SDM3065X Series
Digital Multimeter

Datasheet

E03A

SIGLENT TECHNOLOGIES CO.,LTD

SDM3065X

SDM3065X-SC

Product Overview

The SDM3065X/SDM3065X-SC is a 6 ½ digit DMM (digital multimeter with 2,200,000 counts) incorporating a dual-display. The SDM3065X series is especially well-suited for the needs of high-accuracy and high-precision application measurement.

Application fields

- Research Laboratory
- Development Laboratory
- Detection and Maintenance
- Calibration Laboratory
- Automatic Production Test

Math Function

Basic Measurement Function

- DC Voltage: 200 mV - 1000 V
- DC Current: 200 μA - 10 A
- AC Voltage: True-RMS, 200 mV - 750 V
- AC Current: True-RMS, 200 μA - 10 A
- 2/4-Wire Resistance: 200 Ω - 100 MΩ
- Capacitance: 2 nF - 100 mF
- Continuity Test: Range is fixed at 2 kΩ
- Diode Test: Adjustable range is 0 - 4V
- Frequency Measurement: 3 Hz - 1 MHz
- Period Measurement: 1 μs - 333.33ms
- Temperature: Support for TC and RTD sensors

Math Function

- Max, Min, Average, Standard Deviation, dBm/dB, Relative Measurement, Pass/Fail Histogram, Trend Chart , Bar Meter, etc.

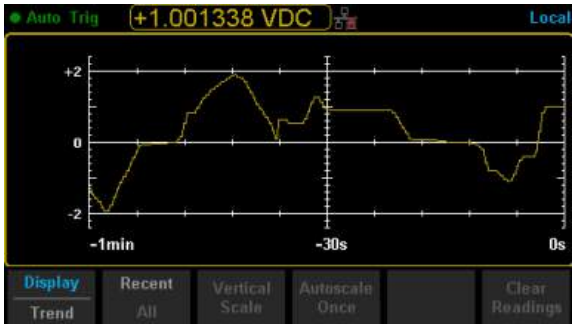
Main Features

- 4.3” TFT-LCD, 480*272
- Real 6½ digits readings resolution (2,200, 000 counts)
- 1 Gb Nand flash size, Mass storage configuration files and data files
- True-RMS AC Voltage and AC Current measuring
- Supports double display, Chinese and English Menu
- File management (support for U-disc and local storage)
- Built-in cold terminal compensation for thermocouple
- Comes with easy, convenient and flexible any sensor
- Measurement control software: EasyDMM
- Interfaces: USB Device , USB Host, LAN USB-GPIB Adapter (Optional)
- Scanner Card SC1016 (Only for SDM3065X-SC)
- Built-in help system makes information acquisition easier
- Support remote control operation via SCPI commands. Compatible with commands of other main stream multimeters.

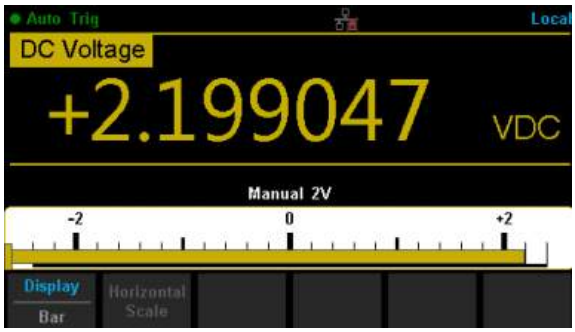
Special Features

Histogram

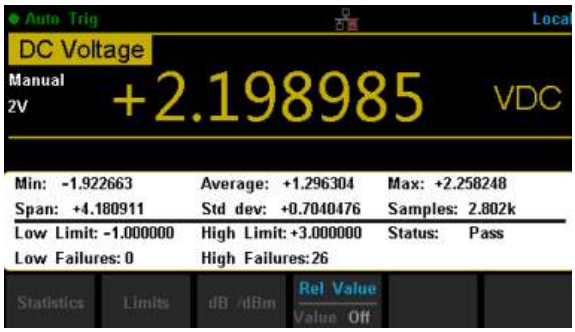
Trend Chart



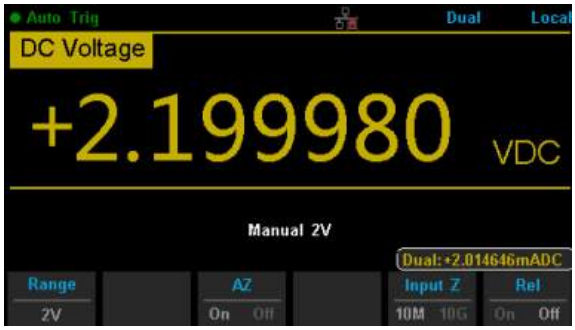
"Analog" Bar Display



Statistics

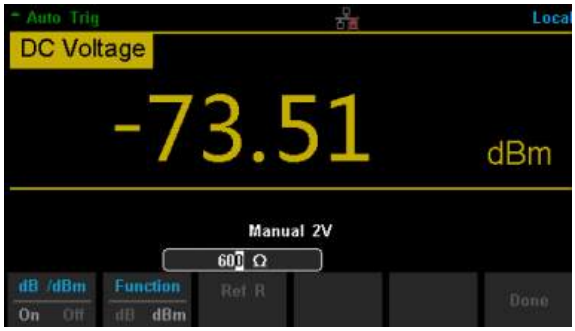


Dual Measurement Display



Hold Measurement

dBm Hold Measurement



Interface

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

Function	Range[2]	Test current or Burden voltage	24Hour[3] TCAL℃ ± 1℃	90day TCAL℃± 5℃	1 Year TCAL℃± 5℃	Temperature coefficient 0 ℃ to (TCAL℃-5℃) (TCAL℃+5℃) to 50 ℃
DC Voltage	200.0000 mV		0.0020+0.0015	0.0030+0.0020	0.0040+0.0023	0.0005+0.0003
	2.000000 V		0.0015+0.0004	0.0020+0.0004	0.0035+0.0006	0.0005+0.0001
	20.00000 V		0.0020+0.0003	0.0030+0.0004	0.0040+0.0004	0.0005+0.0001
	200.0000 V		0.0020+0.0004	0.0040+0.0004	0.0050+0.0005	0.0005+0.0001
	1000.000 V[4]		0.0020+0.0005	0.0040+0.0008	0.0055+0.0008	0.0005+0.0001
DC Current	200.0000 μA	< 0.03V	0.009+0.005	0.040+0.005	0.050+0.005	0.0020+0.0026
	2.000000 mA	< 0.25V	0.007+0.001	0.030+0.002	0.050+0.002	0.0020+0.0001
	20.00000 mA	< 0.07V	0.006+0.005	0.030+0.005	0.050+0.005	0.0020+0.0015
	200.0000 mA	< 0.7 V	0.009+0.001	0.030+0.001	0.050+0.002	0.0020+0.0001
	2.000000 A	< 0.12V	0.045+0.005	0.080+0.005	0.100+0.012	0.0050+0.0008
	10.00000 A[5]	< 0.6 V	0.090+0.002	0.120+0.005	0.150+0.005	0.0050+0.0018
Resistance[6]	200.0000 Ω	1 mA	0.0030+0.0031	0.009+0.005	0.010+0.005	0.0006+0.0006
	2.000000 KΩ	1 mA	0.0020+0.0005	0.008+0.001	0.010+0.001	0.0006+0.0001
	20.00000 KΩ	100 μA	0.0020+0.0005	0.008+0.001	0.010+0.001	0.0006+0.0001
	200.0000 KΩ	10 μA	0.0020+0.0005	0.008+0.001	0.010+0.001	0.0006+0.0001
	1.000000 MΩ	2 μA	0.0020+0.0010	0.010+0.001	0.012+0.001	0.0010+0.0002
	10.00000 MΩ	200 nA	0.015+0.001	0.030+0.001	0.040+0.001	0.0030+0.0005
	100.0000 MΩ	200 nA || 10 MΩ	0.300+0.010	0.800+0.010	0.800+0.010	0.1500+0.0002
Diode Test[7]	0-2V	1 mA	0.002+0.009	0.008+0.020	0.010+0.020	0.0010+0.0020
	2-4V	1 mA	0.002+0.010	0.008+0.020	0.010+0.020	0.0010+0.0020
Continuity Test	2000.0 Ω	1 mA	0.002+0.010	0.008+0.020	0.010+0.020	0.0010+0.0020

Remarks:

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

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

[3] Relative to calibration standards

[4] For each additional volt over ± 500 V, add 0.03mV error.

[5] For continuous current > 7A DC or 7A AC RMS, 30 seconds ON and 30 seconds OFF

[6] Specifications are for 4–wire resistance measurement or 2–wire resistance measurement using REL operation. Without REL operation, add 0.2Ω additional error in 2-wire resistance measurement.

[7] Accuracy specifications for the voltage measured at the input terminal only. 1 mA test current is typical. Variation in the current source will create some variation in the voltage drop across a diode junction. Adjustable voltage range : 0~ 4V

Performance Versus Integration Time – 50 Hz (60 Hz) Power-line Frequency

Integration Time	Resolution [1]	NMRR [2]	Readings/s [3]		RMS Noise Adder [4] (% of Range)			
Number of Power line Cycles[5] (NPLC)	(ppm Range)	(dB)	50Hz	60Hz	DCV 20V	DCV 2V 200V Resistance 2KΩ 20KΩ	DCV 1000V DCI 2mA 200mA	DCV 200mV Resistance 200Ω DCI 10A
0.005 (0.006)	2.7	0	10000	10000	0.0006	0.0008	0.0015	0.0040
0.05 (0.06)	1.6	0	1000	1000	0.0004	0.0005	0.0008	0.0025
0.5 (0.6)	1	0	100	100	0.0003	0.0003	0.0006	0.0025
1	0.22	60	50	60	0	0.0001	0.0002	0.0005
10	0.08	60	5	6	0	0	0	0.0002
100	0.035	60	0.5	0.6	0	0	0	0

Remarks:

[1] Typical value. Resolution is defined as the typical 20V range RMS noise.

[2] Normal mode rejection ratio for power-line frequency ± 0.1%. For power-line frequency ± 1%, subtract 20 dB . For ± 3% , subtract 30dB.

[3] Maximum rate for DCV, DCI, 2-wire resistance and 4-wire resistance functions.

[4] The basic DC accuracy specifications include RMS noise at 100 NPLC. For <100 NPLC, add “RMS Noise Adder” to the basic DC accuracy specifications.

[5] When Power Supply of frequency is 60Hz, the cycles is 0.006, 0.06, 0.6, 1, 10, 100 NPLC.

SFDR & SINAD[1]

Function	Range	Spurious-Free Dynamic Range (SFDR)	Signal-to-Noise-and-Distortion (SINAD)
DCV	200mV	80	75
	2V	76	80
	20V	78	72
	200V	80	78
	1000V	82	80
DCI	200uA	90	70
	2mA	90	80
	20mA	85	70
	200mA	80	75
	2A	70	60

[1] Typical value. -1dBFS, 1k Hz single tone. 100 us aperture time and auto zero off.

AC Characteristics

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

Function	Range[2]	Frequency Range	24Hour[3] TCAL℃ ±1℃	90day TCAL℃ ±5℃	1 Year TCAL℃ ± 5℃	Temperature coefficient 0 ℃ to (TCAL℃-5℃) (TCAL℃+5℃) to 50 ℃
True-RMS AC Voltage [4]	200.0000 mV	3Hz – 5 Hz	1.00+0.03	1.00+0.04	1.00 + 0.04	0.100 + 0.004
		5 Hz – 10 Hz	0.35+0.03	0.35+0.04	0.35 + 0.04	0.035 + 0.005
		10 Hz - 20 KHz	0.04+0.03	0.05+0.04	0.06+0.04	0.005 + 0.004
		20 KHz – 50 KHz	0.10+0.05	0.11+0.05	0.12 + 0.05	0.011 + 0.005
		50 KHz –100 KHz	0.55+0.08	0.60+0.08	0.60 + 0.08	0.060 + 0.008
		100KHz–300 KHz	4.00+0.50	4.00+0.50	4.00+0.50	0.20+0.02
	2.000000 V	3Hz – 5 Hz	1.00+0.02	1.00+0.03	1.00+0.03	0.100+0.003
		5 Hz – 10 Hz	0.35+0.02	0.35+0.03	0.35+0.03	0.035+0.003
		10 Hz - 20 KHz	0.04+0.02	0.05+0.03	0.06+0.03	0.005+0.003
		20 KHz – 50 KHz	0.10+0.04	0.11+0.05	0.12+0.05	0.011+0.005
		50 KHz –100 KHz	0.55+0.08	0.60+0.08	0.60+0.08	0.060+0.008
		100KHz–300 KHz	4.00+0.50	4.00+0.50	4.00+0.50	0.20+0.02
	20.00000 V	3Hz – 5 Hz	1.00+0.03	1.00+0.04	1.00+0.04	0.100+0.004
		5 Hz – 10 Hz	0.35+0.03	0.35+0.04	0.35+0.04	0.035+0.004
		10 Hz - 20 KHz	0.04+0.04	0.07+0.04	0.08+0.04	0.008+0.004
		20 KHz – 50 KHz	0.10+0.05	0.12+0.05	0.15+0.05	0.012+0.005
		50 KHz –100 KHz	0.55+0.08	0.60+0.08	0.60+0.08	0.060+0.008
		100KHz–300 KHz	4.00+0.50	4.00+0.50	4.00+0.50	0.20+0.02
	200.0000 V	3Hz – 5 Hz	1.00+0.02	1.00+0.03	1.00+0.03	0.100+0.003

		5 Hz – 10 Hz	0.35+0.02	0.35+0.03	0.35+0.03	0.035+0.003
		10 Hz - 20 KHz	0.04+0.02	0.07+0.03	0.08+0.03	0.008+0.003
		20 KHz – 50 KHz	0.10+0.04	0.12+0.05	0.15+0.05	0.012+0.005
		50 KHz –100 KHz	0.55+0.08	0.60+0.08	0.60+0.08	0.060+0.008
		100KHz–300 KHz	4.00+0.50	4.00+0.50	4.00+0.50	0.20+0.02
	750.0000 V[5]	3Hz – 5 Hz	1.00+0.02	1.00+0.03	1.00+0.03	0.100+0.003
		5 Hz – 10 Hz	0.35+0.02	0.35+0.03	0.35+0.03	0.035+0.003
		10 Hz - 20 KHz	0.04+0.02	0.07+0.03	0.08+0.03	0.008+0.003
		20 KHz – 50 KHz	0.10+0.04	0.12+0.05	0.15+0.05	0.012+0.005
		50 KHz –100 KHz	0.55+0.08	0.60+0.08	0.60+0.08	0.060+0.008
		100KHz–300 KHz	4.00+0.50	4.00+0.50	4.00+0.50	0.20+0.02
True-RMS AC Current [8]	200.0000 uA	3Hz – 5 Hz	1.10+0.06	1.10+0.06	1.10+0.06	0.200+0.005
		5 Hz – 10 Hz	0.35+0.06	0.35+0.06	0.35+0.06	0.100+0.005
		10 Hz - 5 KHz	0.15+0.06	0.15+0.06	0.15+0.06	0.15+0.005
		5 KHz – 10 KHz	0.35+0.70	0.35+0.70	0.35+0.70	0.030+0.005
	2.000000mA	3Hz – 5 Hz	1.00+0.04	1.00+0.04	1.00+0.04	0.100+0.005
		5 Hz – 10 Hz	0.30+0.04	0.30+0.04	0.30+0.04	0.035+0.005
		10 Hz - 5 KHz	0.12+0.04	0.12+0.04	0.12+0.04	0.015+0.005
		5 KHz – 10 KHz	0.20+0.25	0.20+0.25	0.20+0.25	0.030+0.005
	20 mA	3Hz – 5 Hz	1.10+0.06	1.10+0.06	1.10+0.06	0.200+0.005
		5 Hz – 10 Hz	0.35+0.06	0.35+0.06	0.35+0.06	0.100+0.005
		10 Hz - 5 KHz	0.15+0.06	0.15+0.06	0.15+0.06	0.015+0.005
		5 KHz – 10 KHz	0.35+0.70	0.35+0.70	0.35+0.70	0.030+0.005
	200 mA	3Hz – 5 Hz	1.00+0.04	1.00+0.04	1.00+0.04	0.100+0.006
		5 Hz – 10 Hz	0.30+0.04	0.30+0.04	0.30+0.04	0.035+0.006
		10 Hz - 5 KHz	0.10+0.04	0.10+0.04	0.10+0.04	0.015+0.006
		5 KHz – 10 KHz	0.20+0.25	0.20+0.25	0.20+0.25	0.030+0.006
	2 A	3Hz – 5 Hz	1.10+0.06	1.10+0.06	1.10+0.06	0.100+0.006
		5 Hz – 10 Hz	0.35+0.06	0.35+0.06	0.35+0.06	0.035+0.006
		10 Hz - 5 KHz	0.15+0.06	0.15+0.06	0.15+0.06	0.015+0.006
		5 KHz – 10 KHz	0.35+0.70	0.35+0.70	0.35+0.70	0.030+0.006
	10 A[6]	3Hz – 5 Hz	1.10+0.08	1.10+0.10	1.10+0.10	0.100+0.008
		5 Hz – 10 Hz	0.35+0.08	0.35+0.10	0.35+0.10	0.035+0.008
		10 Hz - 5 KHz	0.15+0.08	0.15+0.10	0.15+0.10	0.015+0.008

Additional Low Frequency Errors (% of resding)				Additional Crest Factor Errors (non-sine wave)[7]	
Frequency	AC Filter			Crest Factor	error (% of reading)
	> 3Hz	> 20 Hz	> 200Hz		
10Hz-20Hz	0	0.74	--	1 - 2	0.05
20Hz-40Hz	0	0.22	--	2 - 3	0.2
40Hz-100Hz	0	0.06	0.73	3 - 4	0.4
100Hz- 200Hz	0	0.01	0.22	4 - 5	0.5
200Hz-1kHz	0	0	0.18		
> 1kHz	0	0	0		

Remarks:

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

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

[3] Relative to calibration standards.

[4] Specifications are for sine wave input >5% of range. For inputs within 1% and 5% of range and <50 kHz, add 0.1% of range additional error. For 50 kHz to 100k Hz, add 0.13% of range additional error.

[5] ACV 750 range limited to $8x10^7$ Volt-Hz. For input over 300V rms , add 0.7mV error for each additional volt.

[6] For continuous current > DC 7A or AC RMS 7A, 30 seconds ON and 30 seconds OFF.

[7] For frequency beow 100 Hz, the specification of slow filter is only for sine wave input.

[8] Specifications are for sine wave input >5% of range. For inputs within 1% to 5% of range, add 0.1% of range additional error. Specifications are typical values for 200uA and 2mA, 2A and 10A ranges when frequency >1kHz

Frequency and Period Characteristic Accuracy± (% of Reading) [1][2]

Function	Range	Frequency Range	24Hour[3] TCAL℃ ± 1℃	90day TCAL℃ ±5℃	1 Year TCAL℃ ± 5℃	Temperature coefficient 0 ℃ to (TCAL℃-5℃) (TCAL℃+5℃) to 50 ℃
Frequency /Period	200 mV to 750 V	3 Hz – 5 Hz	0.07	0.07	0.07	0.005
		5 Hz – 10 Hz	0.04	0.04	0.04	0.005
		10 Hz –40Hz	0.02	0.02	0.02	0.001
		40Hz –300KHz	0.005	0.006	0.007	0.001
		300KHz-1MHz	0.005	0.006	0.007	0.001

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

Remarks:

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

[2] For frequency ≤ 300 kHz, the specification is the 10% to 110% of range of the AC input voltage. For frequency > 300 kHz, the specification is the 20% to 110% of range of the AC input voltage. The maximum input is limited to 750V rms or 8 ×107 Volts-Hz (whichever is less). The 200 mV range is full range input or input that is larger than the full range. For 20mV to 200mV, multiply % of reading error ×10.

[3] Relative to calibration standards.

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

Function	Range[2]	Testing Current	1 Year TCAL°C±5 °C	Temperature coefficient 0℃ to (TCAL℃-5℃) (TCAL℃+5℃) to 50 ℃
Capacitance	2 nF	10 μA	2+2.4	0.05+0.06
	20 nF	10 μA	1+0.1	0.05+0.01
	200 nF	100 μA	1+0.1	0.01+0.01
	2 μF	100 μA	1+0.1	0.01+0.01
	20 μF	1 mA	1+0.1	0.01+0.01

	200 μF	1 mA	1+0.1	0.01+0.01
	2.0000mF	1 mA	1+0.1	0.01+0.01
	20.000mF	1 mA	1+0.1	0.01+0.01
	100.00 mF	1 mA	3+0.1	0.05+0.02

Remarks:

[1] Specifications are for 90 minutes warm-up and using REF operation. Additional errors may be caused by non-film capacitors.

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

Temperature Characteristic Accuracy± (Reading)[1]

Function	Probe Type	Type	Optimum Range[5]	1Year TCAL°C±5°C	Temperature coefficient 0℃ to (TCAL℃-5℃) (TCAL℃+5℃) to 50 ℃
Temperature	RTD[2] (R0 is 49Ω to 2.1KΩ	α = 0.00385	-200 °C ~ 660 °C	0.16 °C	0.01°C
	Thermocouple[3][4]	B	1100 °C ~ 1820 °C	0.76 °C	0.14 °C
		E	-150 °C ~ 1000 °C	0.5 °C	0.02 °C
		J	-150 °C ~ 1200 °C	0.5 °C	0.02 °C
		K	-100 °C ~ 1370 °C	0.5 °C	0.03 °C
		N	-100 °C ~ 1300 °C	0.5 °C	0.04 °C
		R	300 °C ~ 1760 °C	0.5 °C	0.09 °C
		S	400 °C ~ 1760 °C	0.6 °C	0.11 °C
		T	-100 °C ~ 400 °C	0.5 °C	0.03 °C

Remarks:

[1] Specifications are for 90 minutes warm-up, Exclusive of sensor error.

[2] Specifications is for 4WR sensor measurement or 2WR measurement using REL operation.

[3] 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 ℃

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

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

Measurement Measurement rate[3]

Function	Setting	Integration	Readings/s 50Hz (60Hz)
DC Voltage	0.005 (0.006) NPLC	100 (100)us	10000 (10000)
DC Current	0.05 (0.06) NPLC	1 (1) ms	1000 (1000)
2-wire Resistance	0.5 (0.5) NPLC	4 (4) ms	100 (100)

4-wire Resistance	1NPLC	20 (16.7) ms	50 (60)
	10 NPLC	200 (167) ms	5 (6)
	100 NPLC	2 (1.67) s	0.5 (0.6)
AC Voltage AC Current	3Hz AC Filter		0.5
	20Hz		2
	200Hz		50
Frequency and Period[1]	1s Gate time		1
	0.1s		10
	0.01s		100
	0.001s		500
Capacitance	100mF Range		0.5

Remarks:

[1] 20 V range, 1k Hz input.

[2] The measurement period changes with the capacitance under test.

[3] Auto zero off , auto range off

Measuring Method and other Characteristics

DC Voltage	
Input Resistance	200 mV , 2 V 20 V range: Selectable 10 MΩ or >10 GΩ （For these ranges, input beyond ±26V are clamped through 106kΩ (typical))
	200V and 1000V ranges; 10MΩ ± 1%
Input Bias Current	50 pA, 25 °C, typical
Input Protection	1000 V
CMRR (common mode rejection ratio)	140 dB for 1 KΩ unbalanced in LO lead, ± 500 VDC peak maximum
Resistance	
Measurement Method	selectable 4-wire or 2-wire resistance
	Current source referenced to LO input
Open-circuit Voltage	Limited to <10V
Max Lead Resistance (4--wire)	10% of range per lead for 200Ω, 2kΩ ranges, 1kΩ per lead on all other ranges
Offset Compensation	Available on 200Ω, 2kΩ and 20kΩ ranges
Input Protection	1000 V on all ranges
DC Current	
Shunt Resistor	100Ω for 200uA, 2mA 1 Ω for 20 mA, 200 mA 0.01 Ω for 2 A, 10 A
Input Protection	Rear panel : accessible 10 A, 250 V Time-Lag fuse Internal :12 A, 250 V Time-Lag fuse
Continuity / Diode Test	

Measurement Method	1 mA ±5% constant-current source or open-circuit voltage
Response Time	300 samples/sec, with audible tone
Beeper	yes
Diode Threshold	Adjustable from 0 to 4V
Continuity Threshold	Adjustable from 1Ω to 2kΩ
Input Protection	1000 V
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 the correct reading for most measurements.	
Measurement Considerations	
Teflon or other high-impedance , low-dielectric absorption is recommended for these measurements.	
True-RMS AC Voltage	
Measurement Method	AC-Coupled True-RMS measurement with up to 400 V DC bias at on any range
Crest Factor	≤ 5 at full range
Input Impedance	1 MΩ ± 2% in parallel with <150 pF capacitance on any range
Input Protection	750V rms on all ranges
AC Filter Bandwidth	Slow: 3 Hz ~ 300 KHz
	Medium: 20 Hz ~ 300 KHz
	Fast: 200 Hz ~ 300 KHz
CMRR (common mode rejection ratio)	70 dB for the 1 KΩ unbalance in Lo lead , <60 Hz, ±500 VDC peak maximum
True-RMS AC Current	
Measurement Method	Direct Coupled to the fuse and shunt; AC-Coupled True RMS measurement (measures the AC components only)
Crest Factor	≤ 3 at full scale
Max Input	DC+AC current peak value <300% of range The RMS current < 10 A rms include the DC component
Shunt Resistor	100Ω for 200uA, 2mA 1 Ω for 20 mA, 200 mA 0.01 Ω for 2 A, 10 A
Input Protection	Externally accessible 10 A, 250 V Time-Lag fuse Internal :12 A, 250 V Time-Lag fuse
Settling Time Considerations	
The default measurement delay is selected to give first reading correctly for most measurements. Make sure the RC circuit of input terminal has been fully settled (about 1s) before reading the accurate measurement. Applying >300 Vrms (or > 5Arms) 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 errors 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 and Period	
Measurement Method	Reciprocal-counting technique, AC-Coupled input using the AC voltage function
Input impedance	1 MΩ ± 2% in parallel with < 150 pF capacitance on any range
Input Protection	750 V rms on all ranges
Measure Considerations	All frequency counters are susceptible to error when measuring low-voltage, low–frequency signals. Shielding inputs from external noise is recommended
Settling Time Considerations	Errors will occur when attempting to measure the frequency or period of an input following a dc offset voltage change. Make sure the RC circuit of input terminal has been fully settled (about 1s) before reading the accurate measurement
Capacitance Measurement	
Measurement Method	Apply constant current into the capacitance, and measure the voltage changing rate.
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 Measurement	
Measurement Method	Support for TC and RTD types of sensor
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 builtin 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 Storage	
Trigger	Pre-trigger or Post-trigger, Internal Trigger or External Trigger, Rising Edge Trigger or Falling Edge Trigger
Time Base Resolution	40us, 0.01% Accuracy
Trigger Delay	0 to 1000s
Reading Sensitivity	0.01%, 0.1%, 1% or 10% reading
Single Trigger Samples	1 to 599999999
External Trigger Input	Level: TTL compatible
	Trigger : Selectable rising edge or falling edge
	Input Impendance : ≥ 30 KΩ//500 pF
	Delay : <50μs
	Maxmum Rate: 300/s
	Minimum Pulse Width : 2us
VMC Output	Level : 5V TTL Compatible

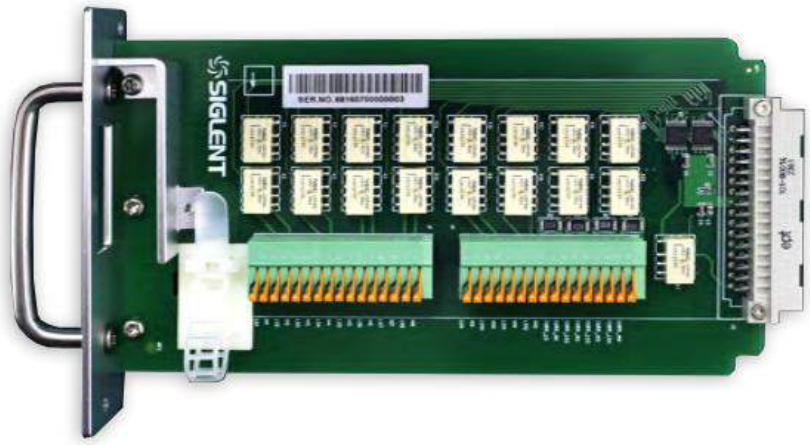
	Output Polarity : Positive and negative optional
	Output Impedance : 200 Ω, typical
	Pulse Width : about 2us
History Records	
Volatile Memory	10 K reading of history records
Nonvolatile Memory	1 Gb Nand Flash, Mass storage configuration files and data files, Support U-disk external storage
Math Functions	
Min / Max / Average, dBm, dB, Pass / Fail, Relative, Standard deviation, Hold, Histogram, Trend chart, Bar chart	

General Specifications

Power Supply	
AC 100 V ~ 120 V	45Hz-66 Hz
AC 200 V ~ 240 V	45Hz-66 Hz
Detect the power-line frequency automatically at power-on, 400Hz defaults to 50Hz	
Power Consumption	25 VA max
Mechanism	
Dimension	345.45 mm × 260.29 mm × 107.21 mm
Weight	3.377 kg (Net weight)
Other Characteristics	
Display Screen	4.3” TFT-LCD with resolution 480 * 272
Working Environment	Full accuracy for 0 °C to 50 °C, Full accuracy to 40 °C , 80% R.H. , Non condensing
	Storage Temperature: -20 °C to 70 °C
	Shock and Vibration: conforming to MIL-T-28800E, Ⅲ 5 level (only for sine)
	Height above sea level: up to 3000 meters
EMC	Conforming to EMC (2004 /108 / EC) and EN 61326-1:2013
Safety	IEC 61010-1, EN61010-1; UL 61010-1; CAN/CSA-C22.2 No.61010-1 Measure CAT I 1000 V/CAT II 600V
Remote Interface	10/100 Mbit LAN, USB2.0 Full Speed Device ,Host
Programing Language	Standard SCPI, compatible with commands of main stream multimeters
Warm Up Time	90 minutes

Scanner card SC1016 (Only for SDM3065X-SC)

The SIGLENT Scanner Card SC1016 is a multiplexer that provides multi-point measurement capabilities to the SDM3065X-SC. The scanner features 12 multi-purpose + 4 current channels and supports the following measurement functions: DCV, ACV, DCI, ACI, 2WR, 4WR, CAP, FREQ, DIODE, CONT and TEMP (RTD and Thermocouple). It provides a convenient and versatile solution for test applications that require multiple measurement points or signals and is an ideal tool for R&D burn-in and production testing.



Specifications

To achieve the best performance from the product, please read this guide carefully

Max AC Voltage	125 rms or 175 V peak, 100kHz, 0.3 A switched, 125VA (resistive load)
Contact Life	> 100000 operations, at 1 A 30VDC (at 0.5Hz) > 100000 operation, at 0.3 A 125VDC (at 0.5Hz)
Contact Resistance	75 mΩ (maximum at 6 VDC, 1A)
Channel to channel switching time	280ms (typical)
Maximum switching voltage	250 VAC, 220 VDC
Maximum switching power	62.5 VA / 30W
Insulation Resistance	Minimum 1 GΩ
Connect Type	Clamp terminal, # 24 AWG wire size

Remark: To avoid eletrical shock and personal injury, please don't use the product to measure signals that published specification

Channel Capabilities

Item	No. of wires	No. of channels
DCV / ACV[1]	2 wires (H, L)	12 (CH1 ~ CH12)
DCI / ACI[2]	2 wires (H, L)	4 (CH13 ~ CH16) (2A Range)
2 W Resistance	2 wires (H, L)	12 (CH1 ~ CH12)
4 W Resistance	4 wires (Input H, L+ sense H , L)	6 pairs (CH1 [input] &CH7 [sense], 2&8, ... , 6&12)
Capacitance	2 wires (H, L)	12 (CH1 ~ CH12)
Diode / Continuity	2 wires (H, L)	12 (CH1 ~ CH12)
Period / Frequency	2 wires (H, L)	12 (CH1 ~ CH12)
Temp (Thermocouple)	2 wires (H, L)	12 (CH1 ~ CH12)
Temp (RTD)	2 wires (H, L)	12 (CH1 ~ CH12)

Remark: [1] Voltage range: < 125 VAC, 110 VDC

[2] For continuous current < 2.2 A, Accuracy ± (% 3 (reading) + 0.02% (range)).

Product Model and Distinction

Model	SDM3065X	SDM3065X-SC
Scanner card SC1016	×	√

Ordering Information

Standard Accessories	
Power Cord -1	
USB Cable -1	
Quick Start -1	
Calibration Certificate -1	
Test Leads and Alligator Clips -2	
Optional Accessories	
USB-GPIB	USB-GPIB adapter

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, function/arbitrary waveform generators, RF/MW signal generators, spectrum analyzers, 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.

Headquarters:

SIGLENT Technologies Co., Ltd

Add: Bldg No.4 & No.5, Antongda Industrial Zone, 3rd Liuxian Road, Bao'an District, Shenzhen, 518101, China

Tel: + 86 755 3688 7876

Fax: + 86 755 3359 1582

Email: sales@siglent.com

Website: int.siglent.com

North America:

SIGLENT Technologies America, Inc

6557 Cochran Rd Solon, Ohio 44139

Tel: 440-398-5800

Toll Free: 877-515-5551

Fax: 440-399-1211

Email: info@siglentna.com

Website: www.siglentna.com

Europe:

SIGLENT Technologies Germany GmbH

Add: Staetzlinger Str. 70

86165 Augsburg, Germany

Tel: +49(0)-821-666 0 111 0

Fax: +49(0)-821-666 0 111 22

Email: info-eu@siglent.com

Website: www.siglenteu.com

Follow us on
Facebook: SiglentTech