

GSM-20H10

高精度源錶

GW INSTEK
Simply Reliable



特點

- * 最大量測/輸出範圍: $\pm 210V/\pm 1.05A/22W$
- * 量測準確率: 0.012 %, 6½ 數位電表解析度
- * 支援 2 / 4 / 6 線式量測
- * 4.3 吋 TFT LCD 顯示(可顯示 I-V, X-t 等曲線在LCD上)
- * 提供數字鍵輸入
- * 內建 RTC 時鐘
- * 提供可變的取樣速度(High/Normal/Medium/Low/Other)
- * 提供信號延遲量測 SDM(Source Delay Measure)功能
- * 內建四種程序模式(Stair, Log, SRC-MEM, Custom), 最高可達2500點
- * 內建限制線功能, 提供11組限制線測試(PASS/FAIL)
- * 提供 OVP/OTP 保護功能
- * 內建五種運算功能
- * 提供標準介面 GPIB, RS-232, USB Device/HOST, LAN

應用範圍

- * 電池特性評估
- * 二極體特性測試
- * 電子材料特性評估
- * 元件I-V特性測試
- * 材料電阻率測試

GSM-20H10是一台精密的電源量測設備(Source Meter), 是一台可以精確地使用電壓或電流, 並同時量測電壓和/或電流的儀器。其電源與量測範圍為 $\pm 210 V / \pm 1.05 A / 22W$, 其結合了數位萬用電錶 (DMM)、電源供應器、準確電流源、電子負載的實用功能。本產品提供了0.012 %的精準量測準確度, 以及具備6位半高解析度的電錶功能, 在量測的精度上最高可達1 uV/10 pA。

GSM-20H10可適用的應用很多, 如電池的特性評估、半導體的特性測試、各種電子材料的特性評估等都是可以量測的。在電阻的量測部分, 支援最高六線式的量測功能, 相較於一般設備僅支援4線式量測, 能夠量測到更精準的數值。

取樣的速度上, GSM-20H10支援最高50k點/每秒的取樣速度, 可更精準地針對待測物的特性進行分析。透過4.3吋的大尺寸螢幕, 更可以將所有的量測設定、參數與結果都完整的顯示在螢幕上。支援SDM (Source Delay Measure)功能, 可設定信號產生變化時, 延後進行採樣, 避免穩定前的信號被擷取進去造成誤判。內建四種程序輸出模式(Stair, Log, SRC-MEM, Custom), 最多可支援2500個點的程序變化輸出。

GSM-20H10在保護上, 提供了OVP/OTP 保護模式; 在OVP的設計上, 使用者可自訂OVP的範圍, 而OTP的保護則可有效防止在測試過程中因溫度偏移造成的錯誤。在介面部分, 本產品支援標準的SCPI指令, 提供GPIB, RS-232, USB Device/HOST, LAN等介面, 滿足使用者不同的介面需求。



產品操作影片



最新活動訊息



產品資料簡易選型技術諮詢

規 格						
MAXIMUM RANGE						
Voltage		± 210 V				
Current		± 1.05 A				
Power		22 W				
Voltage Resolution		1 μV				
Current Resolution		10 pA				
SOURCE						
DC Voltage	Output Voltage	± 21 V / ± 1.05 A, ± 210 V / ± 105 mA				
	Current Limit	Min. 0.1 % of range				
	Programming Resolution & Accuracy *1	Range	Resolution	Accuracy		
		± 200.000 mV	1 μV	± (0.02 % + 600 μV)		
		± 2.00000 V	10 μV	± (0.02 % + 600 μV)		
± 20.0000 V		100 μV	± (0.02 % + 2.4 mV)			
± 200.000 V	1 mV	± (0.02 % + 24 mV)				
Load Regulation	0.01 % of range + 100 μV					
Line Regulation	0.01 % of range					
Overshoot	< 0.1 % typical (full scale step, resistive load, 10 mA range)					
Recovery Time (1000% Load Change)	< 250 μs (within 0.1 % plus load regulation errors, 1 A and 100 mA compliance.)					
Ripple and Noise	4 mVrms (20 Hz to 1 MHz) / 10 mVpp (20 Hz to 1 MHz)					
Temperature Coefficient	± (0.15 × accuracy specification) / °C (0 °C to 18 °C & 28 °C to 50 °C)					
DC Current	Output Current	± 1.05 A / ± 21 V, ± 105 mA / ± 210 V				
	Voltage Limit	Min. 0.1 % of range				
	Programmed Source Resolution & Accuracy	Range	Resolution	Accuracy		
		± 1.00000 μA	10 pA	± (0.035 % + 600 pA)		
		± 10.0000 μA	100 pA	± (0.033 % + 2 nA)		
± 100.000 μA		1 nA	± (0.031 % + 20 nA)			
± 1.00000 mA		10 nA	± (0.034 % + 200 nA)			
± 10.0000 mA		100 nA	± (0.045 % + 2 μA)			
± 100.000 mA	1 μA	± (0.066 % + 20 μA)				
± 1.00000 A	10 μA	± (0.27 % + 900 μA)				
Load Regulation	0.01 % of range + 100 pA					
Line Regulation	0.01 % of range					
Overshoot	< 0.1 % typical (1 mA step, RL = 10 kΩ, 20 V range).					
Temperature Coefficient	± (0.15 × accuracy specification) / °C (0 °C to 18 °C & 28 °C to 50 °C)					
General	Output Settling Time *1	100 μs typical time				
	Output Rise Time (± 30 %)	300 μs, 200 V range, 100 mA compliance ; 150 V/μs, 20 V range, 100 mA compliance.				
	DC Floating Voltage	Output can be floated up to ± 250 VDC				
	Remote Sense	Up to 1 V drop per load lead.				
	Compliance Accuracy	Add 0.3 % of range and ± 0.02 % of reading to base specification.				
	Range Change Overshoot *2	Adjacent range changes between 200 mV, 2 V and 20 V ranges, 100 mV typical.				
	Minimum Compliance Value	0.1 % of range				
	Command Processing Time *3	Autorange On: 10 ms. Autorange Off: 7 ms.				
MEASUREMENT						
Voltage	Input Resistance	> 10 GΩ				
	Measurement Resolution & Accuracy	Range	Resolution	Accuracy		
		± 200.000 mV	1 μV	± (0.012 % + 300 μV)		
		± 2.00000 V	10 μV	± (0.012 % + 300 μV)		
		± 20.0000 V	100 μV	± (0.015 % + 1.5 mV)		
± 200.000 V	1 mV	± (0.015 % + 10 mV)				
Temperature Coefficient	± (0.15 × accuracy specification) / °C (0 °C to 18 °C & 28 °C to 50 °C)					
Current	Voltage Burden (4-wire Mode)	< 1 mV				
	Programmed Source Resolution & Accuracy *4	Range	Resolution	Accuracy		
		± 1.00000 μA	10 pA	± (0.029 % + 300 pA)		
		± 10.0000 μA	100 pA	± (0.027 % + 700 pA)		
		± 100.000 μA	1 nA	± (0.025 % + 6 nA)		
± 1.00000 mA		10 nA	± (0.027 % + 60 nA)			
± 10.0000 mA		100 nA	± (0.035 % + 600 nA)			
± 100.000 mA	1 μA	± (0.055 % + 6 μA)				
± 1.00000 A	10 μA	± (0.22 % + 570 μA)				
Temperature Coefficient	± (0.15 × accuracy specification) / °C (0 °C to 18 °C & 28 °C to 50 °C)					
Resistance	Range	Resolution	Test current	Accuracy		
		< 2.00000 Ω	---	---	Source IACC+Meas.VACC	
		2.00000 Ω	10 μΩ	---	Source IACC+Meas.VACC	
		20.0000 Ω	100 μΩ	100 mA	± (0.1 % + 0.003 Ω), Normal	± (0.07 % + 0.001 Ω), Enhanced *5
		200.000 Ω	1 mΩ	10 mA	± (0.08 % + 0.03 Ω), Normal	± (0.05 % + 0.01 Ω), Enhanced
		2.00000 kΩ	10 mΩ	1 mA	± (0.07 % + 0.3 Ω), Normal	± (0.05 % + 0.1 Ω), Enhanced
		20.0000 kΩ	100 mΩ	100 μA	± (0.06 % + 3 Ω), Normal	± (0.04 % + 1 Ω), Enhanced
		200.000 kΩ	1 Ω	10 μA	± (0.07 % + 30 Ω), Normal	± (0.05 % + 10 Ω), Enhanced
		2.00000 MΩ	10 Ω	5 μA	± (0.11 % + 300 Ω), Normal	± (0.05 % + 100 Ω), Enhanced
		20.0000 MΩ	100 Ω	0.5 μA	± (0.11 % + 1 kΩ), Normal	± (0.05 % + 500 Ω), Enhanced
	200.000 MΩ	1 kΩ	100 nA	± (0.66 % + 10 kΩ), Normal	± (0.35 % + 5 kΩ), Enhanced	
> 200.000 MΩ	---	---	Source IACC+Meas.VACC	---		
Temperature Coefficient	± (0.15 × accuracy specification) / °C (0 °C to 18 °C & 28 °C to 50 °C)					
Source I Mode, Manual OHMS	Total uncertainty = I source accuracy + V measure accuracy (4-wire remote sense).					
Source V Mode, Manual OHMS	Total uncertainty = V source accuracy + I measure accuracy (4-wire remote sense).					
6-wire OHMS Mode	Available using active ohms guard and guard sense. Max. Guard Output Current: 50 mA (except 1 A range). Accuracy is load dependent.					
Guard Output Impedance	< 0.1 Ω in ohms mode					

規 格							
SYSTEM SPEED *6							
Maximum Measure Auto Range Time		40 ms (fixed source) *7					
Sequence Reading Rates (rdg./second) for 60 Hz (50 Hz) *8	Speed	Fast	488.2	Medium	488.2	Normal	488.2
	NPLC/ Trig Origin	0.01 / internal	0.01 / external	0.1 / internal	0.1 / external	1 / internal	1 / external
Measure	TO MEMORY	2081 (2030)	1239 (1200)	510 (433)	438 (380)	59 (49)	57 (48)
	TO GPIB	1198 (1210)	1079 (1050)	509 (433)	438 (380)	59 (49)	57 (48)
Source-Measure *10	TO MEMORY	1551 (1515)	1018 (990)	470 (405)	409 (360)	58 (48)	57 (48)
	TO GPIB	1000 (900)	916 (835)	470 (410)	409 (365)	58 (48)	57 (47)
Source-Measure Pass/Fail test *9, *10	TO MEMORY	902 (900)	830 (830)	389 (343)	374 (333)	56 (47)	56 (47)
	TO GPIB	809 (840)	756 (780)	388 (343)	374 (333)	56 (47)	56 (47)
Measure Memory *9, *10	TO MEMORY	165 (162)	163 (160)	133 (126)	131 (125)	44 (38)	44 (38)
	TO GPIB	164 (162)	162 (160)	132 (126)	131 (125)	44 (38)	44 (38)
Single Reading Operation Rates (rdg./second) for 60 Hz (50 Hz)	Speed	488.2		488.2		488.2	
	NPLC/ Trig Origin	0.01 / external		0.1 / external		1 / external	
Measure	TO GPIB	256 (256)		167 (166)		49 (42)	
	TO GPIB *10	79 (83)		72 (70)		34 (31)	
Source-Measure	TO GPIB	79 (83)		69 (70)		35 (30)	
	TO GPIB *10	79 (83)		69 (70)		35 (30)	
Component Interface Handler Time for 60 Hz (50 Hz): *9, *11	Speed	Fast	Medium	Normal			
	NPLC/ Trig Origin	0.01 / internal	0.1 / internal	1 / internal			
Measure	TO GPIB	1.04 ms (1.08 ms)		2.55 ms (2.9 ms)		17.53 ms (20.9 ms)	
	TO GPIB	0.5 ms (0.5 ms)		0.5 ms (0.5 ms)		0.5 ms (0.5 ms)	
Source-Measure Pass/Fail Test *10, *12	TO GPIB	4.82 ms (5.3 ms)		6.27 ms (7.1 ms)		21.31 ms (25.0 ms)	
	TO GPIB	4.82 ms (5.3 ms)		6.27 ms (7.1 ms)		21.31 ms (25.0 ms)	
GENERAL SPECIFICATIONS							
System General	Load Impedance	Stable into 20,000 pF typical					
	Differential Mode Voltage	250 VPk					
	Common Mode Voltage	250 VDC					
	Common Mode Isolation	> 10 GΩ, < 1000 pF					
	Over Range	105 % of range, source and measure.					
	Max. Voltage Drop	5 V					
	Max. Sense Lead Resistance	1 MΩ					
	Sense Input Impedance	> 100 GΩ					
	Guard Offset Voltage	< 150 μV, typical					
	Source Output Modes	Fixed DC level, Memory List (mixed function), Stair (linear and log)					
Source Memory List	100 points max.						
Memory Buffer	5,000 readings @ 5 digits (two 2,500 point buffers). Includes selected measured value(s) and time stamp. Lithium battery backup (3 yr+ battery life).						
Power on Settings	5 user-definable power-up states plus factory default and *RST.						
Digital I/O Connector	Active low input. Start of test, end of test, 3 category bits. ; +5V@ 300 mA supply. ; 1 trigger input, 4 TTL/Relay Drive outputs (33V @ 500 mA, diode)						
Remote Interface	USB, GPIB, LAN, RS-232						
Insulation	Chassis and terminal: 20 MΩ or above (DC 500V); Chassis and AC cord: 30 MΩ or above (DC 500V)						
Operation Environment	Indoor use, Altitude: ≤ 2000 m Ambient temperature: 0 °C to 40 °C Relative humidity: ≤ 80 %;						
Storage Environment	Installation category: II, Pollution degree: 2						
Input Power	Temperature: -20 °C to 70 °C; Humidity: < 80 %						
Power Consumption	AC 100 V to AC 240 V, 50 Hz or 60 Hz						
Dimensions & Weight	80 W						
	214 mm x 86 mm x 356.5 mm (W x H x D), Approx. 4.8 kg						

- Required to reach 0.1 % of final value after Command is processed. Resistive load. 10 μA to 100 mA range.
- Overshoot into a fully resistive 100 kΩ load, 10 Hz to 1 MHz BW, adjacent ranges: 100 mV typical, except 20 V / 200 V.
- Maximum time required for the output to begin to change following the receipt of: SOURce: VOLTage | CURRent <nr> Command
- Speed = Normal (1 PLC). For 0.1 PLC, add 0.005 % of range to offset specifications, except 200 mV, 1 A ranges, add 0.05 %.
- For 0.01 PLC, add 0.05 % of range to offset specifications, except 200 mV, 1 A ranges, add 0.5 %.
- Enhanced mode is Source readback ON, offset compensation ON, add system noise but don't include offsets.
- Reading rates applicable for voltage or current measurements, autorange off, filter off, display off, trigger delay = 0, and binary reading forma.
- Purely resistive load. 1 μA and 10 μA ranges < 65 ms.
- 1000 point sweep was characterized with the source on a fixed rang.
- Pass/Fail test performed using one high limit and one low math limit.
- Includes time to re-program source to a new level before making measurement.
- Time from falling edge of START OF TEST signal to falling edge of END OF TEST signal.
- Command processing time of: SOURce: VOLTage | CURRent: TRIGgered <nr> Command not included.

規格若有局部變更，恕不另行通知！ GSM-20H10_C_D2DH

SM-01/SM-02 Digital I/O Adapter



購買資訊

GSM-20H10 with GPIB 高精度源表
GSM-20H10 高精度源表

附件資訊

Power Cord x 1, GTL-207A Test Lead x 1, Alligator Clip x 2

選購附件

SM-01	Digital I/O Adapter, Convert DB15 to DB9 + 8-pin micro-DIN	GTL-248	GPIB Cable (25 pin Micro-D Connector)
SM-02	Digital I/O Adapter, Convert DB15 to DB37 + 8-pin micro-DIN	GRA-450-J	Rack Mount Kit for JIS type
GTL-207A	Test Lead, Banana to Probe Test Lead, 800 mm	GRA-450-E	Rack Mount Kit for EIA type
GTL-246	USB Cable (USB 2.0 A-B Type, approx. 1200 mm)		

免費下載

PC Software, LabVIEW Driver

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