

### Renewal of HIOKI's world-leading battery tester



**BT3563A**

The de facto standard for accurate measurement of large battery packs up to 300V

The image shows the BT3563A device with a digital display showing 3.1000 V and 300.000 mΩ. It features various input ports and control buttons. The background includes a large blue and white 'LI-Ion' battery pack and a photograph of wind turbines and solar panels.



**BT3562A**

The de facto standard for accurate measurement of large xEV and ESS battery cells, as well as 72V and 96V packs

The image shows the BT3562A device with a digital display showing 3.1000 V and 100.000 mΩ. It features various input ports and control buttons. The background includes a battery pack, a charging cable, and a photograph of an electric car being charged.



**BT3561A**

For high-performance battery cell applications in electric bikes and power tools. Ideal for battery packs of up to 60V

The image shows the BT3561A device with a digital display showing 3.1000 V and 60.0000 mΩ. It features various input ports and control buttons. The background includes a close-up of a battery cell, a photograph of an electric scooter, and several cylindrical battery cells.

## Designing automatic battery testing systems is easier and faster than ever before

- Double the total line resistance, so measurement errors are less likely to occur when using long measurement cables
- Stable operation regardless of increased total line resistance due to probe and relay degradation
- LAN is equipped as a standard for easy system design and layout, and excellent noise resistance for stable operation
- Improved electrostatic resistance as a countermeasure against electrostatic charges during battery transport on a production line

# Lineup

| Application                                                          |                                     |                      | Acceptance inspection of general-purpose, small cells installed in a high-speed sorters | Fully automated production line testing of small cells for power motors or small packs of up to 60 V | Fully automated production line testing of large cells for xEVs or mid-size packsup of to 100 V | Fully automated production line testing of large packs for xEVs or large packs up of to 300 V |
|----------------------------------------------------------------------|-------------------------------------|----------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Model                                                                |                                     |                      | 3561, 3561-01                                                                           | BT3561A                                                                                              | BT3562A                                                                                         | BT3563A                                                                                       |
| Appearance                                                           |                                     |                      |        |                     |               |            |
| Measurement method                                                   |                                     |                      | AC four-terminal method                                                                 | AC four-terminal method                                                                              | AC four-terminal method                                                                         | AC four-terminal method                                                                       |
| Measurement frequency                                                |                                     |                      | 1 kHz ±0.2 Hz                                                                           | 1 kHz ±0.2 Hz                                                                                        | 1 kHz ±0.2 Hz                                                                                   | 1 kHz ±0.2 Hz                                                                                 |
| Measurement parameters                                               | Resistance measurement ranges       | 3 mΩ                 | N/A                                                                                     | N/A                                                                                                  | 3.1000 mΩ, 0.1 μΩ, 100 mA                                                                       | 3.1000 mΩ, 0.1 μΩ, 100 mA                                                                     |
|                                                                      |                                     | 30 mΩ                | N/A                                                                                     | 31.000 mΩ, 1 μΩ, 100 mA                                                                              | 31.000 mΩ, 1 μΩ, 100 mA                                                                         | 31.000 mΩ, 1 μΩ, 100 mA                                                                       |
|                                                                      |                                     | 300 mΩ               | 310.00 mΩ, 10 μΩ, 10 mA                                                                 | 310.00 mΩ, 10 μΩ, 10 mA                                                                              | 310.00 mΩ, 10 μΩ, 10 mA                                                                         | 310.00 mΩ, 10 μΩ, 10 mA                                                                       |
|                                                                      |                                     | 3 Ω                  | 3.1000 Ω, 100 μΩ, 1 mA                                                                  | 3.1000 Ω, 100 μΩ, 1 mA                                                                               | 3.1000 Ω, 100 μΩ, 1 mA                                                                          | 3.1000 Ω, 100 μΩ, 1 mA                                                                        |
|                                                                      |                                     | 30 Ω                 | N/A                                                                                     | 31.000 Ω, 1 mΩ, 100 μA                                                                               | 31.000 Ω, 1 mΩ, 100 μA                                                                          | 31.000 Ω, 1 mΩ, 100 μA                                                                        |
|                                                                      |                                     | 300 Ω                | N/A                                                                                     | 310.00 Ω, 10 mΩ, 10 μA                                                                               | 310.00 Ω, 10 mΩ, 10 μA                                                                          | 310.00 Ω, 10 mΩ, 10 μA                                                                        |
|                                                                      |                                     | 3 kΩ                 | N/A                                                                                     | 3.1000 kΩ, 100 mΩ, 10 μA                                                                             | 3.1000 kΩ, 100 mΩ, 10 μA                                                                        | 3.1000 kΩ, 100 mΩ, 10 μA                                                                      |
|                                                                      | Basic accuracy                      | 3 mΩ range           | N/A                                                                                     | N/A                                                                                                  | ±0.5% rdg. ±10 dgt.                                                                             | ±0.5% rdg. ±10 dgt.                                                                           |
|                                                                      |                                     | 30 mΩ range or more  | ±0.5% rdg. ±5 dgt.                                                                      | ±0.5% rdg. ±5 dgt.                                                                                   | ±0.5% rdg. ±5 dgt.                                                                              | ±0.5% rdg. ±5 dgt.                                                                            |
|                                                                      | Voltage measurement ranges          | 6 V                  | N/A                                                                                     | 6.00000 V, 10 μV                                                                                     | 6.00000 V, 10 μV                                                                                | 6.00000 V, 10 μV                                                                              |
|                                                                      |                                     | 20 V                 | 19.9999 V, 100 μV                                                                       | N/A                                                                                                  | N/A                                                                                             | N/A                                                                                           |
|                                                                      |                                     | 60 V                 | N/A                                                                                     | 60.0000 V, 100 μV                                                                                    | 60.0000 V, 100 μV                                                                               | 60.0000 V, 100 μV                                                                             |
|                                                                      |                                     | 100 V                | N/A                                                                                     | N/A                                                                                                  | 100.000 V, 1 mV                                                                                 | N/A                                                                                           |
|                                                                      | Max. display, resolution            | 300 V                | N/A                                                                                     | N/A                                                                                                  | N/A                                                                                             | 300.000 V, 1 mV                                                                               |
|                                                                      |                                     | 1000 V               | N/A                                                                                     | N/A                                                                                                  | N/A                                                                                             | N/A                                                                                           |
|                                                                      |                                     | Basic accuracy       | ±0.01% rdg. ±3 dgt. *1                                                                  | ±0.01% rdg. ±3 dgt.                                                                                  | ±0.01% rdg. ±3 dgt.                                                                             | ±0.01% rdg. ±3 dgt.                                                                           |
| Response time *2                                                     |                                     | 3 ms                 | 10 ms                                                                                   | 10 ms                                                                                                | 10 ms                                                                                           |                                                                                               |
| Sampling period *3                                                   |                                     | Ω or V               | 4 ms, 12 ms, 35 ms, 150 ms                                                              | 4 ms, 12 ms, 35 ms, 150 ms                                                                           | 4 ms, 12 ms, 35 ms, 150 ms                                                                      | 4 ms, 12 ms, 35 ms, 150 ms                                                                    |
| EX.FAST, FAST, MEDIUM, SLOW                                          |                                     | QV                   | 7 ms, 23 ms, 69 ms, 252 ms                                                              | 8 ms, 24 ms, 70 ms, 253 ms                                                                           | 8 ms, 24 ms, 70 ms, 253 ms                                                                      | 8 ms, 24 ms, 70 ms, 253 ms                                                                    |
| Allowable total line resistance *2,*4 (within accuracy)              | SENSE line                          | N/A, N/A, 20 Ω, 20 Ω | N/A, 4 Ω, 30 Ω, 30 Ω                                                                    | 4 Ω, 4 Ω, 30 Ω, 30 Ω                                                                                 | 4 Ω, 4 Ω, 30 Ω, 30 Ω                                                                            |                                                                                               |
|                                                                      | SOURCE line                         | N/A, N/A, 20 Ω, 20 Ω | N/A, 4 Ω, 20 Ω, 40 Ω                                                                    | 4 Ω, 4 Ω, 20 Ω, 40 Ω                                                                                 | 4 Ω, 4 Ω, 20 Ω, 40 Ω                                                                            |                                                                                               |
| Allowable total line resistance *2,*4 (error detection)              | SENSE line                          | N/A, N/A, 20 Ω, 20 Ω | N/A, 6 Ω, 30 Ω, 30 Ω                                                                    | 6 Ω, 6 Ω, 30 Ω, 30 Ω                                                                                 | 6 Ω, 6 Ω, 30 Ω, 30 Ω                                                                            |                                                                                               |
|                                                                      | SOURCE line                         | N/A, N/A, 20 Ω, 20 Ω | N/A, 6 Ω, 20 Ω, 200 Ω                                                                   | 6 Ω, 6 Ω, 20 Ω, 200 Ω                                                                                | 6 Ω, 6 Ω, 20 Ω, 200 Ω                                                                           |                                                                                               |
| Open terminal voltage                                                |                                     |                      |                                                                                         |                                                                                                      |                                                                                                 |                                                                                               |
| Ranges: 30 mΩ or less, 300 mΩ, 3 Ω or more                           |                                     | N/A, 7 V, 7 V peak   | 25 V, 7 V, 4 V peak                                                                     | 25 V, 7 V, 4 V peak                                                                                  | 25 V, 7 V, 4 V peak                                                                             | 25 V, 7 V, 4 V peak                                                                           |
| Interface                                                            | LAN (TCP/IP, 10BASE-T/100BASE-TX)   | N/A                  | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | RS-232C *5 (Max. 38.4 kbps)         | ✓ (9.6 kbps fixed)   | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | USB                                 | N/A                  | N/A                                                                                     | N/A                                                                                                  | N/A                                                                                             |                                                                                               |
|                                                                      | GP-IB                               | ✓ (3561-01 Only)     | N/A                                                                                     | N/A                                                                                                  | N/A                                                                                             |                                                                                               |
|                                                                      | EXT. I/O (37-pin Handler interface) | ✓                    | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
| Analog output (DC 0 V to 3.1 V)                                      |                                     | N/A                  | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
| Function                                                             | Contact check                       | ✓                    | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | Zero adjustment (±1000 counts)      | ✓                    | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | Pulse mesurement                    | ✓                    | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | Comparator                          | Hi/ IN/ Lo           | Hi/ IN/ Lo                                                                              | Hi/ IN/ Lo                                                                                           | Hi/ IN/ Lo                                                                                      |                                                                                               |
|                                                                      | Statistical calculations            | Max. 30,000          | Max. 30,000                                                                             | Max. 30,000                                                                                          | Max. 30,000                                                                                     |                                                                                               |
|                                                                      | Delay                               | ✓                    | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | Average                             | 2 to 16 times        | 2 to 16 times                                                                           | 2 to 16 times                                                                                        | 2 to 16 times                                                                                   |                                                                                               |
|                                                                      | Panel saving/loading                | 126                  | 126                                                                                     | 126                                                                                                  | 126                                                                                             |                                                                                               |
|                                                                      | Memory storage                      | 400                  | 400                                                                                     | 400                                                                                                  | 400                                                                                             |                                                                                               |
|                                                                      | LabVIEW® driver *6                  | N/A                  | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
|                                                                      | Applicable standards                |                      | Safety: EN61010<br>EMC: EN61326 Class A                                                 | Safety: EN61010<br>EMC: EN61326 Class A                                                              | Safety: EN61010<br>EMC: EN61326 Class A                                                         | Safety: EN61010<br>EMC: EN61326 Class A                                                       |
| Effect of radiated radio-frequency electromagnetic field (10 V/m) *7 |                                     | Resistant            | Resistant                                                                               | Resistant                                                                                            | Resistant                                                                                       |                                                                                               |
| Effect of conducted radio-frequency electromagnetic field            | 10 V                                | N/A                  | Resistant                                                                               | Resistant                                                                                            | Resistant                                                                                       |                                                                                               |
|                                                                      | 0.15 MHz to 80 MHz, 80% AM          | Resistant            | Resistant                                                                               | Resistant                                                                                            | Resistant                                                                                       |                                                                                               |
| CE                                                                   |                                     | ✓                    | ✓                                                                                       | ✓                                                                                                    | ✓                                                                                               |                                                                                               |
| CSA *8                                                               |                                     | N/A                  | Certification in progress                                                               | Certification in progress                                                                            | Certification in progress                                                                       |                                                                                               |

\*1: rdg. stands for *reading*, dgt. stands for *digits* \*2: Typical value \*3: When the power supply frequency is 60 Hz

\*4: Total line resistance = wiring resistance + contact resistance + DUT resistance \*5: Available as printer I/F

\*6: LabVIEW<sup>®</sup> Driver is a registered trademark of National Instruments Corporation \*7: Test conditions were 80 MHz to 1 GHz at 10 V/m and 1 GHz to 6 GHz at 3 V/m, all at 80% AM

\*8: Canadian Standards Association

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