KIKUSUI

FOR THE NEXT STAGE IN POWER TESTING

Bidirectional Power Supply PXB Series

Kikusui PXB Introduction

and

Bidirectional Power Supply Applications

PXB Series

Bidirectional DC Power Supply

Model	Output			Input
	CV	CC	Rated Power	AC
PXB20K-1500	0 V to 1500 V	-30 A to 30 A	20 kW	Either 208 VAC (3P3W) or 480 VAC (3P3W)
PXB20K-1000	0 V to 1000 V	-60 A to 60 A		
PXB20K-500	0 V to 500 V	-120 A to 120 A		
PXB20K-50	0 V to 50 V	-800 A to 800 A		

Features

Output

- Bidirectional
- Parallel Operation
- Slew Rate Control
- Quit, Low Noise
- Seamless
- Priority (CC/CV/CP)
- Response Speed Control
- Impedance

Programmable

- Sequencing
- I-V Control
- Pulse and Sine Functions
- Variable Internal Resistance

Communication

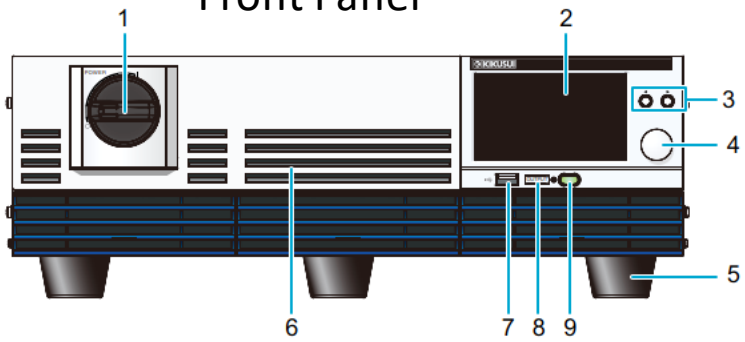
- LAN, USB, RS232C
- Analog External Control
- Digital External Control

Power Efficient

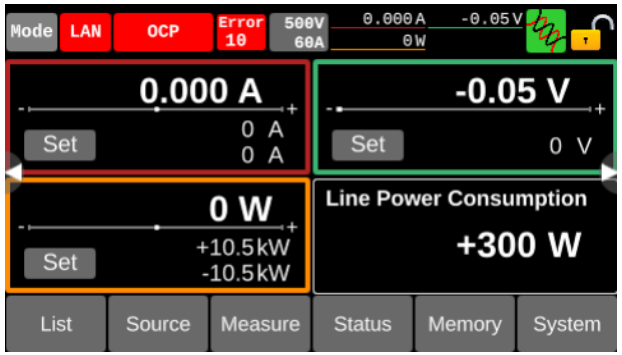
- Regeneration
- 3U Power Density
- Wide Range Power Operation

PXB series -Front Panel-

Front Panel

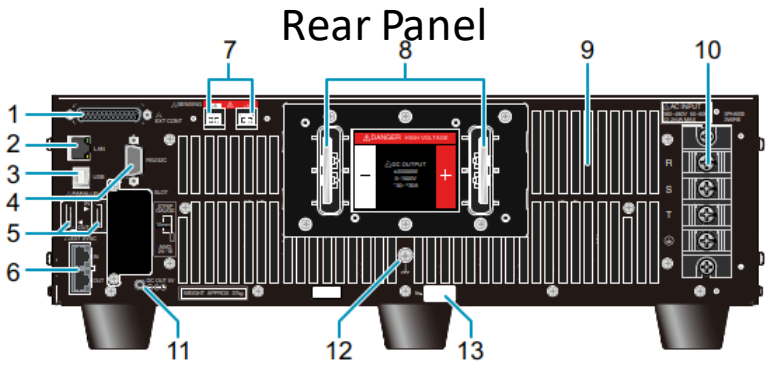


2: Display area



No.	Name	introduce
1	POWER switch	I: Power ON, O: Power OFF
2	Display area	Touch panel, any settings
3	←/→ keys	Move the cursor left and right.
4	Rotary knob	Item selection. Inputs numbers/characters.
5	Feet	5 places on the bottom
6	Air inlet	Inlet holes for cooling.
7	USB connector (host)	This connector is used to perform updates.
8	Output LED	Lit when the output is on.
9	Output key	Turns the output on and off.

PXB series -Rear Panel-



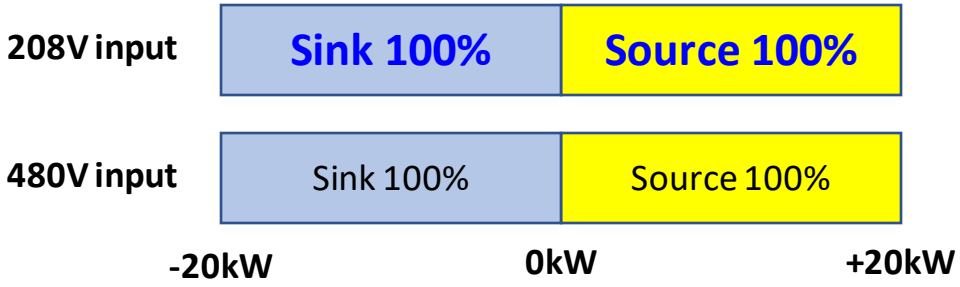
No.c	Name	introduce
1	EXT CONT connector	External control connector. A cover for the pins is provided.
2,3,4	LAN, USB, RS232C Connector	Connectors for remote Control
5	PARALLEL connector	Connector for parallel operation.
6	EXT SYNC port	Connector for synchronized operation.
7	SENSING connector	Remote sensing connector.
8	DC OUTPUT Terminal	Used to connect the DUT
9	Air outlet	Air outlet for cooling.
10	AC INPUT connector	Power inlet.
11	DC OUT connector	Used during GPIB converter (option) use.
12	Chassis terminal	Connector for grounding the output.
13	Serial number	PXB manufacturing number.

PXB Series -Size and Power-

Full power at any inputs.
No output power suppression by input voltage.

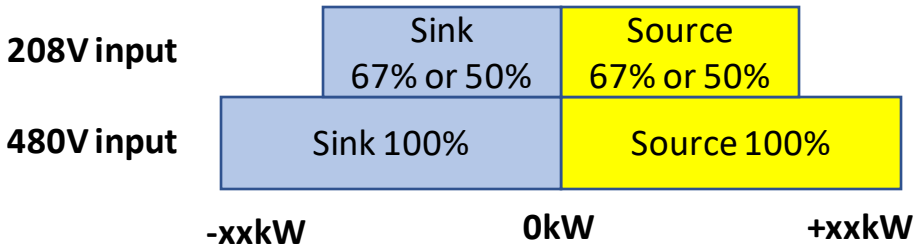
Operating Temperature
0 - 50 degree C

PXB series



18kW, 15kW…

Competing companies

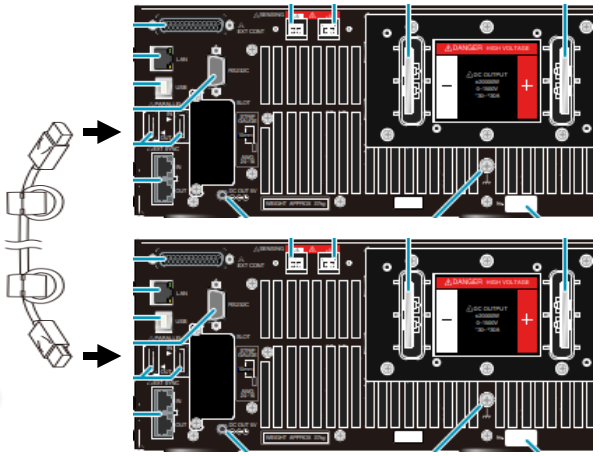


PXB Series -Parallel Operation-

PXB 200kW system

DUT
e.g., Battery, Motor,
DCDC Converter, etc

Rear Panel

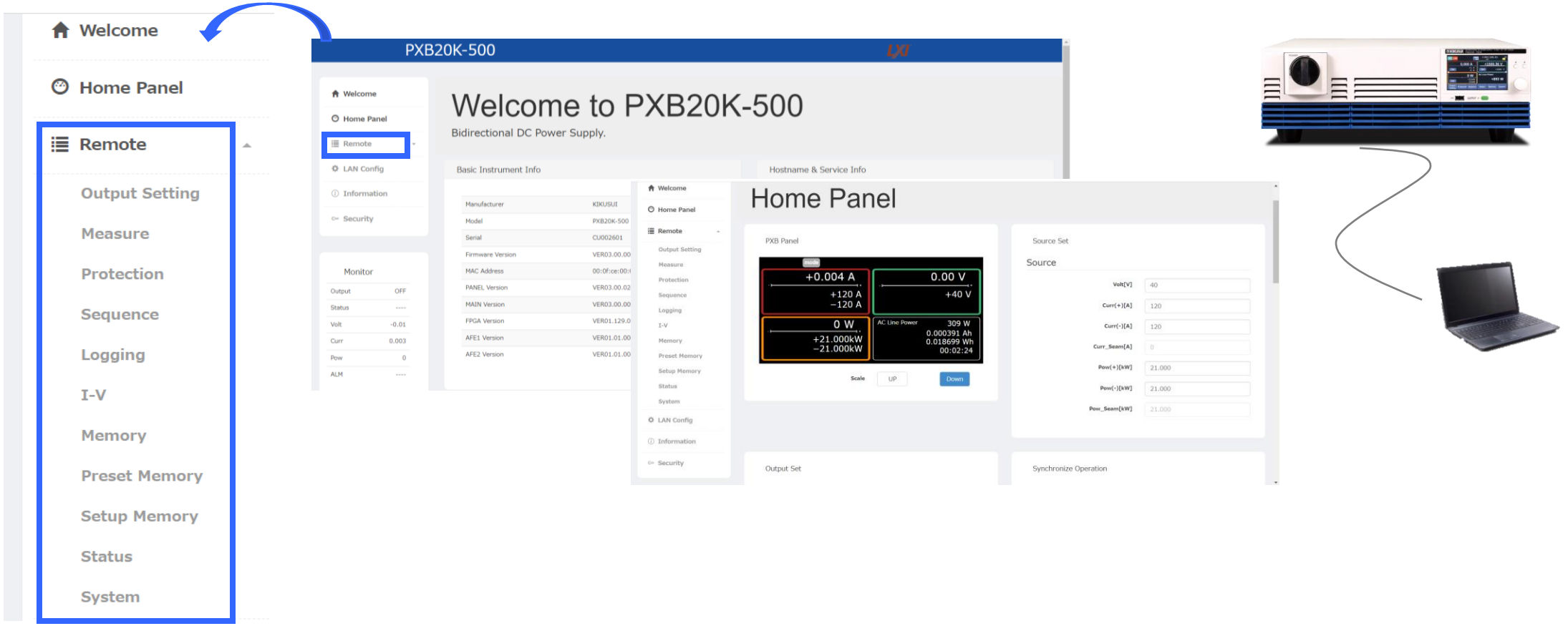


Model	Voltage	Current
PXB20K-1500 x 10	0 to 1500V	-300A to +300A
PXB20K-1000 x 10	0 to 1000V	-600A to +600A
PXB20K-500 x 10	0 to 500V	-1200A to +1200A
PXB20K-50 x 10	0 to 50V	-8000A to +8000A

PXB automatically switches to parallel operation by simply connecting parallel cables. No settings from the panel are required.

Built-In Web Interface

3-17 LXI embedded website



Applications List

Emulator

- Battery
- Solar Cells (PV)
- Fuel Cell
- On-board charger (OBC for automotive)

The PXB series can emulate the above items.

Charge and Discharge

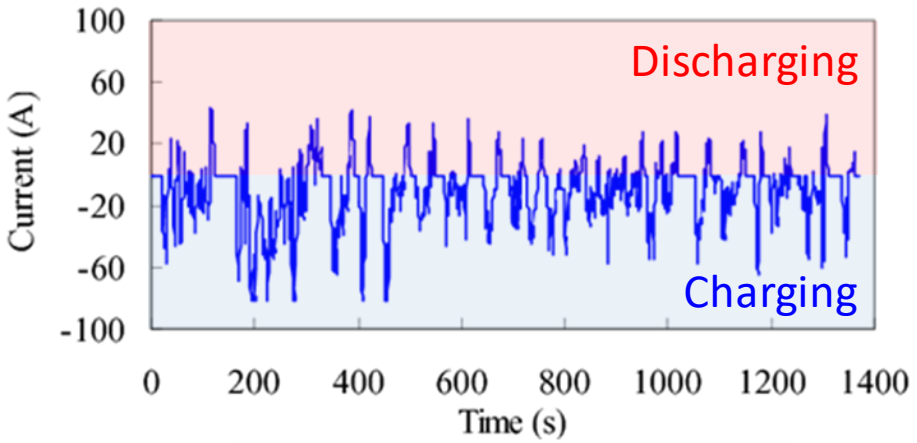
- For Battery
- For Inverter, Converter

Power supplies for standards testing

- IEC61000-4: Immunity tests
- LV124=12V, LV148=48V
- DO160: for Airborne Equipment
- LV123: LV123=High Voltage components

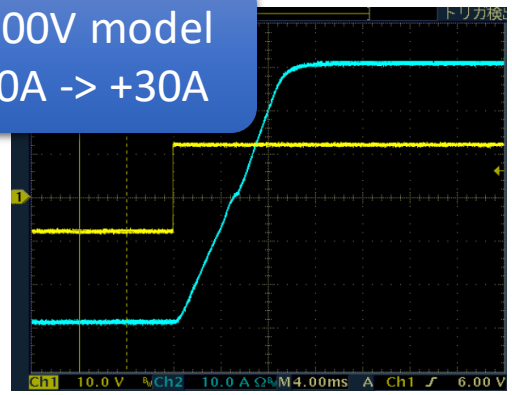
Seamless EV Performance Cycle Testing

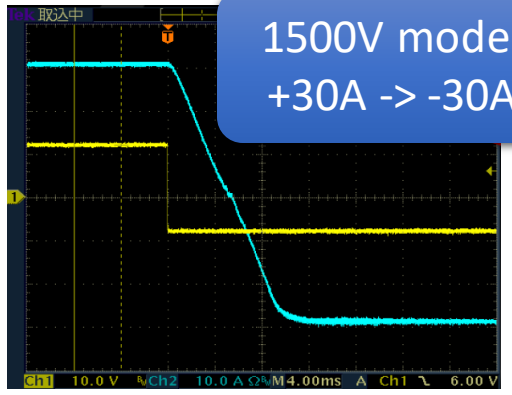
Seamless charging and discharging



Battery discharge waveform of an actual EV

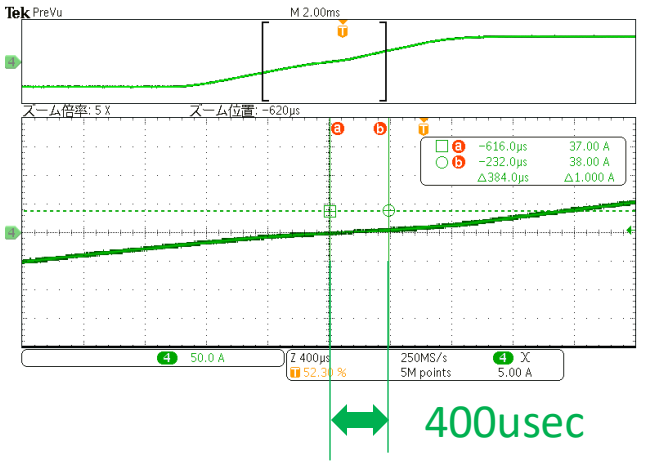
1500V model
-30A -> +30A





1500V model
+30A -> -30A

500V model
-120A -> +120A



E-Axle Testing

The PXB series
Battery Simulator

High Voltage line (DC)

The E-Axle, which combines a motor, an inverter

DC/DC Converter

DC/AC Converter

3-phase AC line for EMotor

Driving tire

EMotor

Driving tire

Drive shaft

Drive shaft

Converter Testing

The PXB series
Battery Simulator

DC/DC
Converter

The PXB series
DC Load

The PXB series
Battery Simulator

AC/DC
Bidirectional
Converter

The PCR-WEA series
Pseudo AC Load

Emulation of IR and I-V in the PXB Series

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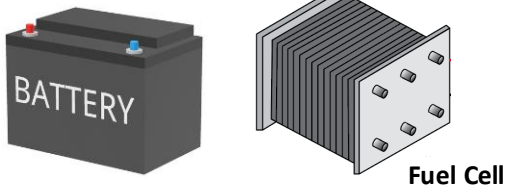
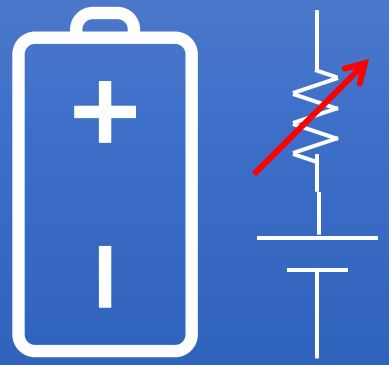
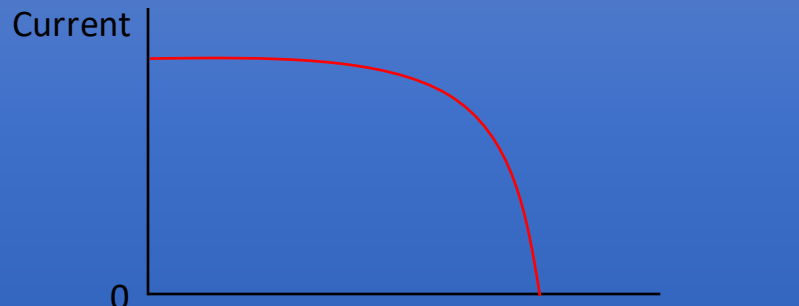


Target customers are manufacturers of equipment that use batteries, fuel cells, and so on.

PXB can simulate the internal resistance of a battery.



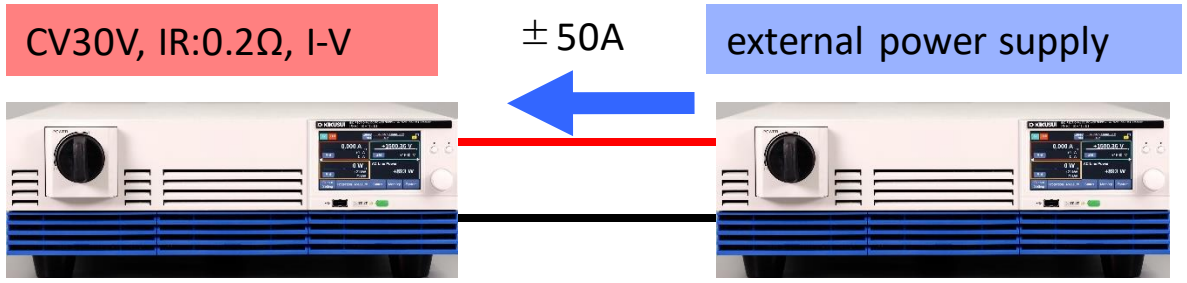
PXB can operate according to I-V characteristics.



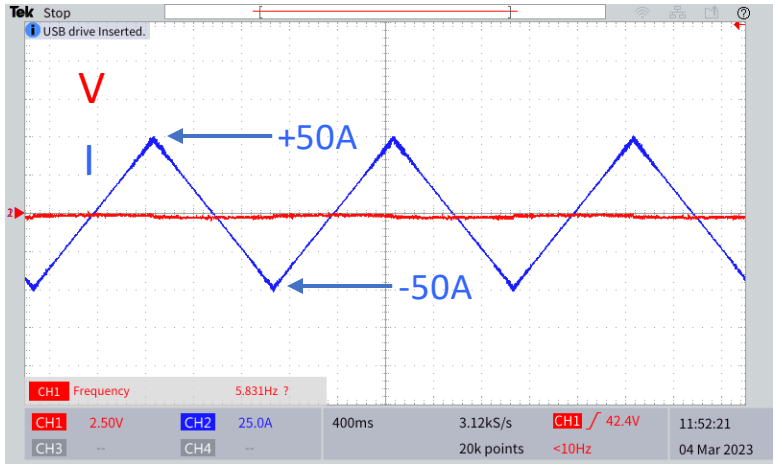
Photovoltaic (PV)

Example Waveforms

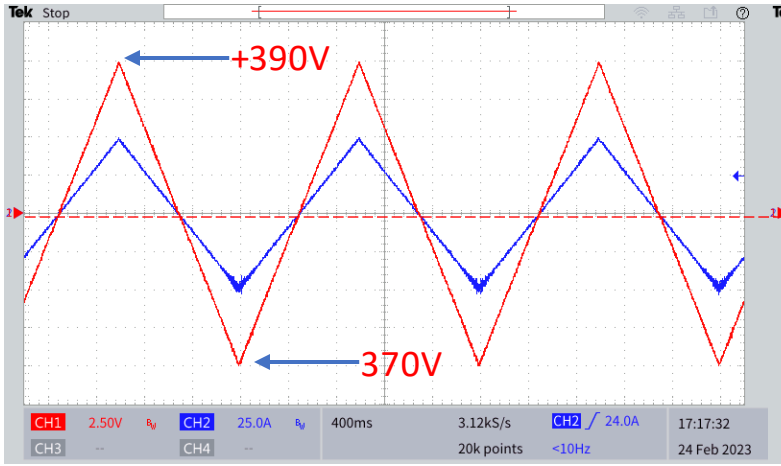
CV380V operation, IR setting 0.2Ω, I-V setting
If a current of ±50 A is applied from an external power supply for the three sets,
CV : Output voltage is constant
IR0.2Ω: Output voltage is I x 0.2Ω with voltage change
I-V : Output voltage has voltage variation according to I-V table



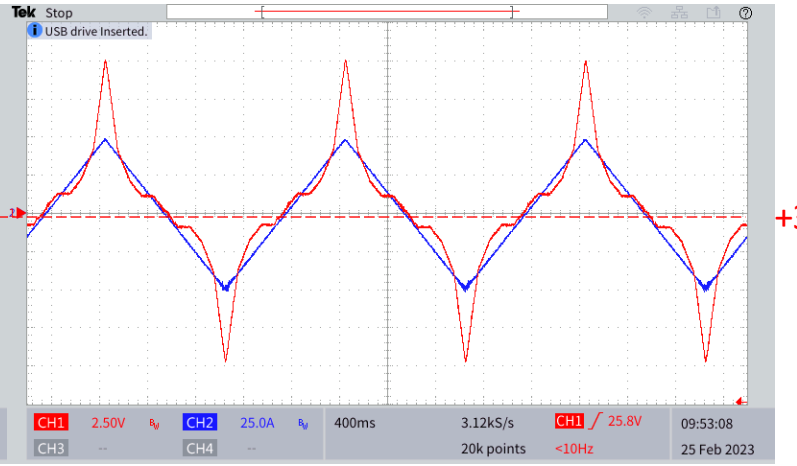
CV



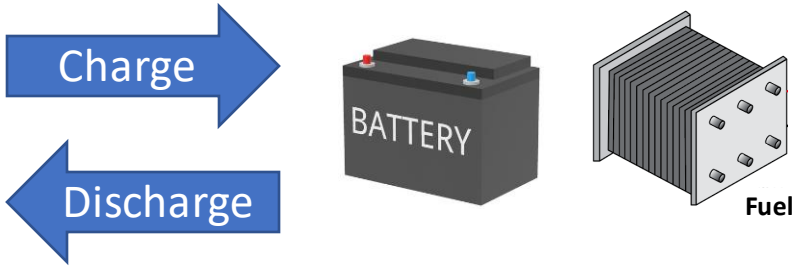
IR:0.2Ω



I-V



Charging and Discharging with the PXB Series



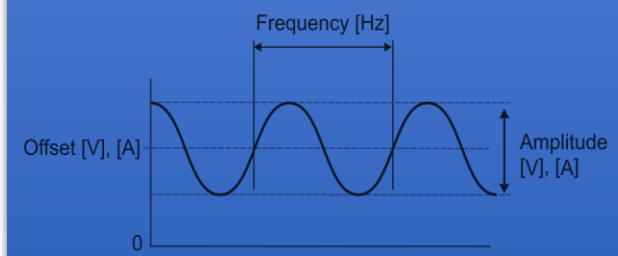
Target customers are companies that develop batteries, fuel cells, and so on.

How to charge/discharge:

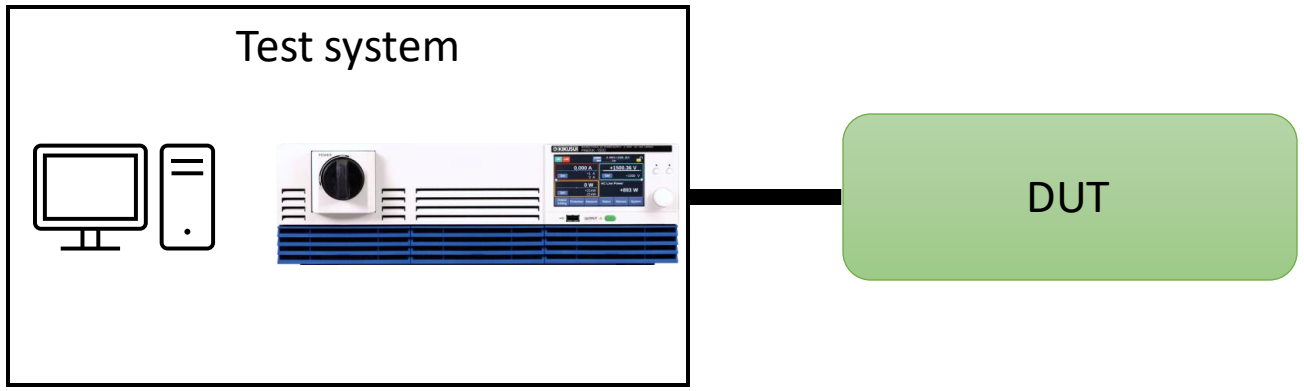
Use the CC mode
(Constant Current)

Use the CV mode
(Constant Voltage)

How to evaluate of transient response characteristics of batteries:
Use the Sine/Pulse feature (CC or CV)

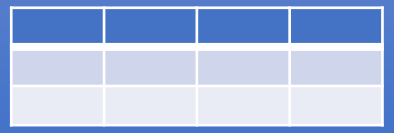


Standards Testing



How to test:
Use the sequence

Sequence List



Use the Analog External Control

Signal Generator

SG

Test Waveform

LV123, LV124, LV148, e.g.


Thank you for your support!