NanoCycler

BATTERY CYCLER SYSTEM FOR COIN CELLS

SYSTEM IMAGE

NANOBASE is a market leader in high resolution optical microscopy solutions for scientific and industry applications.

- Extremely cost effective less than **\$400** per channel.
- Easy of use directly accepts 2025, 2032 coin cells.
- Simplicity directly connects to PC via USB.
- Very compact fits directly in many constant temperature chambers.

Many advanced battery research starts with coin cells. However, most researchers are forced to use standard battery cyclers designed for testing large cells such as 18650 cells and are not only paying for overpriced battery cyclers but also paying for unused features and accessories such as high current ranges, cables, and coin cell racks. **NanoCycler** is developed for and only for testing coin cells and is priced below \$400 per channel. Researches can now focus on their main research without having to wait for a free battery cycler channel.

SPECIFICATIONS

ELECTRICITY	• 88 ~ 264 VAC or 125 ~ 373 VDC • 80 W (max)	
Voltage	 Range: 0 ~ 5V Accuracy: ±0.1% FS Measurement resolution: 16 bit Programming resolution: 14 bit 	Display panel
CURRENT*	 Range: 3 manually selectable ranges 200 uA, 2 mA, 20 mA Accuracy: ±0.1% FS Measurement resolution: 16 bit Programming resolution: 14 bit 	Bis NANO Cycler Bis NANO Cycler Bis Sockets
DATA RECORDING RATE	• 1 kHz (max) • 0.001s ~ 9999s	USUCKES
CHANNELS	 8 independent channels per NanoCycler Sockets for 2025, 2032 coin cells. Greater than 80 channels per PC. (limited by PC speed and available USB ports) 	
S/W	 Sequence editor Step & loop sequence programming Channel monitor & control Channel summary General plot Cycle plot Data export to csv files. 	
DIMENSIONS	• 153 x 270 x 107 (mm)	
* Custom curren i.e. 2 mA, 20 mA,	t range is possible 200 mA	



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CHANNEL CONTROL & MONITOR

Channe	in the second			2			2	-		7	7		-	-	џ
Ch #	Label	Contrc	Real Time	Status	Cycle #	Step #	Т	I (mA)	l Range	V (V)	Ch Q (mAh)	Dch Q (mAh)	Sequence file	Data file	
1		Start	1	STBY	1	3	0:00:00	-0.0005	2 mA	-0.0053	20.28270	0.00000	Li_1C_170uah	NanoCycler\Data\ch1a.	
2		Stop	1	DISC	38	1	0:04:28	0.0629	2 mA	0.0046	0.00000	0.00082	2200uF_10ms	NanoCycler\Data\ch2	
3		Stop	1	CHG	3	2	0:00:14	2.0011	2 mA	2.2271	0.00033	0.00083	2200uF_10ms	NanoCycler\Data\ch3	
4		Stop	12	DISC	3	1	0:00:12	0.0809	2 mA	0.0061	0.00000	0.00082	2200uF_10ms	NanoCycler\Data\ch4	
		Stop	1/20				0:00:10	0.1107	2 mA	5.0003	0.00083	0.00082	2200uF_10ms	NanoCycler\Data\ch5	
6		Start	1	STBY	10000	5	0:00:00	0.0000	2 mA	0.2677	0.00086	0.00086	2200uF_10ms	NanoCycler\Data\ch6	
7		Start	12	STBY	10000	5	0:00:00	-0.0006	2 mA	-0.0050	0.00087	0.00087	2200uF_10ms	NanoCycler\Data\ch7	
8		Start	1	STBY	10000	5	0:00:00	0.0007	2 mA	0.2620	0.00088	0.00088	2200uF_10ms	NanoCycler\Data\ch8	
9		Start	12	ERR	3	5	0:00:15	-00.103	20 mA	-0.0063	0.00292	0.00296	2200uF 1ms	NanoCycler\Data\ch91	

Channel Start/Stop control with password protection
Displays Cycle #, Step #, Elapsed time, current, voltage, Q, Sequence file, Data file

CHANNEL SUMMARY

Stibili	101301	mmary										ф.
6	[1] T) I) V)	0:00:00 -0.0008 -0.0054	×	[2] T) I) V)	0:02:44 1.9998 3.4750	6	[3] T) I) V)	0:00:00 -0.0002 -0.0035	b	[4] T) I) V)	0:00:00 -0.0006 0.2916	
ħ	[5] T) I) V)	0:00:00 0.0001 -0.0051	ħ	[6] T) I) V)	0:00:00 0.0000 0.2734	h	[7] T) I) V)	0:00:00 -0.0004 -0.0030	h	[8] T) I) V)	0:00:00 0.0007 0.2676	
1	[9] T) I) V)	0:00:15 -00.103 -0.0063	3	[10] T) I) V)	0:00:00 -0.0102 -0.0063	1	[11] T) I) V)	0:00:00 -0.0102 -0.0063	1	[12] T) I) V)	0:00:00 -0.0102 -0.0063	
S	[13] T) I) V)	0:00:00 -0.0102 -0.0063	M	[14] T) I) V)	0:00:00 -0.0102 -0.0063	1	[15] T) I) V)	0:00:00 -0.0102 -0.0063	M	[16] T) I) V)	0:00:00 -0.0102 -0.0063	

• Displays

charge/discharge/standby/error

- status of all channels as icons. • Elapsed time, current, voltages are
- displayed.

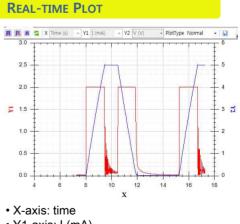
SEQUENCE EDITOR

	Туре		E.	lunit		∀(∀)	Cut-off type		Cut-off cond		Cut-off Value	Goto Step	Loop Count	Param 1
•	Standby		1	C	٠	2,8	StepTime	•	GreaterT	×.	10			
	Discharge		1	C		2,8	Voltage		LessThan		2,9	0	<u>â</u> ri	
	Charge		1.	C	٣	4,2	Current		LessThan	.*	0,05			
	Charge	•	1	C	٠	4.2	StepTime	+	GreaterT	*	t	0	0 (
	Loop						Current	٠	LessThan	*	0.02	-3	50	

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

M	H 💲	X		mber		Ch	Q (mA	+ 1	2 D	ch Q	(m) •	Plot	Гуре	Norm	nal	- 15	2		
0.	0010	Ŧ	Start	Time (s 2 (mAb) to	5	Τ.		1	-		1.	*	1	- 7	-	i i		
0.	0009	+	Ch Q	(mAh) Nh (m)	110	1										-			
0.	8000	1	Ch W Dch	h (mW /avg (\		-	-	-	-							-			
0.	0007	+	Could	avg (V) omnb E	ff											1			
0.	0006		Energ	y Fff. (Numb												-			
0.	0005	+														-			
0.	0004	1														-			
0.	0003	+														-			
0.	0002	ŧ														-			
0.	0001	ŧ														-			
0.	0000	1					+ +	-	.			+.				_			

• X and Y-axis: Start time, Dch/Ch Q, Dch/Ch Wh, Dch/Ch Vavg, Coulomnb/Energy efficiency, Cycle Number



Y1-axis: I (mA)
Y2-axis: V (V)

NANOBASE, INC. #1406, Acetechnotower 10th, Gasan-dong, Gumcheon-gu, Seoul, Korea(153-789) TEL : +82-2-852-9011 / FAX:+82-2-852-9013 EMAIL : contact@nanobase.co.kr

GENERAL PLOT ▼ Y1 Ch Q (mAl ▼ Y2 Dch Q (m/ ▼ PlotType Normal - 5 X 🕰 H 🕰 X 0.001 0.0009 0.0008 0.0007 0.0006 CH 0 (mAh) 0.0005 0.0004 0.0003 0.0002 0.0001 0.0000 2000 6000 12000 4000 8000 10000 Cycle Numbe

• X and Y-axis: Start time, Dch/Ch Q, Dch/Ch Wh, Dch/Ch Vavg, Coulomnb/Energy efficiency, Cycle Number



上海吴量光电设备有限公司 Phone: 4006-888-532 WeChat: Auniontech Website: www.auniontech.com E-mail: info@auniontech.com