OpenATE SMU8

* Interface	3U PXI (V)	USB (V)
* 16-bit source/16-bit measure resolution		
* 0 ~ +12 V per channel		
* 8 SMU / 0.5A per channel		
* 8 CHs V/I pulsing output		
* 16-CH Relay Outputs		
* 8-CH digitizers designed (8M)		
* 8-CH 16-bit high resolution A/D converter		
* High measurement speed (150k s/S)		
* Software average measurement function for small signal		
* API		

3U PXI

USB

Description

The SMU8 offers high voltage SMU in a compact, 3U PXI / USB form factor.
The smu8 supports 0V to +4V 0.5A or 0V to +12V 25.6mA with FVMI, FVMV, FIMV, FIMI modes.
8 channel can be ganged to support high current driving.

Compatibility

All OpenATE Interfaces PXI cards comply with the PXI Specification 2.0 (issued Aug. 2000)
All OpenATE Interfaces USB case comply with the Universal Serial Bus Specification 2.0

Software

The SMU8 is supported operating system on Windows XP / 7 / 8 / 10 x64 / x86

Application

- Automatic Test Equipment (ATE)
- Power supply for electronics device
- Semiconductor test
- LED / laser diode test
- Battery test
- Solar cell test
- Electric vehicle test
- Power electronics test
- Avionics test
- Sensor test

OpenATE SMU8

Specifications

● SMU		
Number of SMU		8
Accuracy	FI	0.1%+10nA
	MI	0.05%+2.56nA
	FV	0.1%+10mV
	MV	0.025%+1mV
Number of IRange x 4		IR1: ±2.56uA
		R2: ±256uA
		IR3: +25.6mA
		IR4: +500mA
Number of VRange x 1		VR1:0V ~ +4V
		VR2:0V ~ +12V
● Physical Properties		
Dimensions		3U
Power Requirements		3.3V@8A, 5V@3A 12V@2A
Bus & Signals		8 PXI Trigger bus lines for digitizer test
● Environmental		
Operating Temperature		0 ~ 50℃
Storage Temperature		-20℃ ~ 70℃
● Maximum boards in one system		16
● PXI Compliance		All OpenATE Interfaces PXI cards comply with the PXI Specification 2.0 (issued Aug, 2000)

OpenATE SMU8

Description

The OpenATE SMU8 is a PXI / USB based SMU (Source Measurement Unit) card, designed for highly accurate source or load simulation with precision voltage and current measurements. It's compact size, easy level of integration, and high flexibility make the SMU8 ideal for multi-channel power supplies.

OpenATE SMU8 offers high voltage SMU in a 3U PXI / USB compact. It supports 0V to +4V 0.5A or 0V to +12V 25.6mA with FVMI, FVMV, FIMV, FIMI modes and 8 channel can be ganged to support high current driving. The multiple current measurement ranges with 16 bits DAC and 16 bits ADC provide the highest resolution and accuracy.

OpenATE SMU8 is 150KS/s sampling 16-bit 8-CH digitizers designed for digitizing high frequency and wide dynamic range signals with an input frequency up to 100KHz .

OpenATE SMU8 offers a Pulse mode, 8 channels of voltage pulsing with integrated simultaneous V or I measurement on each channel includes programmable delays, and provides a test sequencer that allows you to set up and execute tests without PC intervention.

Gang Mode Operation

Current sharing is achieved by one channel operating as the Master under Force Voltage mode while the Slaves operate in Force Current mode. The Master channel is programmed in voltage mode while the Slaves are set to current mode. The Slaves will follow the Master's set voltage. The wiring diagram for current sharing in master/slave control is shown to above.

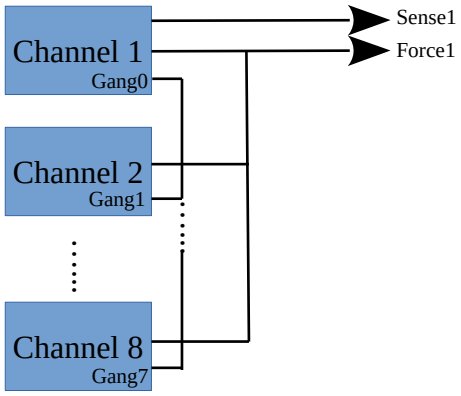

Figure 1. Gang mode (High Current Output)

Compatibility

All OpenATE Interfaces PXI cards comply with the PXI Specification 2.0 (issued Aug. 2000)
All OpenATE Interfaces USB cards comply with the USB 2.0

Software

The SMU8 is supplied with API .

Device Capabilities

The following table and figure illustrate the voltage and current source and sink ranges of the SMU8.

DC Voltage Ranges	DC Current Source and Sink Ranges
0 ~ 4V 0 ~ 12V	2.56uA 256uA 25.6mA 500mA

Table1. Current Source and Sink Ranges

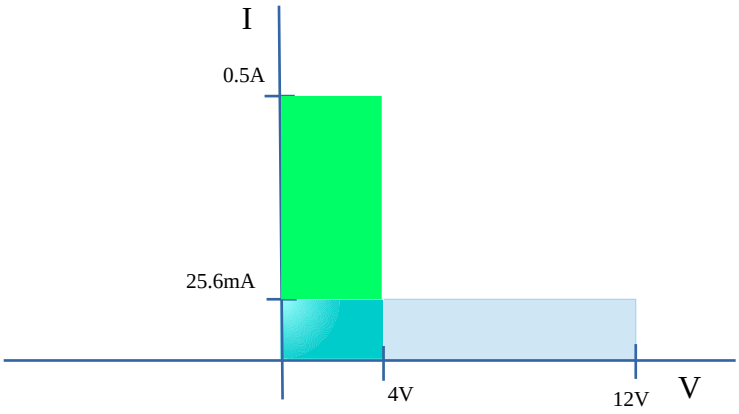

Figure 2. Quadrant Diagram (Voltage Mode)

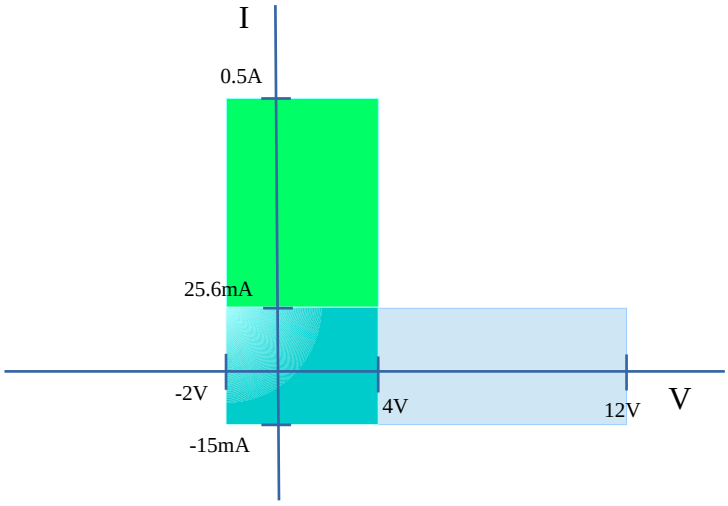

Figure 3. Quadrant Diagram (Current Mode)

Voltage Programming Accuracy/Resolution

Range	Resolution	Accuracy (25 °C) ±(% of voltage + offset)	Offset
4V	122uV	0.1% + 10mV	±10mV
12V	244uV	0.1% + 15mV	±15mV

Table 2. Voltage Programming and Measurement Accuracy/Resolution

Voltage Measurement Accuracy/Resolution

Range	Resolution	Accuracy (25 °C) ±(% of voltage + offset)	Offset
4V	122uV	0.025% + 1mV	±1mV
12V	244uV	0.1% + 10mV	±10mV

Table 3. Voltage Programming and Measurement Accuracy/Resolution

Current Programming Accuracy/Resolution

Range	Resolution	Accuracy (25 °C) ±(% of current + offset)	Offset
2.56uA	58.6pA	0.1% + 10nA	±10nA
256uA	5.86nA	0.1% + 0.5uA	
25.6mA	586nA	0.1% + 50uA	
500mA	58.6uA	0.1% + 1mA	

Table 4. Current Programming and Measurement Accuracy/Resolution

Measurement Accuracy/Resolution

Range	Resolution	Accuracy (25 °C) ±(% of current + offset)	Offset
2.56uA	58.6pA	0.05% + 2.56nA	±2.56nA
256uA	5.86nA	0.1% + 0.5uA	
25.6mA	586nA	0.1% + 50uA	
500mA	58.6uA	0.1% + 1mA	

Table 5. Current Programming and Measurement Accuracy/Resolution

Pulse Generator

The OpenATE SMU8 is high performance programmable pulse generators for testing digital systems and circuits based on TTL, or CMOS technologies. Both instruments generate clean and accurate pulses at 16 bit resolution, variable pulse widths from 1ms to 60 s, and pulse delays from 0 ns to 60 s. Output levels are adjustable from 0 V to +12 V. Apart from full control of the timing parameters, you can also adjust levels as needed.

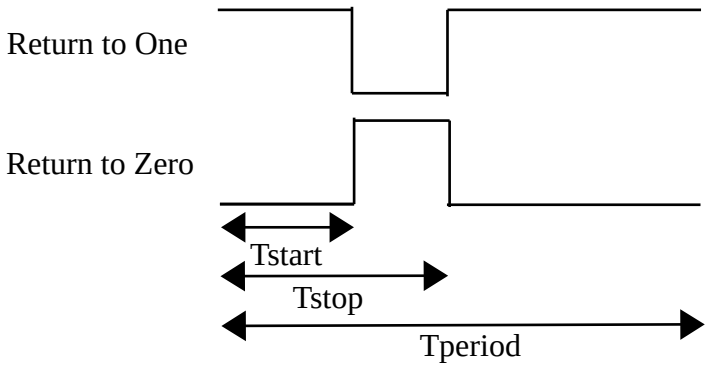

Figure 4. Pulse Mode Diagram

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