

NanoCycler

Easy, compact, and absolutely low-cost
battery charger-discharger
by NANOBASE



Higher performance instrument for battery researchers

Although many advanced battery research starts with coin cells, most researchers are forced to use standard battery cyclers designed for testing large cells such as 18650 cells. Responding to researchers' demand of more cost-effective battery cyclers, Nanobase, Inc. has launched NanoCycler, the higher performance battery cycler for research of coin cells. NanoCycler is easy and affordable for any battery researchers in chemistry, chemical engineering, electric engineering.

Features

Smooth

Place your 2025, 2032 coin cells directly into NanoCycler

Simple

Just connect NanoCycler to PC via USB port for analysis

Compact

Using in constant temperature chambers? No problem!

Expandable

Channel addition available for more than 80 channels per PC

Specifications

Product Size

153 × 270 × 107 (mm)

Electricity

- 88 ~ 264 VAC or 125 ~ 373 VDC
- 80 W (max)

Voltage

- Range: 0 ~ 5 V
- Accuracy: $\pm 0.1\%$ FS
- Measurement resolution: 16 bit
- Programming resolution: 14 bit

Current

- Range: 3 manually selectable ranges (200 μ A, 2 mA, 20 mA)
- Accuracy: $\pm 0.1\%$ FS
- Measurement resolution: 16 bit
- Programming resolution: 14 bit
- Custom current range available

Channels

- 8 independent channels per unit
- Sockets for 2025, 2032 coin cells
- More than 80 channels per PC (depending on PC specifications and available USB ports)

Data Recording Rate

- 1 kHz (max)
- 0.001 s ~ 9999 s

Software

- Sequence editor : Step & loop sequence programming
- Channel monitor & control
- Channel summary
- Plotting function : general plot, cycle plot, real-time plot
- Data export in .csv format

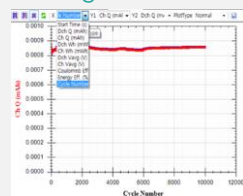
Software Capabilities

Channel control and monitoring

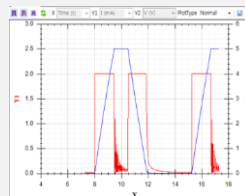
Ch #	Label	Control	Real Time	Status	Cycle #	Step #	T	I (mA)	V (V)	Ch Q (mAh)	Dch Q (mAh)	Sequence file	Data file
1	Start	STBY	1	3	0:00:00	-0.0005	2 mA	-0.0053	20.28270	0.00000	0.00082	2200uF_10ms	NanoCyclerDataChn1.a
2	Stop	DISC	38	1	0:04:28	0.9629	2 mA	0.9046	0.00000	0.00082	2200uF_10ms	NanoCyclerDataChn2	
3	Start	CHG	3	2	0:04:14	2.0011	2 mA	2.2271	0.00033	0.00082	2200uF_10ms	NanoCyclerDataChn3	
4	Stop	DISC	3	1	0:00:12	0.9859	2 mA	0.9051	0.00000	0.00082	2200uF_10ms	NanoCyclerDataChn4	
5	Start	CHG	2	1	0:00:10	0.1107	2 mA	0.1003	0.00000	0.00082	2200uF_10ms	NanoCyclerDataChn5	
6	Start	STBY	10000	5	0:00:00	0.0000	2 mA	0.2077	0.00005	0.00006	2200uF_10ms	NanoCyclerDataChn6	
7	Start	STBY	10000	5	0:00:00	-0.0006	2 mA	-0.0050	0.00017	0.00017	2200uF_10ms	NanoCyclerDataChn7	
8	Start	STBY	10000	5	0:00:00	0.0007	2 mA	0.2620	0.00068	0.00068	2200uF_10ms	NanoCyclerDataChn8	
9	Start	STBY	10000	5	0:00:15	-0.103	20 mA	-0.0063	0.00292	0.00206	2200uF_10ms	NanoCyclerDataChn9	

- Channel Start / Stop control with password protection
- Displays Cycle No., Step No., Elapsed Time, Current, Voltage, Q, Sequence File, and Data File

Plotting



Cycle Plot



Real-Time Plot

Sequence Editing

Type	I	Unit	V (V)	Cut-off type	Cut-off cond	Cut-off Value	Goto Step	Loop Count	Param 1
Standby	1	C	2.8	Step Time	Greater Than	10	0	0	0
Discharge	1	C	2.8	Voltage	Less Than	2.9	0	0	0
Charge	1	C	4.2	Current	Less Than	0.05	0	0	0
Charge	1	C	4.2	Step Time	Greater Than	1	0	0	0
Loop				Current	Less Than	0.02	-3	50	

- Step types: Charge, Discharge, Standby, Loop
- Cut-off types: Voltage, Current, Step Time, Cycle Time, Capacity

Channel Summarizing

Ch #	Type	I (mA)	V (V)	Ch Q (mAh)	Dch Q (mAh)	Elapsed Time	Current	Voltage
[1]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[2]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[3]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[4]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[5]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[6]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[7]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[8]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[9]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[10]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[11]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[12]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[13]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[14]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[15]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[16]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[17]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[18]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[19]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000
[20]	0:00:00	0.0000	0.0000	0.00000	0.00000	0:00:00	0.0000	0.0000

- Charge, Discharge, Standby/Error Status of all channels shown as icons
- Also displays Elapsed Time, Current, and Voltage