TIM 1030
배터리 임피던스 측정기

특징

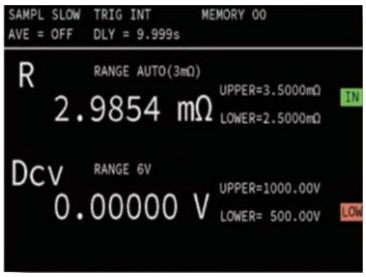
- 측정 전압 : 6V, 60V, 300V
- 전압 측정 정확도 : ±(0.01% of regarding +3digit)
- 저항 측정 정확도 : ±(0.5% of regarding +5digit)
- 저항 범위 : 3mΩ/30mΩ/300mΩ/3Ω
- 고분해능 : 전압 10μV(6V 범위), 저항 0.1μΩ(3mΩ 범위)
- 측정 주파수 : 1kHz±0.2Hz
- 샘플링 속도(전압 측정&저항측정) : 20ms(FASD시)
- 측정값의 로깅 (500세트), 일괄 전송 기능
- 인터페이스 : SIGNAL I/O, RS232C, USB
- 컬러 액정 디스플레이 탑재로 시인성 향상

더 간단하게, 더 정확하게 2차 전지의 임피던스 계측을 실현합니다.

고전압, 대용량, 저저항화가 추진되는 리튬 이온 전지(전지팩)은 모바일 전자 기기 또는 EV에서 채택될 뿐만 아니라 가정용 축전지 또는 각종 산업 기기 등 다양한 용도로 확대되고 있습니다.

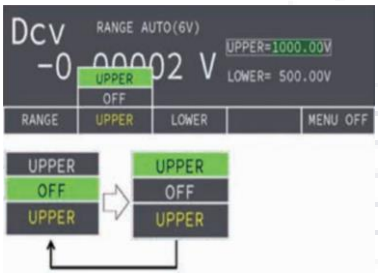
배터리 임피던스 측정기 TIM1030은 1kHz 교류 4단자법에 의한 저저항 측정기 입니다. 측정 전압 최대 300V에서 내부 저항과 전지 전압을 고속, 고정밀도로 측정할 수 있습니다. 2차 전지의 제조, 검사 용도에 최적의 시험기 입니다.

컬러 액정 디스플레이



시인성이 높은 컬러 모니터로
저항값, 전압값, 상한값, 하한값을
한눈에 파악할 수 있습니다.

컴퍼레이터 기능



컴퍼레이터 기능에 의해 UPPER/LOWER
를 설정할 수 있고, 저항과 전압을 독립된
컴퍼레이터로 동시에 판정할 수 있습니다.
판정 결과는 디스플레이에 표시됩니다.
외부 I/O는 신호 출력에 사용할 수
있습니다.

응용 프로그램

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Specification

Measurement items	Resistance and voltage
Resistance measurement method	AC Four-teminal method
Measurement current frequency	1kHz
Resistance measurement range	0Ω ~ 3.1Ω (minimum resolution 0.1μΩ)
Voltage measurement range	BIM1030: DC0V ~ ±300V (minimum resolution 10μV)
Measurement modes	ΩV mode (Resistance and voltage measurement)
	Ω mode (Resistance measurement)
	V mode (Voltage measurement)
Rated input voltage	BIM1030: DC ±300V
Maximum rated voltage to earth	BIM1030: DC ±330V (HIPOT AC 1.6kV 1 minute)
DCV inpput impedance	Over ~ 2.7MΩ
Open-terminal voltage	3mΩ ~ 3Ω: 10V peak
Measurement Range	
Resistance measurement	3mΩ / 30mΩ / 300mΩ / 3Ω
Voltage measurement	BIM1030: 6V / 60V / 300V
Auto-range function	Yes(apply setting to voltage and resistance respective)
Measurement value Display	
Resistance value	3mΩ: -3.1mΩ ~ 3.1mΩ
	30mΩ: -31mΩ ~ 31mΩ
	300mΩ: -310mΩ ~ 310mΩ
	3Ω: -3.1Ω ~ 3.1Ω
DCV value	6V: -6.3V ~ 6.3V
	60V: -63V ~ 63V
	300V: -315V ~ 315V
Overflow display	Display show the “OVER” for resistance and voltage respective
Measurement fault detection (contact check)	Detected information: SOURCE HIGH-LOW connection faults
	3mΩ “-.----”
	30mΩ “--.---”
	300 mΩ”--.--”
	3Ω “-.----”"

Sampling time			
Sampling rate	FAST	MID.	SLOW
AC LINE Freq. 50Hz	20ms	40ms	160ms
AC LINE Freq. 60Hz	20ms	50ms	150ms

Response time	
Definition	Probe in the open state, starting from the connection to be measured, unitl internal measurement circuit stable time DC Voltage response time: about 1ms, AC Resistance response time: about 2ms
DC measurement time	Overall time required for measurement: DC Response time + sampling time
AC resistance time	Overall time required for measurement: AC Response time + sampling time
Zero-Adjustment	
Zero-adjustment function	• Zero Adjustment setting: ON / OFF (Common to both resistance and voltage)
	Zero-Adjustment clear: Turns zero-adjustment off and clears all zero-adjustment offset data
Zero-adjustment range	• DC voltage measurement : 1000 COUNT
	• AC resistance measurement : 1000 COUNT
Self-Calibration	BIM series build-in auto-zero circuits, no any calibraton requirement.
Trigger source	Internal/External
Measurement current mode	Pulse/Continuous
Delay	
Delay function	ON / OFF
Delay time	0 ~ 9.999 second
Average	
Average function	ON / OFF (Apply to Voltage and resistance both)
No. of samples to average	2 ~ 99
Averaging	Moving average with internal triggering, and simple average with external triggering
Comparator	
Comparator function	ON / OFF (apply setting to voltage and resistance respective)
Comparator setting	HIGH / LOW
Decision	HI / LO (resistance and voltage judged independently) V-HI / V-LO / OHM-HI / OHM-LO

Measurement Memory and Batch Download Functions	
Measurement memory	ON / OFF / Clear
Memory trigger	Up to 500 measurement values can be sotred in internal memory, trigger by EXT I/O signals, key, or remoted command. Stored measurement values can be batch downloaded by RS232/LAN. *Data sotred in memory can not be displayed on the LCD
Key-lock	ON / OFF (Key operations are disabled when ON)
Power supply frequency	
Power supply frequency setting	50 Hz / 60 Hz
Panel save function	Measurement configurations cab be saved and reload by specifinga Panel number
No. of panel to save	99
Saved settings	Resistance range Voltage range Auto range zero-adjust on/ off setting and value, Sample rate Trigger source Delay setting Averaging setting Comparator setting Switching display setting Key-lock setting
Display	4.3 800 x 480 IPS TFT LCD
External interface	
EXT I/O	Input : Photo couple-isolated non-voltage contacts (DC 30V max) Output : Photo couple-isolated with open collector (DC 30V 50mA max.) Input signals : Measurement start trigger, panel load(7bit) Output signals : End of measurement, and Resistance&Voltage comparator result Service power: 11.8~12.2V 100mA
Communication port	RS-232C , USB
RS-232C	Communication settings: Data length (8 bits) , stop (1 bit) , parity (none) Baud rate: 9600, 19200, 38400, 57600, 115200 bps
Accuracy	
f.s	maximum display value
rdg.	reading or displayed value
dgt.	resolutions

Resistance measurement				
Range	3mΩ	30mΩ	300mΩ	3Ω
Maximum displayer value	3.1000 mΩ	31.000 mΩ	310.00 mΩ	3.1000 Ω
Resolution	0.1μΩ	1μΩ	10μΩ	100μΩ
Measured current *1	100mA	100mA	10mA	1mA
Measured curren frequency	1kHz ± 0.2Hz			
Accuracy *2	±0.5%rdg. ±5dgt			
Temperature coefficient	(±0.05 %rdg. ±1dgt.)/°C	(±0.05%rdg. ±0.5dgt.)/°C		
	*1: Measurement current accuracy is ±10%			
	*2: 30mΩ to 3Ω ranges: Add ±3dgt. for FAST, or ±2dgt. for MEDIUM 3mΩ range: Add ±30dgt. for FAST, or ±10dgt. for MEDIUM			

Voltage measurement			
Range	6V	60V	300V
Maximum displayer value	±6.30000V	±63.0000V	±315.000V
Resolution	10μV	100μV	1mV
Accuracy*3	±0.01%rdg. ±3dgt.		
Temperature coefficient	(±0.001%rdg.±0.3dgt.)°C		
	*3: Add ±2dgt. for FAST, or ±10dgt. for MEDIUM		

General Specifications	
Operating temperature and humidity	0°C~ 40°C, 80%RH or less(non-condensating)
Storage temperature and humidity	-10°C~ 50°C, 80%RH or less(non-condensating)
Temperature and humidity for guranteed accuracy	23°C±5°C, 80%RH or less(non-condensating)
Guranteed accuracy PERIOD	1 Year
Operating enivorment	In doors , up to 2000 meter(6562 ft) ASL
Rated supply voltage	AC100V ~ AC240V (Fully Range)
Rated supply frequency	50/60Hz
Power consumption	30VA
Dieleciric strength	1.6kV AC for 1minute, Cutoff current 10mA, between all power terminals and protective ground. 3.0kV AC for 1 minute, Cutoff current 1mA, between all measurement terminals and Interfaces. 1.6kV AC for 1 minute, Cutoff current 1mA, between all measurement terminals and protective ground.
Dimensions	Approx. 215 Wx95 H x310 D (8.46"W X 3.74"H X 12.2"D)
Accessories	Instruction Manual X1, Power cord X1
Options accessories	RS-232 Cable , (SPEC40507) TL01-BIM 4-wire Spring probe with 0.8 meter cable, (SPEC40508) TL02-BIM V-clip type with 0.8meter cable, (SPEC40509) OP01-BIM Zero fixture.
Applicable standard(wihtout certificate)	Safe EN61010
	EMC : EN61326 Class A, EN61000-3-2, EN61000-3-3
Effect of radiated radio-frequency electromagnetic field	Resistance measurement: ±10%rdg. ±8,000dgt.At 10v/m Voltage measurement: ±0.01%rdg. ±50dgt. At 10V/m
Effect of conducted radio-frequency electromagnetic field	Resistance measurement: ±0.5%rdg. ±1,000dgt. At 3V

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