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60 Years of Excellence

Source & Measurement Unit
SMU5830 Series

Advance Features

- Linux operating system
- Four quardrant precision power output
- Single / Dual channel output and measurement
- Upto ± 210V DC voltage, ± 3A DC Current / ±10.5 pulse
- 10fA/0.1µV minium output resolution (6 ½ bits)
- 1pA/10µV minimum measurement resolution (4 ½ bits)
- Supports voltage, current, resistance, and power measurements.
- Four basic modes of voltage source, current source, voltmeter and ammeter
- Minimum sampling interval 1µs
- Supports DC pulse, scanning and list outputs
- Pulse output with a minium pulse width of 50µs
- 1mHz~10kHz arbitrary waveform generation and list scan function (minimum 1µs interval)
- Flexible programmable output resistance function
- Math operation function, sliding average filter function, deviation deduction function
- 14 speed sorting function with grading and sorting modes

Model			SMU5831	SMU5832		
Technical Specifications						
Channels			1	2		
Max Output	Voltage		±210V			
	Current	DC	±3.03A			
		Pulse	±10.5A			
Power Supply	Max Digits	Digits	6½			
	Min. Resolution	Voltage	0.1µV			
		Current	0.01pA			
Measurement	Max Digits	Digits	4½			
	Min Resolution	Voltage	10µV			
		Current	1pA			
Voltage Range			0.2V ~ 200V			
Min. Interval Time			1µs			
Voltage Output						
Range	Programming Resolution	Accuracy ±(% of reading + bias)	DC output voltage of pulse peak/base voltage	Max Current(*1)		Pulse Width(*2)
				DC Output	Pulse Output	
0.2V	100nV	± (0.015%+225µV)	0≤|V|≤0.21V	±3.03A	±3.03A	50µs≤t≤t_{max}
					±10.5A	50µs≤t≤1ms
2V	1µV	± (0.015%+225µV)	0≤|V|≤2.1V		±3.03A	50µs≤t≤t_{max}
					±10.5A	50µs≤t≤1ms
20V	10µV	± (0.015%+5mV)	0≤|V|≤6V		±3.03A	50µs≤t≤t_{max}
					±10.5A	50µs≤t≤1ms
			0≤|V|≤21V	±1.515A	±1.515A	50µs≤t≤t_{max}

Model			SMU5831	SMU5832		
200V	100μv	(0.015%+50mV)	0≤|V|≤6V	±3.03A	±3.03A	50μs≤t≤t_{max}
					±10.5A	50μs≤t≤1ms
			0≤|V|≤21V	±1.515A	±1.515A	50μs≤t≤t_{max}
			0≤|V|≤180V	-	±1.05A	50μs≤t≤10ms
			0≤|V|≤200V	-	±1.515A	50μs≤t≤2.5ms
			0≤|V|≤210V	±105mA	±105A	50μs≤t≤t_{max}

Note :
(*1) : Refer to the limits table section when using channels 1 and 2 for DC outputs or pulsed outputs (50 μs ≤ t ≤ tmax (=99.9999ks)).
(*2) : For pulses with 50μs ≤ t ≤ tmax, the maximum duty cycle is 99.9999%
For pulse with 50μs ≤ t ≤ 1ms, 50μs ≤ t ≤ 2.5ms or 50μs ≤ t ≤ 10ms, the maximum duty cycle is 2.5%

Current Output

Range	Setting Resolution	Accuracy ±(% of reading + bias)	DC output voltage of pulse peak/base current(*1*2)	Max Voltage		Pulse Width(*3)
				DC Output	Pulse Output	
10nA	10fA	±(0.10%+50pA)	0≤|I|≤10.5nA	±210V	±210V	50μs≤t≤t_{max}
100nA	100fA	±(0.06%+100pA)	0≤|I|≤105nA			
1μA	1pA	±(0.025%+500pA)	0≤|I|≤1.05μA			
10μA	10pA	±(0.025%+1.5nA)	0≤|I|≤10.5μA			
100μA	100pA	±(0.02%+25nA)	0≤|I|≤105μA			
1mA	1nA	±(0.02%+200nA)	0≤|I|≤1.05mA			
10mA	10nA	±(0.02%+2.5μA)	0≤|I|≤10.5mA			
100mA	100nA	±(0.02%+20μA)	0≤|I|≤105mA			
1A	1μA	±(0.03%+1.5mA)	0≤|I|≤105mA			
			105mA≤|I|≤1.05A	±21V	±21V	
			0≤|I|≤1.05A	-	±200V	50μs≤t≤2.5ms
				-	±180V	50μs≤t≤10ms
1.5A		±(0.05%+3.5mA)	0≤|I|≤105mA	±210V	±210V	50μs≤t≤t_{max}
			105mA≤|I|≤1.515mA	±21V	±21V	
			0≤|I|≤1.515mA	-	±200V	50μs≤t≤2.5ms
			0≤|I|≤1.05mA	-	±180V	50μs≤t≤10ms
3A	10μA	±(0.4%+7mA)	0≤|I|≤105mA	±210V	±210V	50μs≤t≤t_{max}
			105mA≤|I|≤1.515mA	±21V	±21V	
			1.515A≤|I|≤3.03mA	±6V	±6V	
10A(*4)		±(0.4%+25mA)(*5)	0≤|I|≤10.5A	-	±6V	50μs≤t≤1ms
			0≤|I|≤1.515A	-	±200V	50μs≤t≤2.5ms
			0≤|I|≤1.05A	-	±180V	50μs≤t≤10ms

Note :
(*1) : Refer to the limits table section when using channels 1 and 2 for DC outputs or pulsed outputs (50 μs ≤ t ≤ tmax (=99.9999ks)).
(*2) : The maximum base current is 500mA for pulses with 50μs≤t≤1ms, and the maximum base current is 50mA for pulses with 50μs≤t≤2.5ms or 50μs≤t≤10ms.
(*3) : The maximum duty cycle is 99.9999% for pulses with 50μs≤t≤tmax and the maximum duty cycle is 2.5% for pulses with 50μs≤t≤1ms, 50μs≤t≤2.5ms or 50μs≤t≤10ms
(*4) : 10A range for pulse mode only, not for DC mode.
(*5) : Measurement speed is 0.01 PLC

Voltage Measurement

Range	Voltage Measurement	Resolution	Accuracy
0.2V	0≤|V|≤0.212V	10μV	±(0.015%+225μV)
2V	0≤|V|≤2.12V	100μV	±(0.02%+350μV)
20V	0≤|V|≤21.2V	1mV	±(0.015%+5mV)
200V	0≤|V|≤212V	10mV	±(0.015%+50mV)

Current Measurement

Range	Current Measurement	Resolution	Accuracy
10nA	0≤|I|≤10.6nA	1pA	±(0.10%+50pA)
100nA	0≤|I|≤106nA	10pA	±(0.06%+100pA)
1μA	0≤|I|≤1.06μA	100pA	±(0.025%+500pA)
10μA	0≤|I|≤10.6μA	1nA	±(0.025%+1.5nA)

Model		SMU5831	SMU5832
100µA	0≤|I|≤106µA	10nA	±(0.025%+25nA)
1mA	0≤|I|≤1.06mA	100nA	±(0.02%+200nA)
10mA	0≤|I|≤10.6mA	1µA	±(0.02%+2.5µA)
100mA	0≤|I|≤106mA	10µA	±(0.02%+20µA)
1A	0≤|I|≤1.06A	100µA	±(0.03%+1.5mA)
1.5A	0≤|I|≤1.53A		±(0.05%+3.5mA)
3A	0≤|I|≤3.06A	1mA	±(0.4%+7mA)
10A(*1)	0≤|I|≤10.6A		±(0.4%+25mA)
*Note : (*1) For pulse mode, not for DC mode.			
Pulse source (pulse width is the time from 10% rising edge to 90% falling edge, base level : pulse low level, peak level, pulse high level)			
Minimum programmable pulse width		50µs	
Pulse width programming resolution		1µs	
Interface		RS232C, MSB Host, MSB Device, LAN, Handler	
Environment & Temperature			
Operating	Temperature	0˚C ~ 55˚C	
	Humidity	30% ~ 80% RH (non-condensing)	
Storage	Temperature	30˚C ~ + 70˚C	
	Humidity	10% ~ 90% RH (non-condensing)	
Warm up time after power on		≥60 minutes	
General Specifications			
Power Supply		90V to 264V, 47Hz ~ 63 Hz	
Power Consumption		< 250VA	
Display		7” capacitive touch screen with 800 x 480 resolution	
Dimension (W X H X D)		235mm x 154mm x 530mm	
Weight		8.5kg	10 kg
Safety		Class I Safety	
Insulation Resistance		Under the reference working conditions, the insulation resistance between the power terminals and the body is not less than 50MΩ Under humid and hot transportation conditions, the insulation resistance between the power terminals and the body is not less than 20MΩ	
Dielectric Strength		Under the reference working conditions, the power terminals and the body can withstand the rated voltage of 1.5kV, frequency of 50Hz AC voltage for 1 minute without breakdown and flying arc phenomenon	
Leakage Current		≤3.5mA	
Standard Interfaces		RS232, LAN, Handler, USB Host, USB Device	
Standard Accessories		SMA26050B (Test Cable both ends), SMA1931-003 (Low Noise Filter), SMA26050S (Four terminal test cable), USB Cable	

Subject to change

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