



# GBM-3000 Series

## Battery Meter

### FEATURES

- 3.5' TFT LCD (320x240)
- Measurement Items : DC Voltage and AC Resistance
  - \* Voltage Measurement : 1000V(GBM-3100H)/300V(GBM-3300)/80V(GBM-3080)
  - \* Resistance Measurement : 0mΩ ~ 3.2kΩ (max.)
- Basic Accuracy For Voltage Measurement : 0.01%
- Basic Accuracy For Resistance Measurement : 0.5%
- Measurement Resolution up to 0.1μΩ and 10μV, Suitable For Single-cell Measurement
- Independent Go/NoGo Determination Function For Voltage and Resistance Respectively
- The Judgment Mechanism of Test Lead (Probe) Disconnect/Contact Failure is to Ensure The Measurement Reliability
- Standard Interfaces : USB Host/Device, RS-232C and Handler

**GW INSTEK**



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GW Instek desktop battery tester, the GBM-3000 series, which uses AC 1kHz as the test signal and measures battery's voltage and internal resistance to 1000V (GBM-3100H) or 300V (GBM-3300) and 80V (GBM-3080). The series features 3.5" TFT LCD, 4-wire measurement method, high-resolution (6-digit voltage / 5-digit resistance) measurement display capability, and independent GO/NOGO determination of voltage and resistance, various communications interfaces, etc. to meet various types of battery measurements, ranging from single cell, battery cell, to the end product (battery), etc. so as to facilitate users in achieving accurate measurements at all stages of production.

The GBM-3000 series provides excellent features for various types of batteries in measuring open circuit voltage and resistance. For voltage measurement, the accuracy is as high as  $\pm (0.01\% \text{ reading} + 5 \text{ digits})$ , and measurement resolution is up to  $10 \mu\text{V}$  (at 8V). For resistance measurement, the accuracy reaches  $\pm (0.5\% \text{ reading} + 5 \text{ digits})$  and the resolution achieves  $0.1 \mu\Omega$  (at  $3\text{m}\Omega$ ) that is especially suitable for the sorting of single cell measurements, which is to achieve a better output balance for the follow-up series and parallel connections. In the meantime, in order to facilitate users to quickly and clearly interpret the measurement results, the GBM-3000 series features HI/LO determination respectively based on voltage and resistance, and can be switched to the simple (big numerical display) mode to meet the requirements of test accuracy, clear and easy-to-read, and elevated inspection efficiency and capabilities.

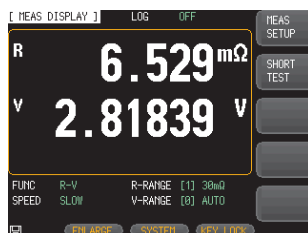
Other than the excellent measurement capabilities, the GBM-3000 series also provides a number of functions to ensure effectiveness and convenience. For the effectiveness, the test lead (probe) contact status detection function is to effectively prompt users whether test lead (probe) and DUT are in good contact to ensure the validity of the measured value. In terms of convenience, the GBM-3000 series provides two data storage methods (up to 10,000 lots of measurement values). "General storage" only stores the measured voltage and resistance values; "statistical storage" has the related parameters (Cp/Ckp/Mean/MAX/MIN...) for the statistical analysis. Users can store the data from the measurement process in the internal memory first and then transfer the data to the computer via flash drive for subsequent analysis without being limited to the connection with the computer.

In addition, for retrieving and storing measurement results via the transmission method, the GBM-3000 series provides RS-232C/USB device (virtual COM) for writing programs and retrievals. The handler interface is provided for external trigger control via PLC. All interfaces are standard-equipped that not only save the cost of instruments, but also meet the requirement of using different automated measurement systems.

## PANEL INTRODUCTION



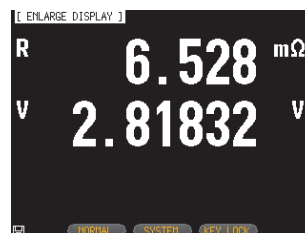
## A. TWO DISPLAY MODES



### Standard Mode

(Setting conditions and R+V measurement parameters)

The GBM-3000 series offers two display modes to facilitate users in maximizing the benefits of their measurements – Standard mode: The main measurement parameters (three combinations: R+V/R/V) and parameter settings for the related measurements can be displayed



### Simple Mode

(R+V measurement parameters)

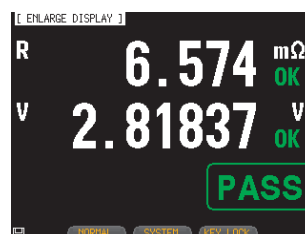
simultaneously. This mode is applicable to R&D design and engineering certification. Simple mode: Big numerical display only shows the results of main measurement parameters to increase the visibility of observations. This mode is suitable for production measurements.

## B. INDEPENDENT GO/NOGO DETERMINATION



### Independent HI/LO Setting

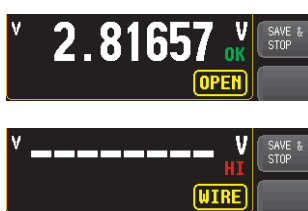
The GBM-3000 series provides independent HI/LO determination settings for both voltage and resistance and can be set according to the required mode, such as SEQ, PER or ABS. In addition to displaying



### Separate & Totally Judgement

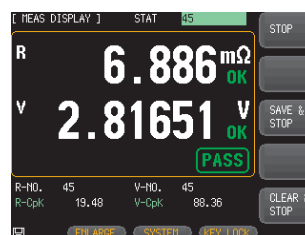
the results of the final determination, the results of individual measurement parameters are also provided for subsequent actions.

## C. EXCELLENT SUPPLEMENTARY MEASUREMENT CAPABILITY



### Disconnect/Contact Display

In addition to providing accurate measurements, the ability of the GBM-3000 Series to supplement the measurement of production lines is also a major feature of the series. For example, the ability to detect disconnect/contact. The display screen can clearly show bad contact of the test lead (probe).The series can store up to 10,000 lots of measurement data and has the statistical calculation function to allow



### Statistical Function

the status of the production process to be clearly observed and retained in real time without any manual calculation or connection to the computer. After the measurement is completed, the result can be transferred to the computer through flash drive for long-term storage and subsequent analysis.

## D. COMPREHENSIVE STANDARD INTERFACES



Finally, the GBM-3000 series provides a variety of practical and standard-equipped interfaces including RS-232C/USB device/ Handler, which are for measurement result collection in the remote program control or collocating with system integration for external trigger measurement through PLC.



## SPECIFICATIONS

DISPLAY	Screen Resistance Voltage	3.5" (320 x240) TFT LCD 5 digits 6 digits																																																					
TEST SPEED	Slow Medium Fast Ex. Fast	4 time/second 11 time/second 25 time/second 60 time/second																																																					
RESISTANCE MEASUREMENT	Test Frequency	1kHz (±0.5Hz) Fixed																																																					
	Input Impedance	3mΩ~ 300mΩ: 99kΩ, 3Ω ~ 3kΩ: 2MΩ																																																					
	Range	<table><tr><td>Range No.</td><td>Range</td><td>Max. scale</td><td>Resolution</td><td>Test Current</td><td>Open-circuit Voltage (Vpp,Max)</td></tr><tr><td>0</td><td>3mΩ</td><td>3.1000mΩ</td><td>0.1 μΩ</td><td>100mA</td><td>8V</td></tr><tr><td>1</td><td>30mΩ</td><td>31.000mΩ</td><td>1 μΩ</td><td>100mA</td><td>8V</td></tr><tr><td>2</td><td>300mΩ</td><td>310.00mΩ</td><td>10 μΩ</td><td>10mA</td><td>7V</td></tr><tr><td>3</td><td>3Ω</td><td>3.1000Ω</td><td>100 μΩ</td><td>1mA</td><td>3V</td></tr><tr><td>4</td><td>30Ω</td><td>31.000Ω</td><td>1mΩ</td><td>100 μA</td><td>2V</td></tr><tr><td>5</td><td>300Ω</td><td>310.00Ω</td><td>10mΩ</td><td>10 μA</td><td>1.5V</td></tr><tr><td>6</td><td>3kΩ</td><td>3200.0Ω</td><td>100mΩ</td><td>10 μA</td><td>1.5V</td></tr></table>						Range No.	Range	Max. scale	Resolution	Test Current	Open-circuit Voltage (Vpp,Max)	0	3mΩ	3.1000mΩ	0.1 μΩ	100mA	8V	1	30mΩ	31.000mΩ	1 μΩ	100mA	8V	2	300mΩ	310.00mΩ	10 μΩ	10mA	7V	3	3Ω	3.1000Ω	100 μΩ	1mA	3V	4	30Ω	31.000Ω	1mΩ	100 μA	2V	5	300Ω	310.00Ω	10mΩ	10 μA	1.5V	6	3kΩ	3200.0Ω	100mΩ	10 μA	1.5V
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	Accuracy	<table><tr><td>Range No.</td><td>Speed</td><td>Accuracy</td><td>Temperature Coefficient</td></tr><tr><td>0</td><td>Slow Medium Fast EX. Fast</td><td>±0.5%rdg ± 10dgt ±0.5%rdg ± 15dgt ±0.5%rdg ± 20dgt ±0.5%rdg ± 40dgt</td><td>(±0.05%rdg ±1dgt)/ °C</td></tr><tr><td>1~6</td><td>Slow Medium Fast EX. Fast</td><td>±0.5%rdg ± 5dgt ±0.5%rdg ± 7dgt ±0.5%rdg ± 7dgt ±1.0%rdg ± 8dgt</td><td>(±0.05%rdg ± 0.5dgt)/ °C</td></tr></table>						Range No.	Speed	Accuracy	Temperature Coefficient	0	Slow Medium Fast EX. Fast	±0.5%rdg ± 10dgt ±0.5%rdg ± 15dgt ±0.5%rdg ± 20dgt ±0.5%rdg ± 40dgt	(±0.05%rdg ±1dgt)/ °C	1~6	Slow Medium Fast EX. Fast	±0.5%rdg ± 5dgt ±0.5%rdg ± 7dgt ±0.5%rdg ± 7dgt ±1.0%rdg ± 8dgt	(±0.05%rdg ± 0.5dgt)/ °C																																				
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VOLTAGE MEASUREMENT	Range (GBM-3100H)	<table><tr><td>Range No.</td><td>Range</td><td>Max. scale</td><td>Resolution</td></tr><tr><td>0</td><td>10V</td><td>±9.99999</td><td>10 μV</td></tr><tr><td>1</td><td>100V</td><td>±99.9999</td><td>100 μV</td></tr><tr><td>2</td><td>1000V</td><td>±1009.99</td><td>1mV/10mV</td></tr></table>						Range No.	Range	Max. scale	Resolution	0	10V	±9.99999	10 μV	1	100V	±99.9999	100 μV	2	1000V	±1009.99	1mV/10mV																																
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Range (GBM-3300/3080)	<table><tr><td>Range No.</td><td>Range</td><td>Max. scale</td><td>Resolution</td></tr><tr><td>0</td><td>8V</td><td>±8.08000</td><td>10 μV</td></tr><tr><td>1</td><td>80V</td><td>±80.8000</td><td>100 μV</td></tr><tr><td>2</td><td>300V (For GBM-3300 only)</td><td>±303.000</td><td>1mV</td></tr></table>						Range No.	Range	Max. scale	Resolution	0	8V	±8.08000	10 μV	1	80V	±80.8000	100 μV	2	300V (For GBM-3300 only)	±303.000	1mV																																	
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OTHER FUNCTIONS	Range Selection Comparator Contact Detection Buzzer Trigger	Auto range, Hold range, Nom range ABS, PER or SEQ OPEN & WIRE OFF, Pass, Fail INT, EXT																																																					
INTERFACE		USB Host/USB Device/RS-232C/Handler																																																					
POWER SOURCE		AC 100-240, 50-60Hz; Consumption: 10W																																																					
DIMENSIONS & WEIGHT		264(W) x 107(H) x 309(D) mm, Approx. 2.8kg																																																					

Specifications subject to change without notice. GBM-3000SeriesID1BH

## ORDERING INFORMATION

**GBM-3100H 1000V Battery Meter** (including RS-232C/USB device/host and HANDLER interface)  
**GBM-3300 300V Battery Meter** (including RS-232C/USB device/host and HANDLER interface)  
**GBM-3080 80V Battery Meter** (including RS-232C/USB device/host and HANDLER interface)

## ACCESSORIES

Safety sheet x 1, Power cord x 1,  
**GBM-01 x 1** : 4 Wire(kelvin clip) test lead, 90V(max.), approx..1100mm

## FREE DOWNLOAD

**PC Software** Battery Meter

## OPTION ACCESSORIES

**GBM-02** 4 Wire (single pin) test probe, 80V (max.), approx. 1100mm  
**GBM-03** 4 Wire (twin pin) test probe, 300V (max.), approx. 1400mm  
**GBM-03A** 4 Wire (twin pin) test probe, 1000V (max.), approx. 1400mm  
**GBM-S1** Short Bar (for GBM-02/GBM-03/GBM-03A)  
**GTL-232** RS-232C cable, 9-pin Female to 9-pin, null modem for computer, Approx. 2000mm  
**GTL-246** USB cable, A-B type, approx.1200mm  
**GRA-422** Rack Mount kit  
**GRA-454** Rack Mount Kit (19",2U) for one set or two sets

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