range	100 mV to 750 V
DCI Range	1 μA to 10 A
ACI Range	100 μA to 10 A
2/4-wire Resistance Range	10 Ω to 1 GΩ
Continuity / Diode	Yes, 5 V
Frequency / Period Range	3 Hz to 1 MHz
Temperature	RTD, thermocouple
Capacitance Range	1 nF to 100 mF
IO	USB Host, USB Device, LAN, GPIB (optional)
External Interface	Exit trigger, VMC output
Display Screen	5-inch TFT touchable display screen

Characteristics

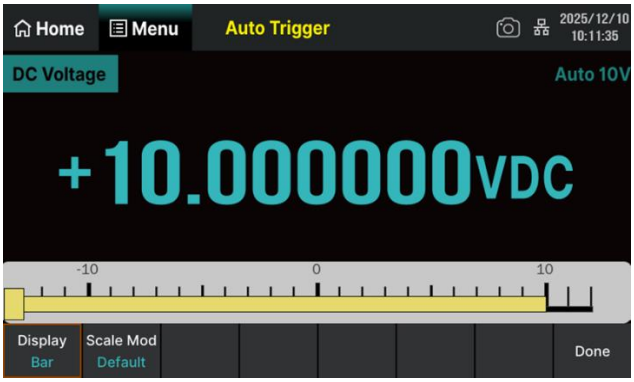
Numerical Display



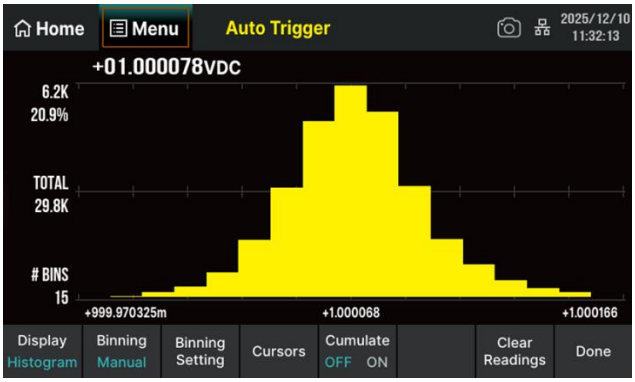
Trend Chart



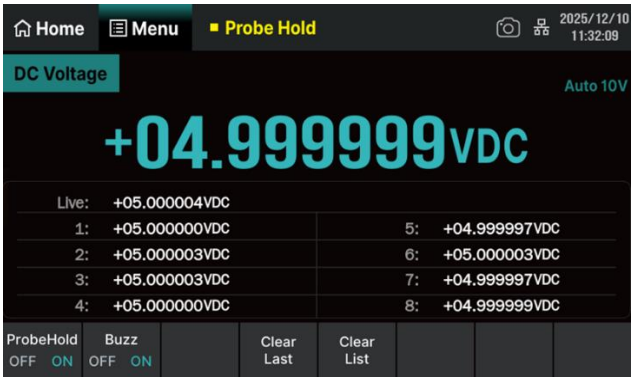
Bar Meter



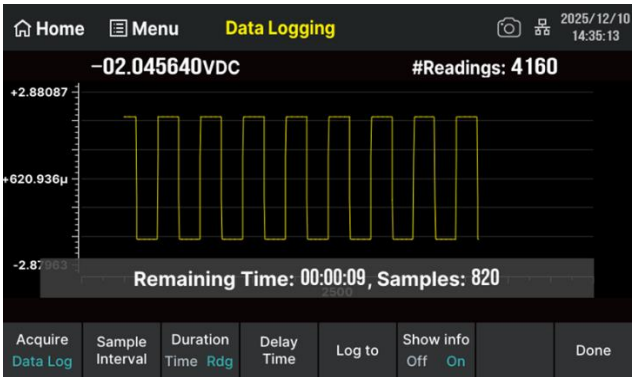
Histogram



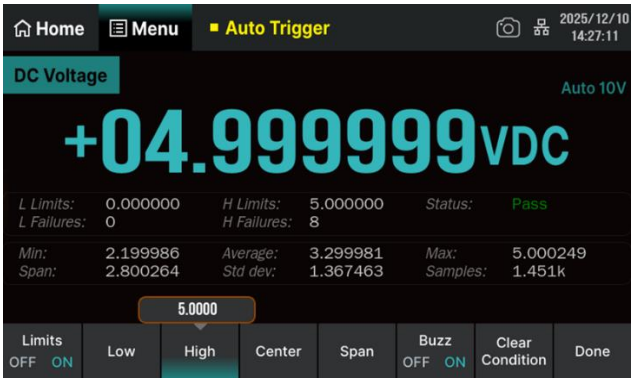
Probe Hold



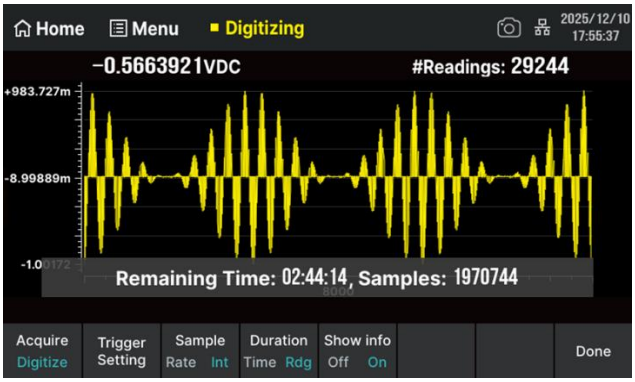
Data Log



Statistics and Limits



Digitize



Specifications

DC Characteristics

Accuracy ± (% of Reading + % of Range) [1]

Function	Range [2]	Test Current or Load Voltage	24 Hours [3] TCAL [4] ±1 ℃	90 Days TCAL ±5 ℃	1 Year TCAL ±5 ℃	Temperature Coefficient [5] 0 ℃ to (TCAL -5 ℃) (TCAL +5 ℃) to 50 ℃
DC Voltage	100 mV		0.0030 + 0.0030	0.0040 + 0.0035	0.0040 + 0.0035	0.0005 + 0.0005
	1 V		0.0010 + 0.0004	0.0015 + 0.0004	0.0020 + 0.0004	0.0005 + 0.0001
	10 V		0.0008 + 0.0002	0.0013 + 0.0002	0.0016 + 0.0002	0.0005 + 0.0001
	100 V		0.0020 + 0.0006	0.0032 + 0.0006	0.0038 + 0.0006	0.0005 + 0.0001
	1000 V [6]		0.0020 + 0.0006	0.0032 + 0.0006	0.0038 + 0.0006	0.0005 + 0.0001
DC Current	1 µA	<0.0011	0.007 + 0.005	0.030 + 0.005	0.050 + 0.005	0.0020 + 0.0200
	10 µA	<0.011	0.007 + 0.002	0.030 + 0.002	0.050 + 0.002	0.0015 + 0.0020
	100 µA	<0.11	0.007 + 0.001	0.030 + 0.001	0.050 + 0.001	0.0015 + 0.0004
	1 mA	<0.25 V	0.007 + 0.003	0.030 + 0.005	0.050 + 0.005	0.0015 + 0.0005
	10 mA	<0.07 V	0.007 + 0.020	0.030 + 0.020	0.050 + 0.020	0.0020 + 0.0020
	100 mA	<0.7 V	0.010 + 0.004	0.030 + 0.005	0.050 + 0.005	0.0020 + 0.0005
	1 A	<0.12 V	0.050 + 0.006	0.070 + 0.010	0.080 + 0.010	0.0050 + 0.0010
	3 A	<0.36 V	0.180 + 0.020	0.200 + 0.020	0.200 + 0.020	0.0050 + 0.0020
	10 A [7]	<0.6 V	0.050 + 0.010	0.120 + 0.010	0.120 + 0.010	0.0050 + 0.0010
Resistance [8]	10 Ω	1 mA	0.0060 + 0.0120	0.0100 + 0.0160	0.0120 + 0.0160	0.0006 + 0.0020
	100 Ω	1 mA	0.0030 + 0.0030	0.0050 + 0.0040	0.0060 + 0.0040	0.0006 + 0.0005
	1 kΩ	1 mA	0.0020 + 0.0005	0.0030 + 0.0005	0.0040 + 0.0005	0.0006 + 0.0001
	10 kΩ	100 µA	0.0020 + 0.0005	0.0030 + 0.0005	0.0040 + 0.0005	0.0006 + 0.0001
	100 kΩ	10 µA	0.0020 + 0.0005	0.0030 + 0.0005	0.0040 + 0.0005	0.0006 + 0.0001
	1 MΩ	2 µA	0.0020 + 0.0005	0.0060 + 0.0005	0.0070 + 0.0005	0.0010 + 0.0002
	10 MΩ	200 nA	0.010 + 0.001	0.020 + 0.001	0.025 + 0.001	0.0030 + 0.0004
	100 MΩ	200 nA ‖ 10 MΩ	0.100 + 0.001	0.200 + 0.001	0.300 + 0.001	0.1000 + 0.0001
	1 GΩ	200 nA ‖ 10 MΩ	2.000 + 0.001	2.000 + 0.001	3.000 + 0.001	1.0000 + 0.0001
Diode Test [9]	0 to 5 V	1 mA	0.002 + 0.010	0.008 + 0.010	0.010 + 0.010	0.0010 + 0.0010
Continuity Test	1000 Ω	1 mA	0.002 + 0.010	0.008 + 0.020	0.010 + 0.020	0.0010 + 0.0020

Notes:

[1] Specifications are for 90 minutes warm-up, and integration time 100 PLC. For integration time <100 PLC, add the appropriate "RMS Noise Adder" listed in the following table.

[2] 20% over range on all ranges except for DCV 1000 V and DCI 10 A range.

[3] Relative to the calibration standards.

[4] The temperature at which the instrument was calibrated (23 ℃ for factory calibration).

[5] Add this for each ℃ outside TCAL ±5 ℃.

[6] For each additional volt over ±500 V, add 0.02 mV error.

[7] 30 seconds OFF after 30 seconds ON is recommend for the continuous current that higher than DC 7 A or AC 7 Arms.

[8] Specifications are for 4-wire resistance measurement or 2-wire resistance measurement using "Ref" operation. Without "Ref" operation, add 0.2 Ω additional error in 2-wire resistance measurement.

[9] Accuracy specifications are only for voltage measuring at input terminal. The typical value of current under measure is 1 mA. Voltage drop at diode junction may vary with current supply.

Performance Versus Integration Time

Integration Time	Digits [1]	Readings/s		RMS Noise Adder [2] (% of Range + Fixed Base)		
		50 Hz	60 Hz	DC Voltage	Ohms	DC Current [3]
100 PLC	7½	0.5	0.6			
10 PLC	7½	5	6			
1 PLC	6½	50	60	0.0001 + 0.5 μV	0.0001 + 0.5 mΩ	0.0006 + 0.01 nA
0.1 PLC	6	500	500	0.0005 + 3 μV	0.0010 + 10 mΩ	0.0050 + 5 nA
0.01 PLC	5	5000	5000	0.0020 + 3 μV	0.0020 + 10 mΩ	0.0070 + 10 nA
0.001 PLC	4½	50000	50000	0.0100 + 4 μV	0.0150 + 10 mΩ	0.0150 + 30 nA

Notes:

[1] For DCV on the 10 V range with zero volts input and auto zero off, the ratio of RMS noise to full-scale voltage value.

[2] Measured with zero volts input and auto zero off.

[3] The following DCI ranges have these additional multipliers: The 10 mA by 5x, the 100 mA by 2x, and the 10 A by 1.6x.

AC Characteristics

Accuracy ± (% of Reading + % of Range) [1]

Function	Range [2]	Frequency Range	24 Hours [3] TCAL [4] ±1 ℃	90 Days TCAL ±5 ℃	1 Year TCAL ±5 ℃	Temperature Coefficient [5] 0 ℃ to (TCAL -5 ℃) (TCAL +5 ℃) to 50 ℃
True-RMS AC Voltage [6] [7]	100 mV to 750 V	3 Hz to 5 Hz	0.50 + 0.02	0.50 + 0.02	0.50 + 0.02	0.010 + 0.003
		5 Hz to 10 Hz	0.10 + 0.02	0.10 + 0.02	0.10 + 0.02	0.008 + 0.003
		10 Hz to 20 kHz	0.02 + 0.02	0.04 + 0.02	0.05 + 0.02	0.007 + 0.003
		20 kHz to 50 kHz	0.05 + 0.03	0.06 + 0.03	0.07 + 0.03	0.010 + 0.005
		50 kHz to 100 kHz	0.15 + 0.05	0.15 + 0.05	0.15 + 0.05	0.060 + 0.008
		100 kHz to 300 kHz	1.00 + 0.1	1.00 + 0.1	1.00 + 0.1	0.200 + 0.020
True-RMS AC Current [8][10]	100 µA to 1 A	3 Hz to 5 kHz	0.07 + 0.04	0.09 + 0.04	0.10 + 0.04	0.015 + 0.006
		5 kHz to 10 kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.030 + 0.006
	3 A	3 Hz to 5 kHz	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.015 + 0.006
		5 kHz to 10 kHz	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.030 + 0.006
	10 A [9]	3 Hz to 5 kHz	0.10 + 0.04	0.15 + 0.04	0.15 + 0.04	0.015 + 0.006
		5 kHz to 10 kHz	0.15 + 0.04	0.15 + 0.04	0.15 + 0.04	0.030 + 0.006

Notes:

[1] Specifications are for 90 minutes warm-up, filter set to >3 Hz and sine wave input.

[2] 20% over range on all ranges except for ACV 750 V and ACI 10 A range.

[3] Relative to calibration standards.

[4] The temperature at which the instrument was calibrated (23 ℃ for factory calibration).

[5] Add this for each ℃ outside TCAL ±5 ℃.

[6] Specifications are for sine wave input >5% of range. ACV 750 V range limited to 8 x10^7 V·Hz. For input over 300 Vrms, add 1 mVrms error for each additional volt.

[7] 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.

[8] Specifications are for sine wave input >1% of range and >10 µArms.

[9] 30 seconds OFF after 30 seconds ON is recommend for the continuous current that higher than DC 7 A or AC 7 Arms.

[10] For AC signals between 3 Hz and 5 Hz, add an additional error of 0.5% of reading.

Frequency and Period Characteristics

Accuracy ± (% of Reading) [1][2]

Function	Range	Frequency Range	24 Hours [3] TCAL [4] ±1 ℃	90 Days TCAL ±5 ℃	1 Year TCAL ±5 ℃	Temperature Coefficient [5] 0 ℃ to (TCAL -5 ℃) (TCAL +5 ℃) to 50 ℃
Frequency Period	100 mV to 750 V	3 Hz to 5 Hz	0.07	0.07	0.07	0.005
		5 Hz to 10 Hz	0.04	0.04	0.04	0.005
		10 Hz to 40 Hz	0.02	0.02	0.02	0.001
		40 Hz to 300 kHz	0.005	0.006	0.007	0.001
		300 kHz to 1 MHz	0.005	0.006	0.007	0.001

Additional Low Frequency Errors (% of Reading)

Frequency	Gate Time (Resolution)			
	1 s (0.1 ppm)	0.1 s (1 ppm)	0.01 s (10 ppm)	0.001 s (100 ppm)
3 Hz to 5 Hz	0	0.12	0.12	0.12
5 Hz to 10 Hz	0	0.17	0.17	0.17
10 Hz to 40 Hz	0	0.20	0.20	0.20
40 Hz to 100 Hz	0	0.06	0.21	0.21
100 Hz to 300 Hz	0	0.03	0.21	0.21
300 Hz to 1 kHz	0	0.01	0.07	0.07
>1 kHz	0	0	0.02	0.02

Notes:

[1] Specifications are for 90 minutes warm-up, using 1 s gate time.

[2] For frequencies ≤300 kHz, the specification is 10% to 110% of the AC input voltage range; for frequencies >300 kHz, the specification is 20% to 110% of the AC input voltage range. The maximum input is limited to 750 Vrms or 8×10^7 V·Hz, whichever is less. The 100 mV range is the largest full-scale input. For the AC voltage range of 10 mV to 100 mV, multiply all percentage-of-reading errors by 10.

[3] Relative to calibration standards.

[4] The temperature at which the instrument was calibrated (23 ℃ for factory calibration).

[5] Add this for each ℃ outside TCAL ±5 ℃.

Capacitance Characteristics

Accuracy ± (% of Reading + % of Range) [1]

Function	Range [2]	Test Current	1 Year TCAL [3] ±5 ℃	Temperature Coefficient [4] 0 ℃ to (TCAL -5 ℃) (TCAL +5 ℃) to 50 ℃
Capacitance	1.0000 nF	10 μA	2+2.4	0.05+0.06
	10.000 nF	10 μA	1+0.1	0.05+0.01
	100.00 nF	100 μA	1+0.1	0.01+0.01
	1.0000 μF	100 μA	1+0.1	0.01+0.01
	10.000 μF	1 mA	1+0.1	0.01+0.01
	100.00 μF	1 mA	1+0.1	0.01+0.01
	1.0000 mF	1 mA	1+0.1	0.01+0.01
	10.000 mF	1 mA	1+0.2	0.01+0.01
	100.00 mF	1 mA	3+0.1	0.05+0.02

Notes:

[1] Specifications are for 90 minutes warm-up and "Ref" operation. Using of non-film capacitor may generate additional errors.

[2] Specifications are for the range from 1% to 110% on 1 nF range and from 10% to 110% on other ranges.

[3] The temperature at which the instrument was calibrated (23 ℃ for factory calibration).

[4] Add this for each ℃ outside TCAL ±5 ℃.

Temperature Characteristics

Accuracy ± (Reading) [1]

Function	Probe Type	Probe Model	Working Temperature Range [2]	1 Year TCAL [3] ±5 ℃	Temperature Coefficient [4] 0 ℃ to (TCAL -5 ℃) (TCAL +5 ℃) to 50 ℃
Temperature	RTD [5][6] (R0 is within 49 Ω to 2.1 kΩ)	α=0.00385	-200 ℃ to 660 ℃	0.16 ℃	0.01 ℃
	TC [7][8][9]	B	1100 ℃ to 1820 ℃	0.76 ℃	0.14 ℃
		E	-150 ℃ to 1000 ℃	0.5 ℃	0.02 ℃
		J	-150 ℃ to 1200 ℃	0.5 ℃	0.02 ℃
		K	-100 ℃ to 1370 ℃	0.5 ℃	0.03 ℃
		N	-100 ℃ to 1300 ℃	0.5 ℃	0.04 ℃
		R	300 ℃ to 1760 ℃	0.5 ℃	0.09 ℃

		S	400 ℃ to 1760 ℃	0.6 ℃	0.11 ℃
		T	-100 ℃ to 400 ℃	0.5 ℃	0.03 ℃

Notes:

[1] Specifications are for 90 minutes warm-up, and are the instrument's intrinsic accuracy, not including probe error.

[2] The temperature measurement function can also be applied outside the optimum range, but the measurement accuracy has certain errors.

[3] The temperature at which the instrument was calibrated (23 ℃ for factory calibration).

[4] Add this for each ℃ outside TCAL ±5 ℃.

[5] Specifications are for 4-wire measure or 2-wire measure under “Ref” operation.

[6] RTD total accuracy = Instrument intrinsic accuracy + Temperature coefficient correction.

[7] Relative to cold junction temperature, accuracy is based on ITS-90. Built-in cold junction temperature refers to the temperature inside the banana jack and its accuracy is ±3.5 ℃.

[8] TC total accuracy = Instrument intrinsic accuracy + Temperature coefficient correction + Cold junction compensation error. Where the cold junction compensation error is taken as ±3.5 ℃ when using internal cold junction compensation, or taken as the accuracy of the external reference when using an external reference.

[9] During calibration and verification, "Ref Temp-Ext" is preferred for measurement.

Data Log

Function	Specification
Logging Source	AC/DC voltage, AC/DC current, resistance, capacitance, frequency, period, temperature
Sample Interval	1 ms to 3600 s
Log Sample Capacity	Log to memory: 2,000,000 readings max. Log to file: 360,000,000 readings max.
Duration	100 hours max.
Delay	100 hours max.

Digitize

Function	Specification
Source	DC voltage, DC current
Sample Rate	10 Sa/s to 2 MSa/s
Sample Capacity	2,000,000 readings max.
-3 dB Bandwidth	15 kHz (DC voltage), 10 kHz (DC current)

SFDR & SINAD [1]

Function	Range	Spurious-Free Dynamic Range (SFDR)	Signal-to-Noise-and-Distortion (SINAD)	Bandwidth
DCV	100 mV	62	60	15 kHz
	1 V	65	62	15 kHz
	10 V	72	65	15 kHz
	100 V	82	65	15 kHz
	1000 V	82	65	15 kHz
DCI	100 µA	62	55	10 kHz
	1 mA	62	55	10 kHz
	10 mA	72	55	10 kHz
	100 mA	68	55	10 kHz
	1 A	62	60	10 kHz
	3 A	75	55	10 kHz
	10 A	62	60	10 kHz

Note:

[1] Typical value, -1 dBFS, 1 kHz single tone. 20 µs aperture time and auto zero off.

Measurement Rate

Multimeter Measurement Rate [1]

Function	Setting	Integration time	Readings/s 50 Hz (60 Hz)
DC Voltage DC Current 2-wire Resistance 4-wire Resistance	0.001 PLC	20 (20) µs	50000 (50000)
	0.01 PLC	200 (200) µs	5000 (5000)
	0.1 PLC	2 (2) ms	500 (500)
	1 PLC	20 (16.7) ms	50 (60)
	10 PLC	200 (167) ms	5 (6)
	100 PLC	2 (1.67) s	0.5 (0.6)
AC Voltage AC Current	3 Hz AC filter		0.5
	20 Hz		2
	200 Hz		50
Frequency/Period [2]	1 s gate time		1
	0.1 s		5
	0.01 s		50
	0.001 s		500
Capacitance [3]	100 mF range		1

Notes:

[1] Auto trigger, zero trigger delay, auto zero off and auto range off.

[2] 20 V range, 1 kHz input.

[3] The measurement cycle varies with the size of the capacitance being measured, referring to the update interval after the capacitance value stabilizes.

Measuring Method and other Characteristics

DC Voltage	
Input Resistance	100 mV, 1 V, 10V range: 10 MΩ or >10 GΩ selectable (For these ranges, input beyond ±26 V are clamped through inner 408 kΩ resistor)
	100 V and 1000 V ranges: 10 MΩ ±1%
Input Bias Current	50 pA, 25 ℃, typical value
Input Protection	1000 V on all range
CMRR	140 dB. For the 1 kΩ unbalanced resistance in LO lead, max ±500 VDC peak
Resistance	
Testing Method	2-wire resistance or 4-wire resistance selectable
	Current source reference to LO input
Open Circuit Voltage	Limited to <10 V
Max. Lead Resistance (4-wire resistance)	10% of range per lead for 100 Ω, 1 kΩ ranges, 1 kΩ per lead on all other ranges
Input Protection	1000 V on all ranges
DC Current	
Shunt Resistor	1 kΩ for 1 μA, 10 μA, 100 μA ranges
	100 Ω for 1 mA range
	2.1 Ω for 10 mA, 100 mA ranges
	0.1 Ω for 1 A, 3 A ranges
	0.01 Ω for 10 A range
Input Protection	Rear panel: internal 3.15 A, 1000 V Time-Lag fuse
	Front panel: internal 11 A, 1000 V Time-Lag fuse
Continuity/Diode Test	
Measurement Method	Measure resistance or voltage using 1 mA ±5% constant-current source
Response Time	300 samples/s
Buzzer	Yes
Continuity Threshold	Adjustable from 1 Ω to 1 kΩ
Diode Threshold	Adjustable from 0 V to 5 V
Input Protection	1000 V on all ranges

Settling Time Considerations	Reading settling times are affected by source impedance, cable dielectric characteristics and input signal changes. The default measurement delay is selected to give first reading right for most measurements
Measurement Considerations	Teflon or other high-impedance, low-dielectric absorption wire insulation is recommended for these measurements
True-RMS AC Voltage	
Measurement Method	AC-Coupled True-RMS measurement with up to 400 VDC of bias on any range
Wave Crest Factor	≤5 at full scale
Input Impedance	1 MΩ ±2% in parallel with <150 pF capacitance on all ranges
Input Protection	750 Vrms on all ranges
AC Filter Bandwidth	Slow: 3 Hz to 300 kHz
	Medium: 20 Hz to 300 kHz
	Fast: 200 Hz to 300 kHz
True-RMS AC Current	
Measurement Method	DC Coupled to the fuse and shunt; AC Coupled the True-RMS measurement (measure the AC components only)
Wave Crest Factor	≤3 at full scale
Max Input	<10 Arms (RMS current including DC component)
Shunt Resistor	100 Ω for 100 μA, 1 mA ranges
	2.1 Ω for 10 mA, 100 mA ranges
	0.1 Ω for 1 A, 3 A ranges
	0.01 Ω for 10 A range
Input Protection	Rear panel: internal 3.15 A, 1000 V Time-Lag fuse
	Front panel: internal 11 A, 1000 V Time-Lag fuse
Settling Time Considerations	The default measurement delay is selected to give first reading right for most measurements. Make sure the RC circuit of input terminal has been fully settled (about 1 s) before accurate measurement. Applying >300 Vrms (or >5 Arms) will cause self-heating in signal-conditioning components and these errors are included in the instrument specifications. Internal temperature changes due to self-heating may cause additional error on lower AC voltage ranges. The additional error will be lower than 0.02% of reading and will generally dissipate within a few minutes
Frequency/Period	
Measurement Method	Reciprocal-counting technique, AC-Coupled input using AC voltage measurement function
Input Impedance	1 MΩ ±2% in parallel with <150 pF capacitance on all ranges
Input Protection	750 Vrms on all ranges
Measurement Considerations	All frequency counters are susceptible to error when measuring low-voltage, low-frequency signals
	Shielding inputs from external noise pickup is critical for minimizing measurement errors

Settling Time Considerations	Errors will occur when attempting to measure the frequency or period of an input following a DC current change. Make sure the RC circuit of input terminal has been fully settled (about 1 s) before accurate measurement
Capacitance Measuring	
Measurement Method	Measure the rate of change of voltage generated during the current flowing the capacitance
Connection Type	2-wire
Input Protection	1000 V on all ranges
Measurement Considerations	Since small capacitance measurements are susceptible to the external noise, shielding inputs from external noise pickup is critical for minimizing measurement errors
Temperature Measuring	
Measurement Method	Support for TC and RTD types of sensors
Measurement Considerations	The built-in cold junction temperature tracks the temperature inside the banana jack. The change of the temperature in banana jack may cause additional error. When using the built-in cold junction compensation, connect the sensor terminal of the thermocouple to the banana jack and allow it warm up for more than 3 minutes to minimize the error
Trigger and Memory	
Samples/Trigger	Pre-trigger or pos-trigger, internal trigger or external trigger, rising edge trigger or falling edge trigger
Trigger Delay	0 s to 1000 s
Single Trigger Samples	1 to 599999999
External Trigger Input	Input level: 5 V TTL compatible (High level when left input terminal is hanging in the air)
	Trigger condition: rising and falling selectable
	Input impedance: ≥30 kΩ//500 pF
	Delay: <50 μs
	Max rate: 300/s
	Min pulse: 2 μs
VMC Output	Level: 5 V TTL compatible
	Output polarity: positive and negative selectable
	Output impendence: 100 Ω, typical
	Pulse width: approximately 2 μs
Math Function	
Min / Max / Average / Standard deviation, dBm, dB, Limits	

General Specifications

Power Supply	
AC 100 V to 120 V	45 Hz to 66 Hz
AC 200 V to 240 V	45 Hz to 66 Hz
Consumption	30 W Max
Mechanical	
Dimension (length*width*height)	420*260*103 mm
Weight	4.5 kg
Other Characteristics	
Display Screen	5-inch TFT display screen with resolution 800*480, touchable screen
Operation Environment	Full accuracy from 0 ℃ to 50 ℃. Full accuracy to 80% RH at 40 ℃ (non-condensing)
	Storage temperature: -20 ℃ to 70 ℃
	Altitude: up to 2000 meters
Remote Interface	LAN, USB Device, USB Host
Programmer Language	SCPI-compliant with the latest widely used multimeter command sets
Warm-up Time	90 minutes

Standard			
Electromagnetic Compatibility	Compliant with EMC directive (2014/30/EU), compliant with or superior to IEC 61326-1:2020 /EN61326-1:2021 (basic requirements)		
	Conducted Emission	CISPR 11/EN 55011	CLASS A group 1, 150 kHz to 30 MHz
	Radiated Emission	CISPR 11/EN 55011	CLASS A group 1, 30 MHz to 1 GHz
	Electro-Static Discharge (ESD)	IEC 61000-4-2/EN 61000-4-2	4.0 kV (touch), 8.0 kV (air)
	RF Electromagnetic Field Immunity	IEC 61000-4-3/EN 61000-4-3	10 V/m (80 MHz to 1 GHz) 3 V/m (1.4 GHz to 2 GHz) 1 V/m (2.0 GHz to 2.7GHz)
	Electrical Fast Transient (EFT)	IEC 61000-4-4/EN 61000-4-4	2 kV (AC input port)
	Surge	IEC 61000-4-5/EN 61000-4-5	1 kV (line to line) 2 kV (line to earth)
	RF Continuous Conduction Immunity	IEC 61000-4-6/EN 61000-4-6	3 V, 0.15 to 80 MHz
	Voltage Dips and Short Interruptions	IEC 61000-4-11/EN 61000-4-11	Voltage dips: 0% UT during 1 cycle 40% UT during 10/12 cycles 70% UT during 25/30 cycles Short interruptions: 0% UT during 250/300 cycles
Safety	Compliant with the Low Voltage Directive (2006 / 95 / EC) and standard EN61010—1:2010 EN61010—2-030:2010 UL 61010-1:2012 Ed.3+R:06Jun2023, CSA C22.2#61010-1:2012 Ed.3+U1;U2;A1;U3; UL 61010-2-030:2018 Ed.2,CSA C22.2#61010-2-030:2018 Ed.2		

Ordering Information

Product Model	Description
SDM4075A	7.5 digits high-precision multimeter

Standard Configurations	Quantity
Power Cord (SVT, 18AWG)	1
Test Leads	2
Alligator Clips	2
USB Cable	1
Quick Start	1
Warranty Card	1
Upper Computer Software	Free download from official website

Optional Configurations	Model
USB-GPIB Adapter	USB-GPIB
30 A Diverter	SCD30A

About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, isolated handheld oscilloscopes, spectrum analyzers, function/arbitrary waveform generators, RF/MW signal generators, vector network analyzers, digital multimeters, DC power supplies, electronic loads and other general purpose test instrumentation. Since its first oscilloscope was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

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