

Selector Guide

Low Current/High Resistance

Selector Guide: Picoammeters, Electrometers, Source-Measure Units (Measurement)

	Current Amplifier	Picoammeters		Electrometers			Source-Measure Units		
MODEL	428	6485	6487	6514	6517A	6430	236	237	238
CURRENT									
From¹	1.2 fA	20 fA	20 fA	<1 fA	<1 fA	400 aA	30 fA	30 fA	30 fA
To	10 mA	20 mA	20 mA	20 mA	20 mA	100 mA	100 mA	100 mA	1 A
VOLTAGE									
From²				10 μ V	10 μ V	10 μ V	10 μ V	10 μ V	10 μ V
To				200 V	200 V	200 V	110 V	1100 V	110 V
RESISTANCE⁴									
From⁵			10 Ω	10 Ω	100 Ω	100 $\mu\Omega$	100 $\mu\Omega$	100 $\mu\Omega$	50 $\mu\Omega$
To⁶			1 P Ω	200 G Ω	10 P Ω ³	10 P Ω ³	0.1 P Ω ³	1 P Ω ³	0.1 P Ω ³
CHARGE									
From²				10 fC	10 fC				
To				20 μ C	2 μ C				
Input Connection	BNC	BNC	3 Slot Triax	3 Slot Triax	3 Slot Triax	3 Slot Triax	3 Slot Triax	3 Slot Triax	3 Slot Triax
FEATURES									
	2 μ s rise time. 10 ¹¹ V/A gain.	5½ digits. Autoranging. 1000 rdg/s.	5½ digits. Built-in 500V source. Alternating voltage method for HI-R sweeps.	5½ digits. Replaces Models 6512, 617-HIQ	5½ digits. Built-in \pm 1kV source. Temperature, RH measurements. Alternating polarity method for HI-R. Plug-in switch cards available.	SourceMeter with Remote PreAmp to minimize cable noise.	Source/measure capability. High speed. 5 digits.		
CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1. Includes noise.
2. Digital resolution limit. Noise may have to be added.
3. P Ω (Petaohms) = 10¹⁵ Ω .
4. Resistance is measured with the 236, 237, and 238 using Source V/Measure I or Source I/Measure V, but not directly displayed.
5. Lowest resistance measurable with better than 1% accuracy.
6. Highest resistance measurable with better than 10% accuracy.

All instruments are CE marked and have an IEEE-488 interface.

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Selector Guide: Sources and Source-Measure Units (Sourcing)

MODEL	213	230	248	263	236	237	238	6430	228A	220	224
Current Source				•	•	•	•	•	•	•	•
Voltage Source	•	•	•	•	•	•	•	•	•		
Sink		•	•		•	•	•	•	•	•	•
CURRENT OUTPUT											
Accuracy ¹				10 fA	450 fA	450 fA	450 fA	10 fA	100 μ A	2 pA	10 nA
Resolution ²				\pm 10 aA	\pm 100 fA	\pm 100 fA	\pm 100 fA	\pm 50 aA	\pm 100 μ A	\pm 500 fA	\pm 5 nA
Maximum				\pm 20 mA	\pm 100 mA	\pm 100 mA	\pm 1 A	\pm 105 mA	\pm 10 A	\pm 101 mA	\pm 101 mA
VOLTAGE OUTPUT											
From	250 μ V	\pm 50 μ V	\pm 1.5 V	\pm 5 μ V	\pm 100 μ V	\pm 100 μ V	\pm 100 μ V	\pm 5 μ V	\pm 1 mV		
To	10.2 V	\pm 101 V	\pm 5000 V	\pm 20 V	\pm 110 V	\pm 1100 V	\pm 110 V	\pm 210 V	\pm 101 V		
POWER OUTPUT											
		10 W	25 W		11 W	11 W	15 W	2.2 W	100 W	10 W	10 W
CURRENT LIMIT											
		2, 20, and 100 mA	5.25 mA		1 pA to 100 mA	1 pA to 100 mA	1 pA to 1 A	1 fA to 105 mA	100 μ A to 10 A		
VOLTAGE LIMIT											
			0 to 5000 V		1 mV to 110 V	1 mV to 1100 V	1 mV to 110 V	0.2 mV to 210 V	1 mV to 101 V	1 V to 105 V	1 V to 105 V
ACCURACY (\pmSetting)											
I				0.03%	0.05%	0.05%	0.05%	0.03%	0.10%	0.05%	0.05%
V	0.05%	0.05%	0.01%	0.02%	0.03%	0.03%	0.03%	0.02%	0.10%		
R				0.02%							
Q				0.10%							
FEATURES											
IEEE-488	•	•	•	•	•	•	•	•	•	•	Option
Memory	8192 pt.	100 pt.			1000 pt.	1000 pt.	1000 pt.		100 pt.	100 pt.	
Trigger		In/Out	In/Out		In/Out	In/Out	In/Out	In/Out	In/Out	In/Out	In/Out
Remote Sense		•			•	•	•	•	•		
Guard				•	•	•	•	•		•	•
Other	Quad voltage source		Voltage monitor output. Programmable voltage limit.	Calibrate/ source: I, V, R, Q		Source/measure capability. Pulse mode. High speed. Built-in waveforms.			External modulation		IEEE-488 option 2243
CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

¹ Best absolute accuracy of source.

² Resolution for lowest range, smallest change in current that source can provide.

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