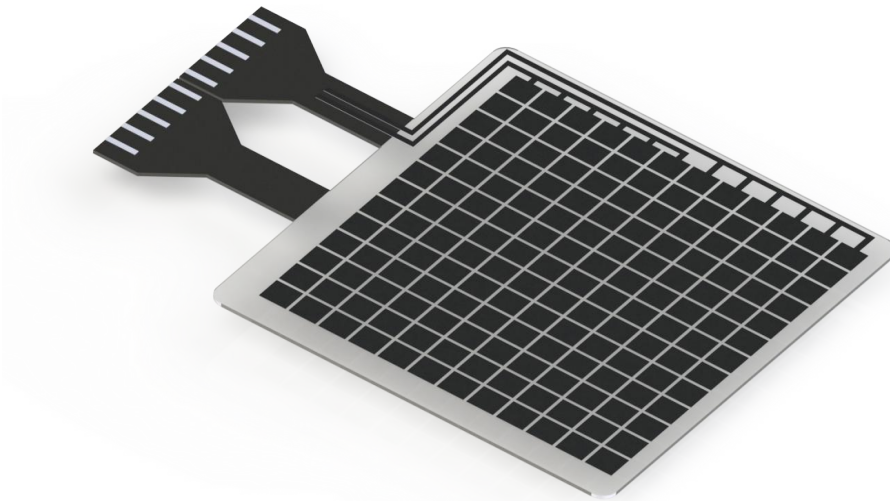
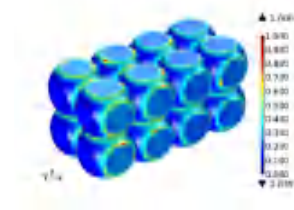
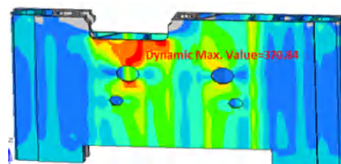
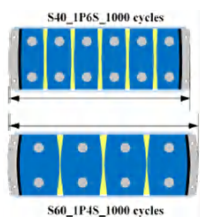


# BPD1000



## BATTERY PRESSURE DISTRIBUTION MEASURE SYSTEM

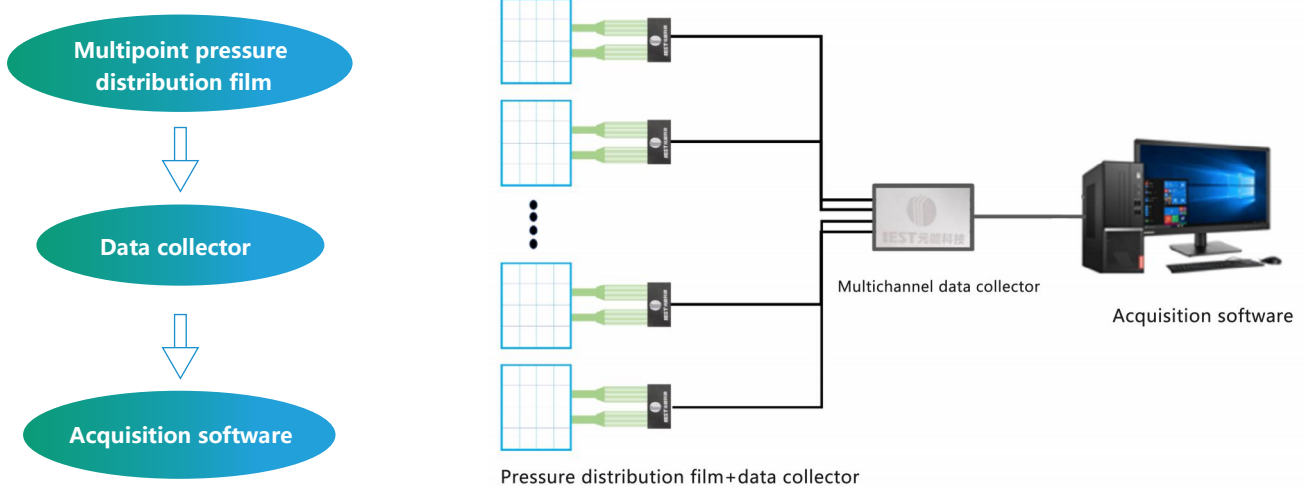


## 1、 The significance of measuring the pressure distribution of lithium ion batteries

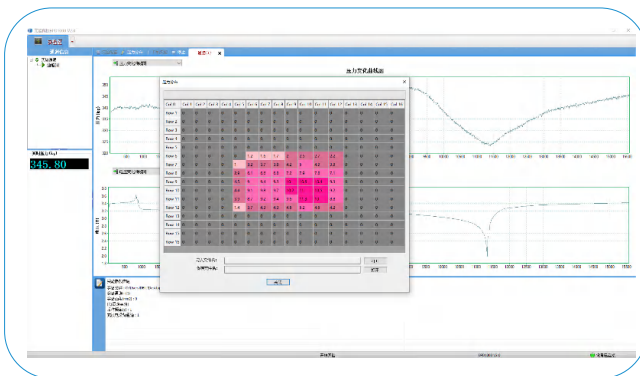
As a common electric energy storage device, lithium-ion battery has the advantages of high energy density, high specific power, high output voltage, small self-discharge, long service life, etc., and has been widely used in electric vehicles, electronic products and other fields. On the one hand, during the manufacturing process of the battery, the internal stress distribution of the fresh battery or the surface thickness distribution of the battery will be uneven because the control of the process environment cannot be completely consistent; On the other hand, in the electro-chemical cycle process, the lithium ion de-insertion process will lead to the volume expansion and contraction of the electrode material, and due to the uneven current density or temperature distribution inside the battery, accompanied by the uneven stress distribution, will also lead to the uneven distribution of the stress during the expansion of the battery. The quantitative characterization of the difference in the stress distribution on the battery surface can provide a deeper perspective for the battery stress analysis, assist technicians to analyze the battery stress distribution, explore the causes of the failure of the battery, and develop a safer and more reliable battery.

## 2、 Introduction of pressure distribution film measuring system

### ▶ Structural composition:



### ▶ Software interface:



### Characteristic:

1. Real-time display of the resultant force curve of each detection unit with time;
2. Select the pressure distribution thermal diagram according to the user's actual use area;
3. Real-time synchronous charging and discharging data;
4. One-click to export data report;
5. Real-time calibration of pressure (combined with in-situ expansion equipment).

### 3. Application direction

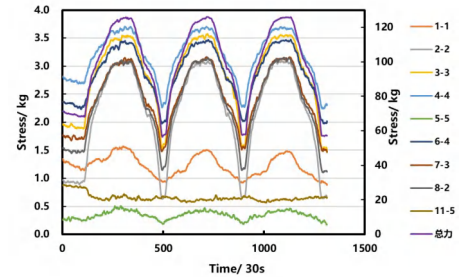
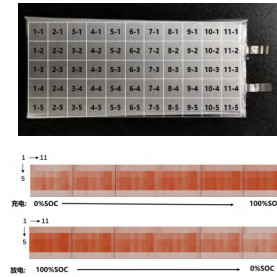
With the expansion force test fixture or in-situ expansion test equipment, the stress distribution at different positions on the surface of the cell during the cycling process is characterized



Quickly and quantitatively evaluate the surface flatness of the cell

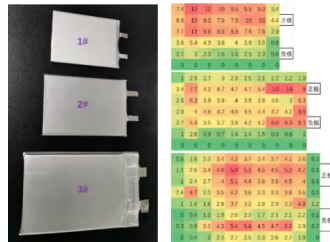
#### Application 1: Test of stress distribution on the surface of the cell during the cycle

- ▶ Test information: NCM-Graphite system, 3~4.3V, 0.5C, 50kg preload;
- ▶ Result analysis: It can quantitatively characterize the difference of stress distribution on the surface of the cell, provide a deeper perspective for the stress analysis of the cell, and help technicians analyze the stress distribution in the cell, explore the causes of failure of the cell, and develop a safer and more reliable cell.



#### Application 2: Surface flatness test of fresh cell

- ▶ Result analysis: there is a certain correlation between the cell process design and the cell pressure distribution (flatness). Technicians can develop appropriate distribution standards through the pressure distribution system to monitor the batch stability of the delivered cells.



Information of cell			
	Cell1	Cell2	Cell3
Cathode	NCM	LCO	LFP
Anode	Graphite		
Capacity	2000mAh	4800mAh	3000mAh
Model	345877	456494	5778125
SOC	50%		

### 4. Model and specification

Sensor film size	160*160mm(Can be customized according to customer needs)
Pressure range of sensing unit	0~30kg(0~5MPa)
Pressure accuracy of sensing unit	±10% FS
Sensing unit size	7.5*7.5mm
Sensor thickness	< 0.3mm
Number of sensors	16X16 array layout, 256 sensors in total
Data collector	1 (sampling frequency < 10Hz), size about 20 * 80 * 120mm
Software	1 set

Note: IEST is committed to continuous improvement of products. IEST reserves the right to alter the specifications of its products without notice.



BPD202302

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