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6½ DIGITAL MULTIMETER
MODEL 12061

Solution for General Instrument Measurement
6½ Digital Multimeter is the most frequent used measurement instrument in Electronic industry. Chroma 12061 provides a combination of speed, accuracy and high performance measurement functions that can be used either solely or with system to meet your requirements swiftly.

Chroma 12061 offers the resolution and specification of the same class in the industry plus enhanced speed and accuracy it turns into the best solution for various kind of basic measurements. A brand new design was made for the operating interface of Chroma 12061. The commonly used functions can be selected with a single button pressed that increases the panel accessibility greatly.

Fast & High Performance
The 12061 6½ Digital Multimeter has assorted settings of resolution, integration time and ranges that allows users to optimize the configuration of measurement speed, resolution and accuracy when in individual measurement test mode.

The 12061 has built-in a high speed, low interference A/D converter with a maximum speed of 2000 rdgs/s, it is the best solution for high speed measurement.

Individual Application
Chroma 12061 is equipped with 11 types of measurement functions which contains DC voltage/current, AC voltage/current, resistance 2/4-wire ohms, period, frequency, diode, continuity and temperature as well as diverse math functions of NULL, Max/Min/Avg, High/Low limit, High/Low limit, Percentage/Ratio/MX+B, dB/dBm, etc. Along with trigger and memory functions, Chroma 12061 is the right tool for you to perform the basic measurement.

Test System Application
For user's convenience, Chroma supports various softwares for different control platforms.

MODEL 12061

Key Features:

- 6½ digits resolution
- 11 types of measurement characteristics
  - DC voltage/current (1000V/3A max)
  - AC voltage/current (750V/3A max)
  - Resistance 2 or 4-wire ohms measurement
  - Period & frequency
  - Diode & continuity
  - Temperature (Thermocouple & RTD)
- Various math functions
  - NULL
  - Max/Min/Avg
  - High/Low limit
  - Percentage/Ratio/ MX+B
  - dB/dBm
- DC voltage accuracy : 0.0015%
- AC voltage accuracy : 0.04%
- Optional Multi-point TC Scanner Card (10ch), multi-point scanner card (10/20ch)
- Measurement and data transmission up to 2000 readings/sec (4½)
- Up to 2000 readings memory storage
- Standard SCPI control
- Standard USB interface, support USBTMC
- Optional GPIB interface
- Software control support
  - Chroma 12061 software
  - LabView® Driver

Chroma

USB GPIB

BUILT-IN USB (USBTMC SUPPORTED)

Different from the traditional interface, Chroma 12061 uses USB as its standard feature that not only improves the transmission speed but also makes the connection more easier with the plug and play functions.

The USB interface fully supports USBTMC (USB Test & Measurement Class). As long as the instrument is equipped with USB interface that supports USBTMC, it can communicate with PC in real time via VISA driver without the restrictions of platform and environment. USBTMC is a communication protocol built on top of the USB and uses GPIB-like methodology to communicate with USB. Therefore, from user's point of view by using USB should be as simple as using GPIB.

PASS/FAIL SIGNAL OUTPUT

Chroma 12061 can provide PASS/FAIL signal to system by USB port (either communication or PASS/FAIL signal) with high/low limit set. USB type B female connect to system with signal (1 floating/ 2 PSS/ 3 FAIL/ 4 GND) in 2ms low and please disable USB interface. If result over the high/low limit, the beeper will alarm and signal output. (Beeper can be off)

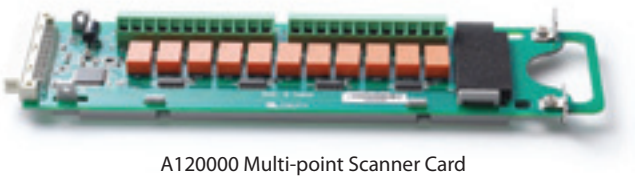
TEMPERATURE MEASUREMENT

Chroma 12061 has temperature measurement function that supports 7 kinds of Thermocouples:E, J, K, N, R, S, and T type. It also supports RTDs 4-wire measurement. The built-in ITS-90, IEC751 and Callendar-Van Dusen temperature conversion can satisfy the diverse measurement requirements of yours.

MULTI-POINT SCANNER CARD

Multi-Point Scanner Card (10ch/20ch)

Chroma 6½ Digital Multimeter supports Multi-point Scanner Card which is a scanning measurement tool not supported by most of the 6½ Digital Multimeters in the field. Multi-point Scanner Card offers multiplexing ten two poles (ACV, ACI, DCV, DCI, Resistance, Period, Frequency) that can be installed on the extension card option directly of the rear panel.

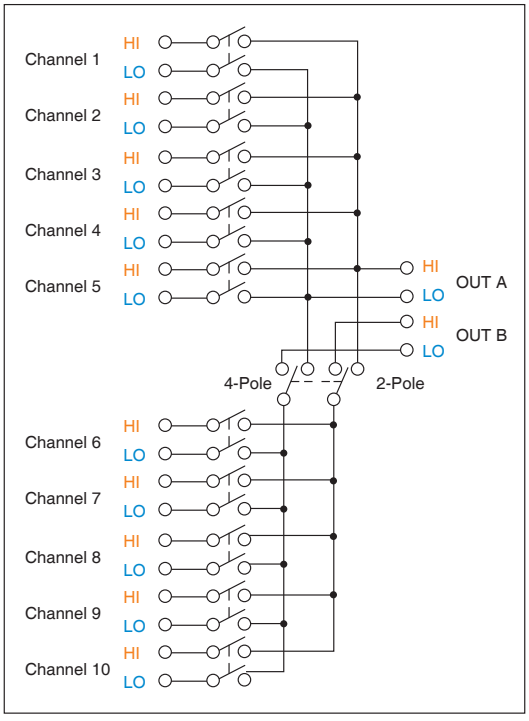


A120000 Multi-point Scanner Card

Multi-Point TC Scanner Card (10ch)

The multi-point temperature scanning card has multiple functions including 2-wire/4-wire resistance, AC/DC voltage/current, frequency, period and temperature measurements. As cold junction compensation is equipped for temperature measurement, it increases the measurement accuracy greatly. In addition, it can scan the temperature of 10 different channels that can be applied extensively to electronic devices and industrial studies for temperature measurement

Multi-point TC Scanner Card A120004	
Maximum AC Voltage	110V rms or 155V peak, 100kHz, 1A switched, 30VA (resistive load)
Maximum DC Voltage	110V, 1A switched, 30VA (resistive load)
Connector Type	Screw terminal, #22 AWG wire size
Common Mode Voltage	200V peak btw any terminal and earth
Max. Voltage btw Any Two Terminals	160V peak
Thermocouple	K type (-200˚C ~ 1372˚) ± 1.5˚C (Other type refer to the detailed specifications)



A120000 Scanner Card Configuration

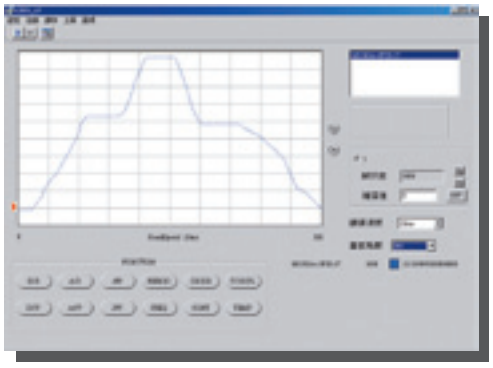
OPERATION SPEED (INDIVIDUAL)

DCV 、DCI and Resistance	6½ SLOW	5.9 reading/s
	6½ FAST	59 reading/s
	5½ SLOW	59 reading/s
	5½ FAST	545 reading/s
	4½ SLOW	545 reading/s
	4½ FAST	2000 reading/s

ACV 、ACI	6½ SLOW	0.15 reading/s (3Hz)
	6½ MEDIUM	1 reading/s (3Hz)
	6½ FAST	10 reading/s (200Hz)
Frequency or Period	6½	1 reading/s
	5½	9.8 reading/s
	4½	80 reading/s
Diode / Continuity	Response time	300 reading/s

SOFTPANEL

Chroma 12061 TOOL and Chroma 12061 LINK are two free softpanels provide with data collection and drawing for analysis.



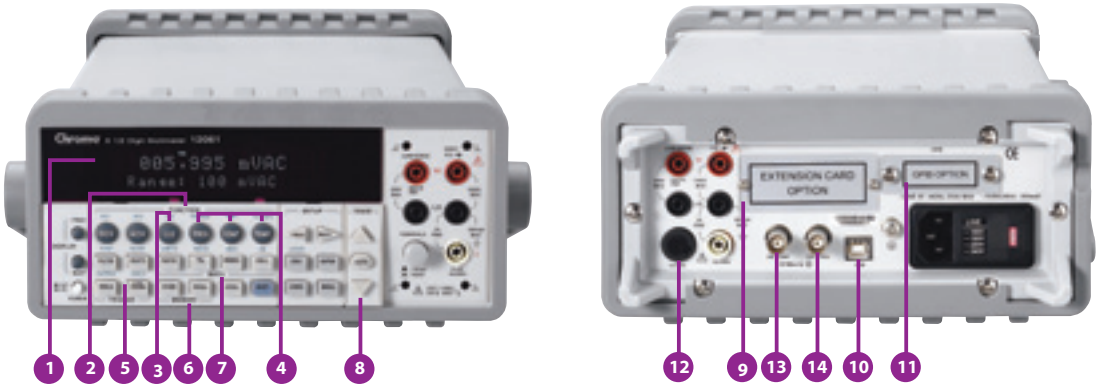
CHROMA 12061 TOOL

- Real-time display interface for value monitoring
- Data log and output in CSV format for analysis

CHROMA 12061 LINK

- Softpanel toolbar open with EXCEL or WORD
- Real-time data transferring to computer directly and save it to EXCEL or WORD format
- Create data patterns in EXCEL format automatically
- Test engineers can use ActiveX components to control the 12061 using SCPI commands

PANEL DESCRIPTION



1. Easy-to-read display with 5X7 matrix triple colored double-line screen that can identify the meaning of data and symbol easily
2. Easy-to-switch function keys
3. 2 or 4-wire ohms measurement
4. Built-in frequency, diode, continuity and temperature measurement capability
5. Fast TRIGGER control
6. Data storage memory
7. Math calculation
8. Fast range changes
9. Optional Scanner Card
10. USB Interface supports USBTMC
11. GPIB Interface
12. 7A/250V Fuse
13. Measurement completed signal output terminal for automatic operation
14. External triggered input terminal for automatic operation

ORDERING INFORMATION

12061 : 6½ Digital Multimeter
12061 : 6½ Digital Multimeter with GPIB
A120000 : Multi-point Scanner Card (10ch)
A120001 : Thermal-measurement Adapter
A120002 : Multi-point Scanner Card (20ch)
A120003 : HV Probe (1000:1)
A120004 : Multi-point TC Scanner Card (10ch)

SPECIFICATIONS

DC Voltage			
Range	Resolution	Input Resistance	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
100.000mV	0.1 μV	>10GΩ	0.0050 + 0.0035
1.000000V	1.0 μV		0.0040 + 0.0007
10.00000V	10 μV		0.0035 + 0.0005
100.0000V	100 μV	10MΩ	0.0045 + 0.0006
1000.000V	1mV		0.0045 + 0.0010

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

AC RMS Voltage			
Range	Resolution	Frequency (Hz)	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
100.0000mV	0.1 μV	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
		100K ~ 300K	4.00 + 0.50
1.000000V ~ 750.000V	1.0 μV ~ 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
		100K ~ 300K	4.00 + 0.50

AC RMS Current			
Range	Resolution	Frequency (Hz)	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
1.000000A	1 μA	3 ~ 5	1.00 + 0.04
		5 ~ 10	0.30 + 0.04
		10 ~ 5K	0.10 + 0.04
3.000000A	1.0 μA	3 ~ 5	1.10 + 0.06
		5 ~ 10	0.35 + 0.06
		10 ~ 5K	0.15 + 0.06

Resistance (4W Measurement)			
Range	Resolution	Test Current	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
100Ω	100 μΩ	1mA	0.010 + 0.004
1.000000kΩ	1mΩ	1mA	0.010 + 0.001
10.00000kΩ	10mΩ	100 μA	0.010 + 0.001
100.0000kΩ	100mΩ	10 μA	0.010 + 0.001
1.000000MΩ	1Ω	5 μA	0.010 + 0.001
10.00000MΩ	10Ω	500nA	0.040 + 0.001
100.0000MΩ	100Ω	500nA	0.800 + 0.010

Diode Test			
Range	Resolution	Test Current	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
1.00000V	10 μV	1mA	0.010 + 0.020

Continuity Test			
Range	Resolution	Shunt Resistance	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
1000.00Ω	100mΩ	1mA	0.010 + 0.030

Frequency and Period		
Range	Frequency (Hz)	1 year accuracy ±(reading%+range%) (23˚C±5˚C)
100mV ~ 750V	3 ~ 5	0.1
	5 ~ 10	0.05
	10 ~ 40	0.03
	40 ~ 300K	0.01

Measurement Characteristics	
Math Functions	NULL, min / max / average, dBm, dB, MX+B, RATIO, %, limit test (with TTL output)
Measurement Noise Rejection 60Hz(50Hz)	DC CMRR：140 dB AC CMRR：70 dB
Integration Time & Normal Mode Rejection NMRR	10 plc / 167 ms (200 ms)：60 dB 1 plc / 16.7 ms (20 ms)：60 dB
DC Voltage	Input bias current：25˚C < 30pA Input protection：1000V
DC Current	Input protection: External 3 A 250V fuse
AC Voltage	Input impedance: 1 MΩ parallel with 100 pF Input protection: 750Vrms all ranges
AC Current	Input protection: External 3 A 250V fuse
Resistance	Maximum lead resistance (4-wire): 10% of range per lead for 100Ω and 1kΩ ranges. 1kΩ per lead on all other ranges. Input protection: 1000 V all ranges
Continuity/Diode	With audible tone Continuity threshold: Selectable from1Ω to 1000Ω
Temperature	Thermocouple: E, J, K, N, R, S and T type sensors supported. RTD: 2-wire, 3-wire and 4-wire measurement Temperature Conversion: ITS-90, IEC751, Callendar-Van Dusen

External Control	
Samples/Trigger	1 ~ 50,000
Trigger Delay	0 ~ 3600 sec.
Memory	2000 readings
Equivalent	SCPI (IEEE-488.2)、Agilent 34401
Interface	USB (standard)，GPIB (option)

General	
Power Consumption	25VA max.
Power Requirements	100 V / 120 V / 220 V / 240 V，45 Hz ~ 440 Hz
Dimensions (HxWxD)	88.6 x 213.6 x 346.9 mm
Operating Temperature	0˚C to 50˚C
Weight	Approx. 4.36 kgs

All specifications are subject to change without notice.