GPP-x323 series,

GPP-3060/6030/3650

Multi-Channel Programmable DC Power Supply

GW INSTEK

Made to Measure

固緯電子實業股份有限公司

Outline

- Introduction
- Features
- Comparison
- FAB
- Applications

Introduction

Model Number	Number of Outputs	CH1	CH2	CH3	CH4
GPP-1326	1	0-32V/0-6A			
GPP-2323	2	0-32V/0-3A	0-32V/0-3A		
GPP-3323	3	0-32V/0-3A	0-32V/0-3A	1.8V/2.5V/3.3V/5V 5A	
GPP-4323	4	0-32V/0-3A	0-32V/0-3A	5V/1A	0-15V/0-1A

GPP-1326

GPP-2323

GPP-3323

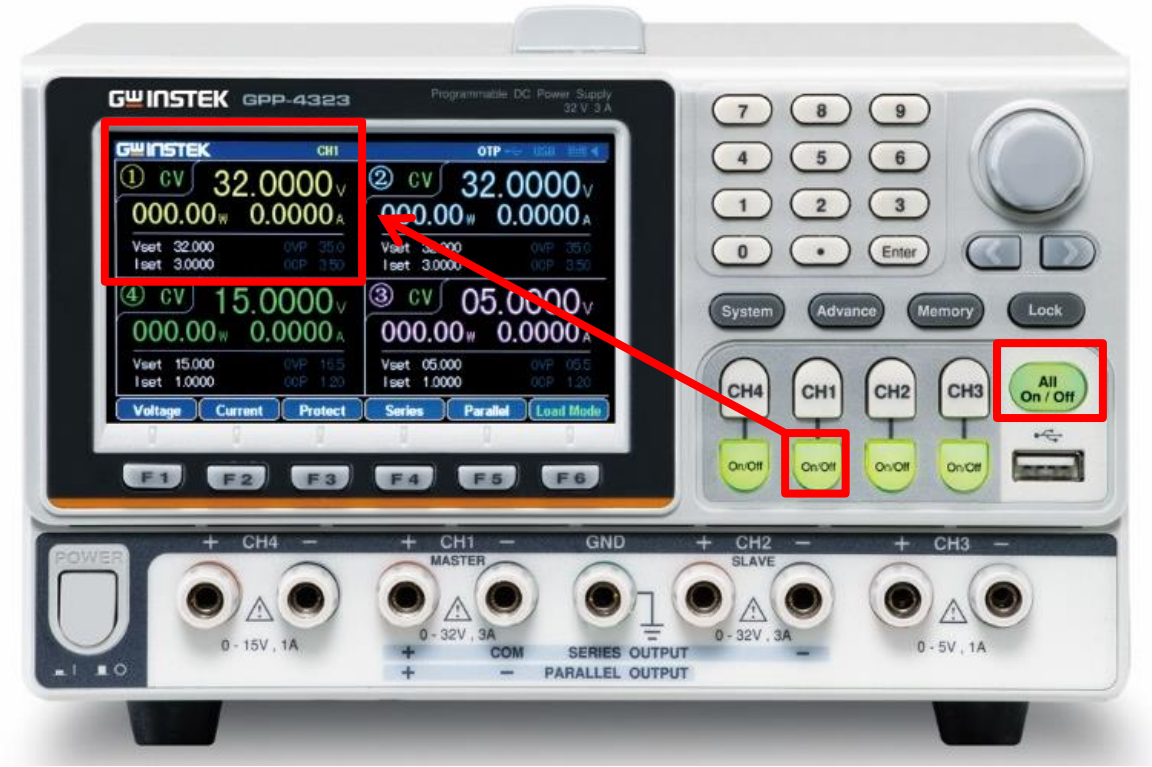
GPP-4323

Introduction

Model Number	Number of Outputs	Max. Power	CH1	CH2	CH3
GPP-3060	3	385W	0-30V/0-6A	0-30V/0-6A	1.8V/2.5V/3.3V/5V, 5A
GPP-6030	3	385W	0-60V/0-3A	0-60V/0-3A	1.8V/2.5V/3.3V/5V, 5A
GPP-3650	3	385W	0-36V/0-5A	0-36V/0-5A	1.8V,2.5V,3.3V,5V, 5A

Introduction

- Independent Output on-off Switch for Each Channel
- All Channel Output on-off Switch



Outline

- Introduction
- Features
- Comparison
- FAB
- Applications

Features

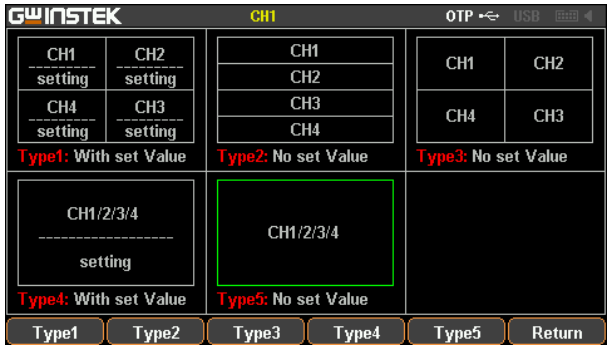
- 4.3” TFT LCD Display
- Supports setting value, measurement value and output waveform display
- Load function (CC, CV, CR mode)
- Setting resolution: 1mV / 0.1mA; read back resolution: 0.1mV / 0.1mA
- Low ripple noise: GPP-x323→≦350uVrms/ ≦2mArms
  GPP-3060/6030/3650→≦1mVrms/ ≦2mArms
- Transient response time:
  GPP-x323≦50us;
  GPP-3650/3060/6030 ≦100us
- Utilizing hardware to realize over voltage protection / over current protection / over temperature protection
- Delay function / output monitoring function / output recorder function

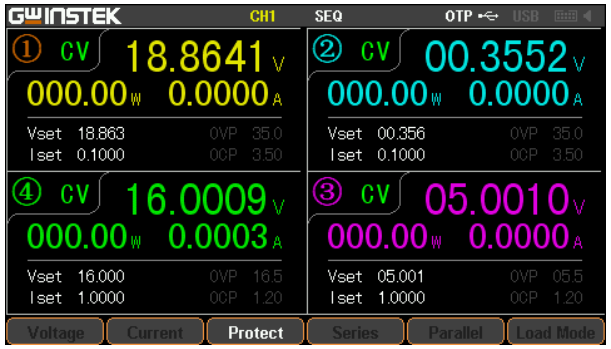
Features

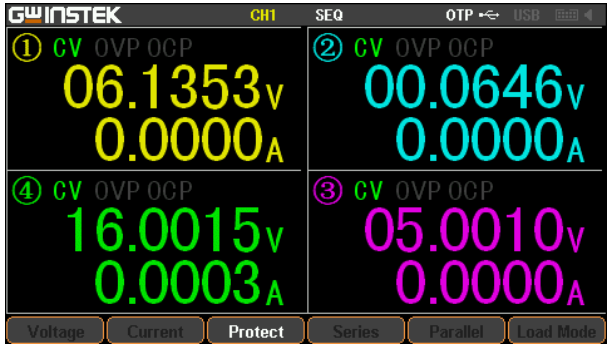
- The output recorder function records the output voltage & current parameters with a minimum recording interval of 1 second
- Intelligent temperature control fan effectively reduces noise
- Sequential output function and built-in 8 template waveforms
- Provides 10 sets of memory for each sequence/delay/Recorder/panel setting condition
- GPP-3323/3650/3060/6030 support a USB (Type A) output terminal
- Standard: RS-232, USB, Ext I/O

  Optional(factory installed only): GPIB+LAN or LAN

Panel Display

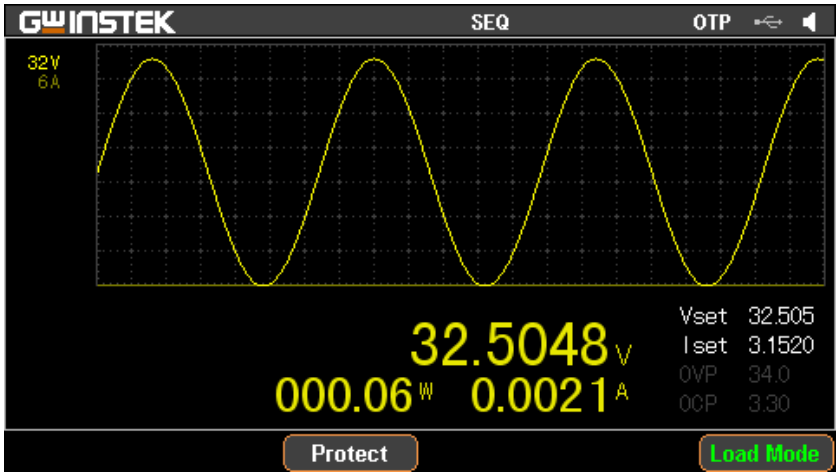


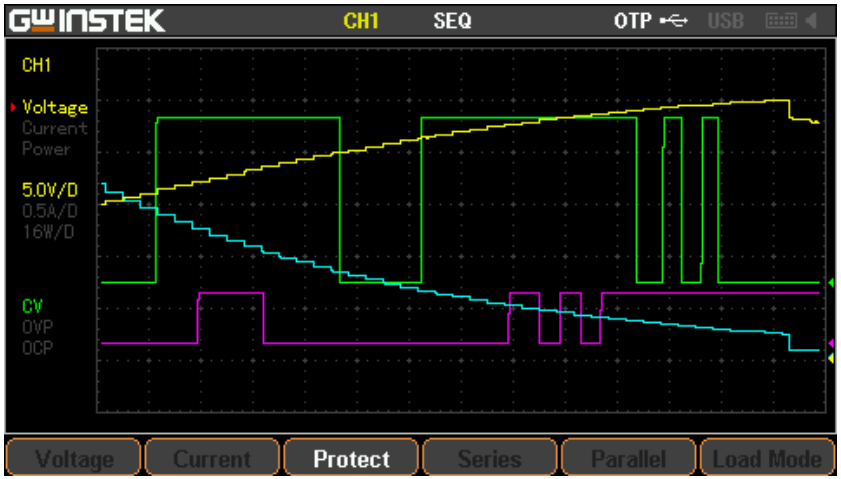




- Support 5 types numerical display

Output Waveform Display

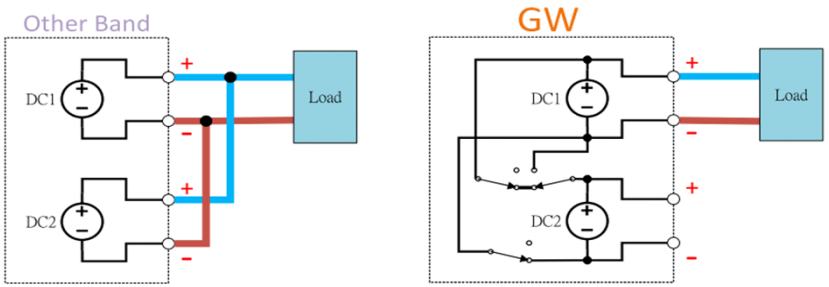




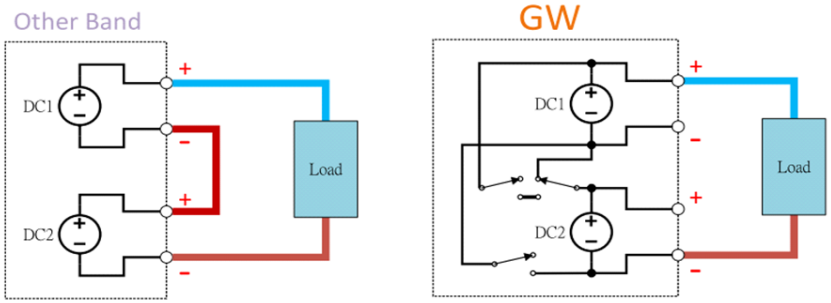
- Two waveform types for display

Tracking Series and Parallel Function

For series and parallel applications of CH1 and CH2, the tracking function of the GPP series utilizes the internal circuit to automatically switch the output to serial or parallel output without additional external wiring, providing users with convenience not only in operating procedures but also a more stable output. The tracking function design of other brands requires additional external wiring connections for the output in series or parallel. However, excessively long, thin or inconsistent external wiring may cause inaccurate voltage or current output.



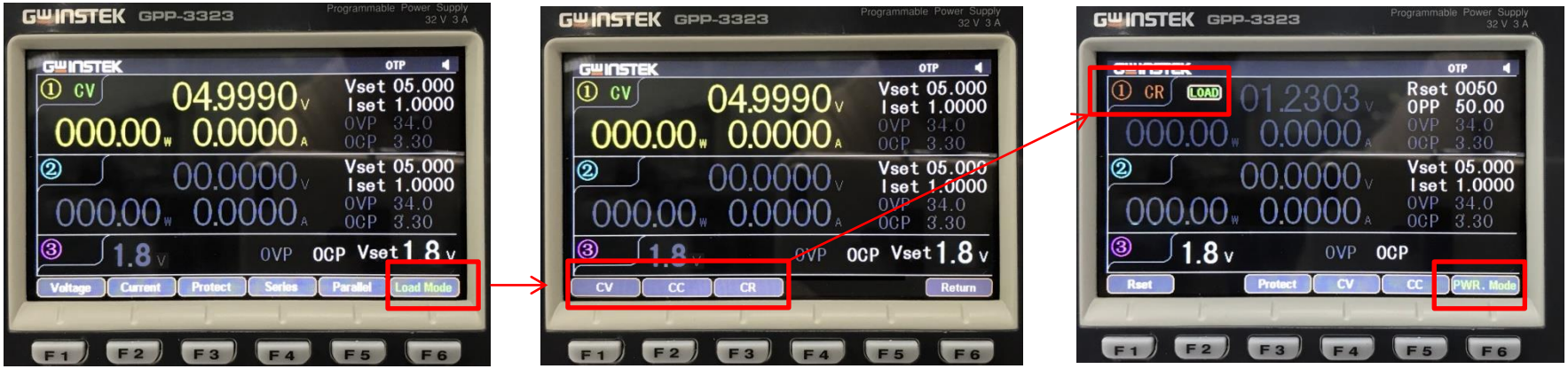
Output in parallel connections



Output in series connections

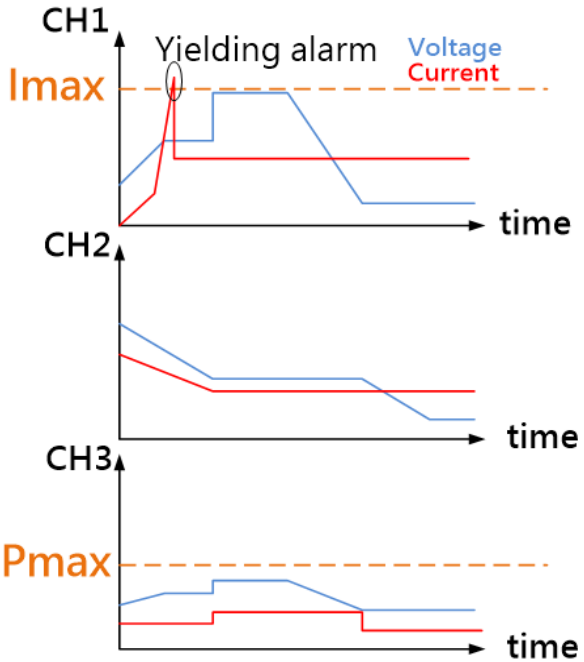
Ch1 & Ch2 Support CC, CV, CR Loading

- The CH1/CH2 of the GPP series is designed with the load function. A single power supply can meet the basic battery charging and discharging test requirements. It can provide rated power output in channel 1 and channel 2. The rated constant voltage load (CV), rated constant current load (CC) and maximum 1kΩ constant resistance load (CR) function are built-in to allow users do conduct discharging test without using an electronic load.
- In application, users can also set one channel of the single GPP series as the power output, and one channel as the load function to consume power of the DUT.

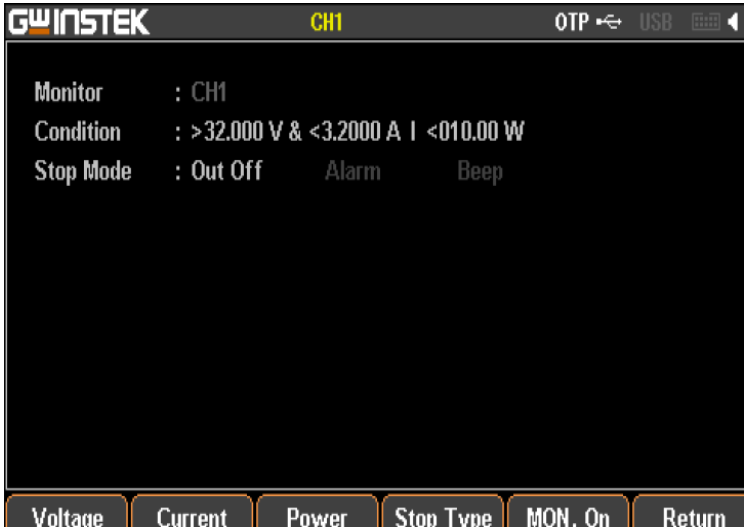


Output Monitoring Function

- The output monitoring function allows users to set the monitoring conditions according to the requirements, including the voltage, current, and power greater than or less than the setting and the logical relationship of AND, OR. It also allows users to sound alarms or stop the output during the measurement process, stop the measurement, and protect the customer's DUT.



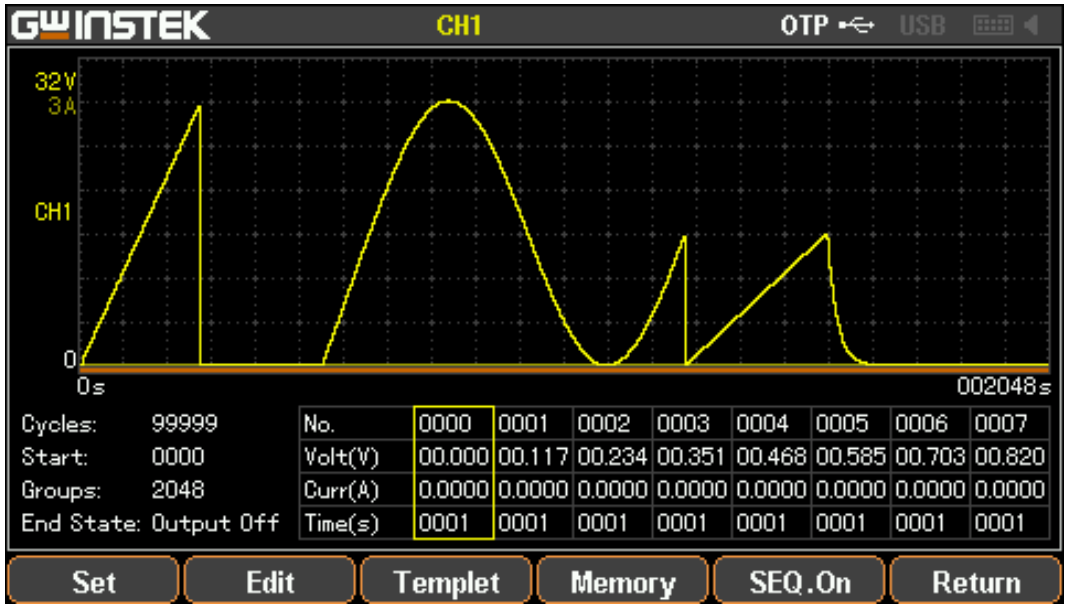
Output monitoring



Monitoring function setting

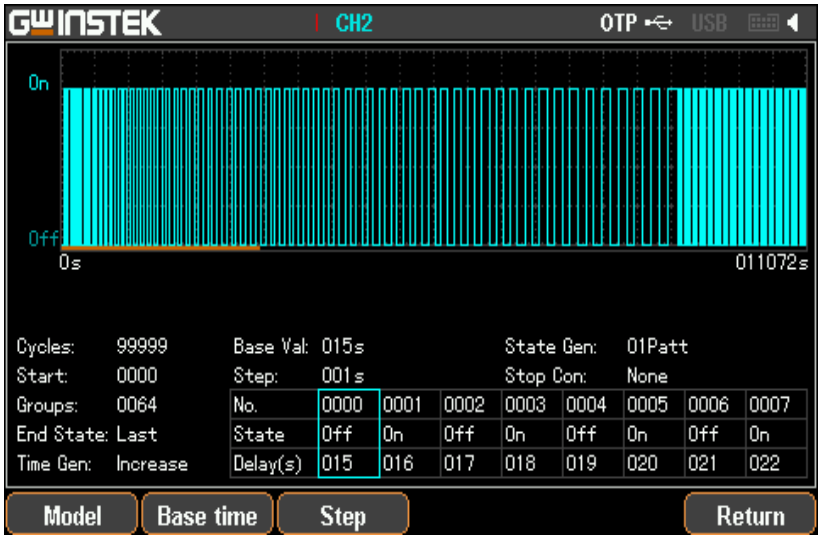
Sequence Output Function

- The GPP series provides a sequential output function on Channel 1 and Channel 2. This function not only allows users to edit the power output waveform, but also allows users to set the sequential constant voltage (CV) or constant current (CC) load waveform, i.e. a serial power output or a simulation test of a dynamic load. In order to simplify the setting of waveform editing, the GPP series has 8 built-in Templet waveforms in sequence output function for users to directly apply for output, including Sine, Pulse, Ramp, Stair Up, Stair Dn, Stair UpDn, Exp Rise, and Exp Fall waveforms.



Output Delay Function

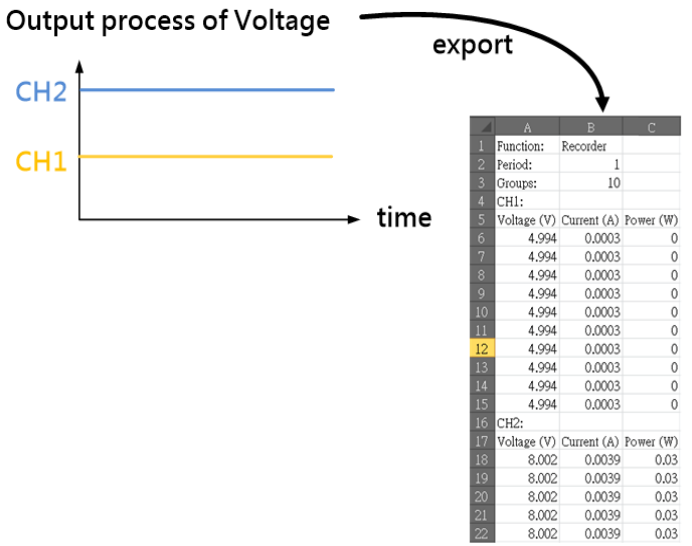
Output delay function allows users to edit the timing waveform of the power output on/off when the front panel voltage and current settings are unchanged. In order to simplify the setting of waveform editing, the GPP series has three built-in timing modes in the delay output function, including Fixtime, Increase, Decline for users to apply directly.



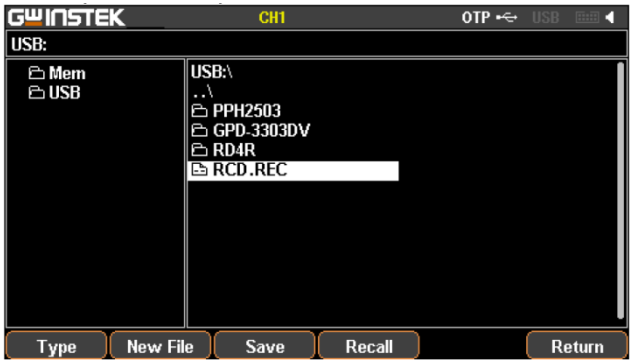
Output Recorder Function

The output recorder function records the voltage & current parameters of the output process. The recording interval of each point can be set according to user's requirements, and the shortest interval is 1 second and the longest is 300 seconds. The results can be stored in *.REC or *.CSV format to the power supply or directly saved in the USB flash drive. The stored *.CSV can export to Excel to conduct the future analysis.

* Channel 3 of GPP-3323/3650/3060/6030 does not support the output recorder function



	A	B	C
1	Function:	Recorder	
2	Period:	1	
3	Groups:	10	
4	CH1:		
5	Voltage (V)	Current (A)	Power (W)
6	4.994	0.0003	0
7	4.994	0.0003	0
8	4.994	0.0003	0
9	4.994	0.0003	0
10	4.994	0.0003	0
11	4.994	0.0003	0
12	4.994	0.0003	0
13	4.994	0.0003	0
14	4.994	0.0003	0
15	4.994	0.0003	0
16	CH2:		
17	Voltage (V)	Current (A)	Power (W)
18	8.002	0.0039	0.03
19	8.002	0.0039	0.03
20	8.002	0.0039	0.03
21	8.002	0.0039	0.03
22	8.002	0.0039	0.03

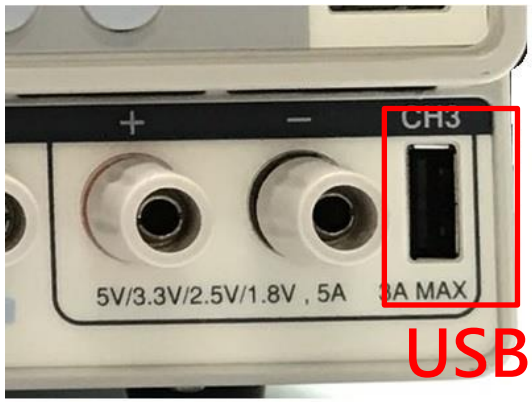


GPP-3323/3060/6030 supports USB(Type A) Power Supply

- **The Ch3 of GPP-3323/3650/3060/6030 supports a USB (Type A) output terminal**

  1.8V/2.5V/3.3V/5V/5A x 1 for CH3

  5V/3A for USB Port Output



- **The USB terminal can be used to USB measurement without extra wiring**

- **The USB terminal supports USB3.0**

Introduction

- Introduction
- Features
- Comparison
- FAB
- Applications

Comparison

Model		GPP-3323		SPD3303S(Siglent)		9131B(BK)		IT6300(ITech)
Channel		Ch1/Ch2	Ch3	Ch1/Ch2	Ch3	Ch1/Ch2	Ch3	Ch1/Ch2
Ripple & Noise	Voltage	≦350μVrms	≦2mVrms	≦0.5mVrms	≦1mVrms	≦1mVrms		≦3mVpp
	Current	≦2mArms		≦1mArms		≦5mArms	≦4mArms	≦5mArms
Program Resolution	Voltage	1mV		1mV		1mV		1mV
	Current	0.1mA		1mA		1mA		1mA
Read back Resolution	Voltage	0.1mV		1mV		1mV		1mV
	Current	0.1mA		1mA		1mA		1mA
Recovery Time		≦50μS		≦100μS		≦120μs	≦200 μs	?
Display		4.3"TFT-LCD		4.3"TFT-LCD		VFD display		VFD display
DC Load Function		●						
Series Tracking		● (Hardware)		●(Software)		●(Software)		●(Software)
Parallel Tracking		● (Hardware)		●(Hardware)		●(Software)		●(Software)
Recorder function		● (10 sets)						
Sequence function		● (10 sets)		●				
Delay function		● (10 sets)						
Memory (front panel)		● (10 sets)		● (5 sets)		● (36 sets)		● (36 sets)
Monitor function		●						

Comparison

Model	GPP-3323		SPD3303S(Siglent)	9131B(BK)	IT6300(ITech)
Polarity Reverse Protection(PRP)	●				
Independent output ON/OFF	●		●		●
OVP	●(Hardware) (0.5V ~ 35V)	5.5V		●	●
OCP	●(Hardware) (50mA ~ 3.5A)	USB port:3.1A			
OTP	●			●	●
Power display	●		●		
USB Host	●				
USB Device	●		●	●(TMC)	●
RS-232	●			●	●
Digital IO	●				
LAN	●(option)		●		
GPIB+LAN	●(option)			●(option)	●(option)
Trigger function	●				
Thermostatically controlled fan	●		●		●

Comparison

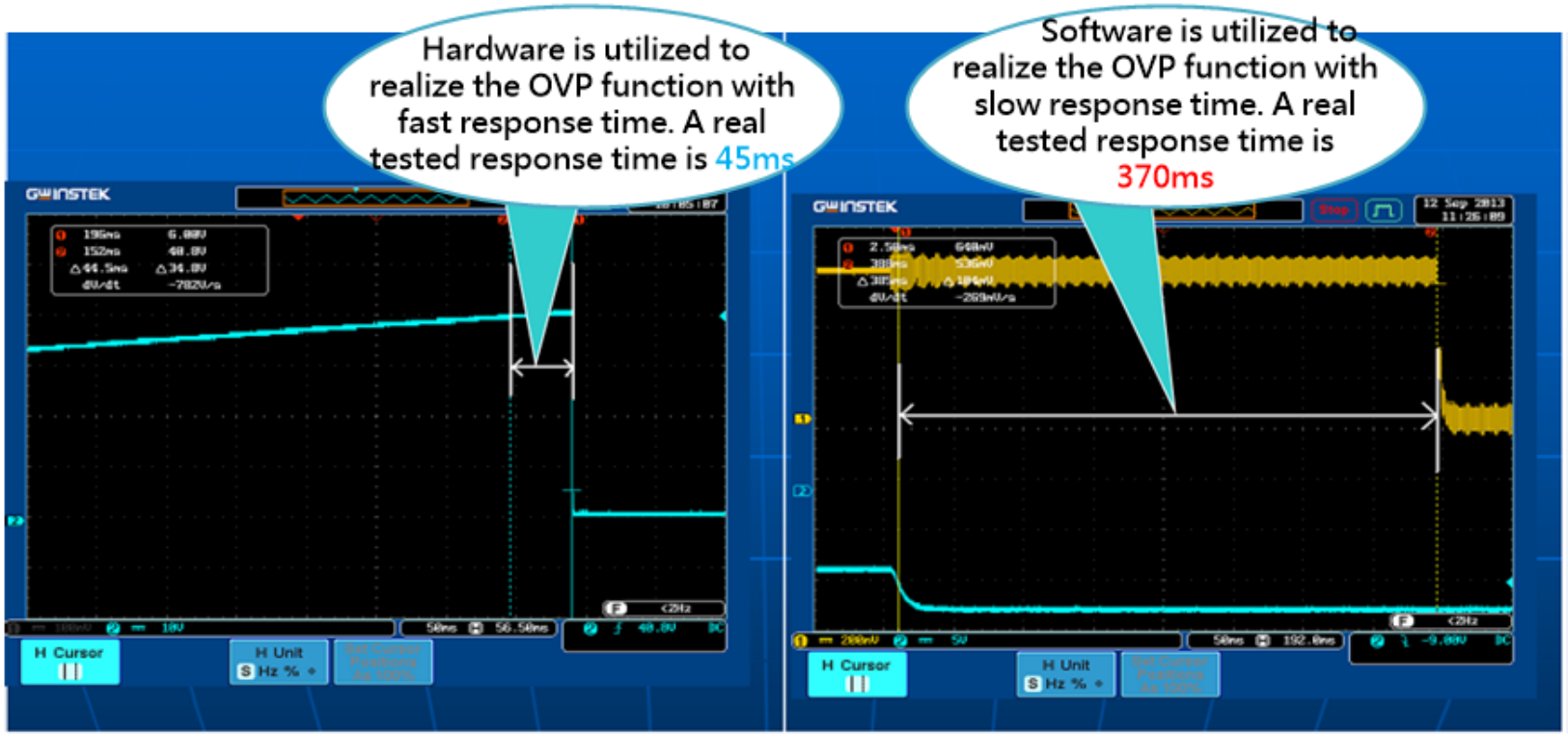
Model		GPP-3060/6030		BK 9131B/9132B		ITECH IT6332/6333
Channel		Ch1/Ch2	Ch3	Ch1/Ch2	Ch3	Ch1/Ch2
Ripple & Noise	Voltage	≦1mVrms	≦2mVrms	≦1mVrms		≦3mVpp
	Current	≦2mArms		≦5mArms	≦4mArms	≦5mArms
Program Resolution	Voltage	1mV/2mV		1mV		1mV
	Current	0.1mA/0.2mA		1mA		1mA
Read back Resolution	Voltage	0.1mV		1mV		1mV
	Current	0.1mA		1mA		1mA
Recovery Time		≦100μS	≦100μS	≦120μs	≦200 μs	≦50/75μS
Display		4.3"TFT-LCD		VFD display		VFD display
DC Load Function		●				
Series Tracking		● (Hardware)		●(Software)		●(Software)
Parallel Tracking		● (Hardware)		●(Software)		●(Software)
Recorder function		● (10 sets)				
Sequence function		● (10 sets)		software		
Delay function		● (10 sets)		Timer-controlled output function (0.1 – 99999.9 s)		Output timer function (0.1 ~ 99999.9 seconds)

Comparison

Model	GPP-3060/6030	BK 9131B/9132B	ITECH IT6332/6333
Memory (front panel)	● (10 sets)	● (36 sets)	● (36 sets)
Monitor function	●		
Polarity Reverse Protection(PRP)	●		
Independent output ON/OFF	●	●	●
OVP	●	●	●
OCP	●	●	
OTP	●	●	●
Power display	●		
USB Host	●		
USB Device	●	●(TMC)	●
RS-232	●	●	●
External I/O	●		
LAN	●(option)		
GPIB	●(option)	●(option)	●(option)
Trigger function	●	X	X
Thermostatically controlled fan	●		●

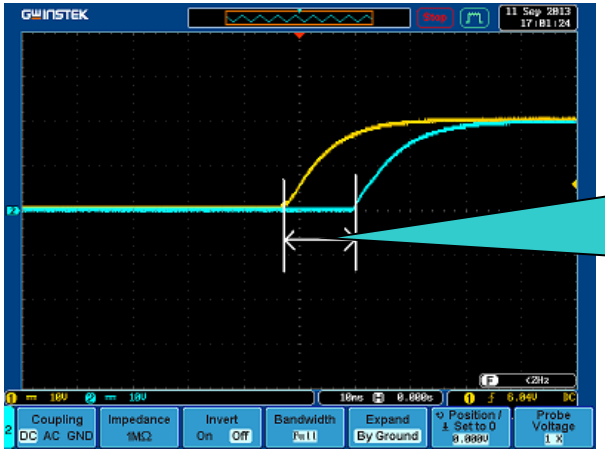
Hardware Protection Function (OVP/OCP/OTP)

- The protection mechanism of OVP/OCP/OTP is implemented by hardware circuit, which has the advantage of faster response time than competitors who use software to achieve protection. When it is detected that the voltage of the DUT exceeds the setting value of the OVP, the output of the power supply can be stopped in a short time to achieve the purpose of protecting the DUT.

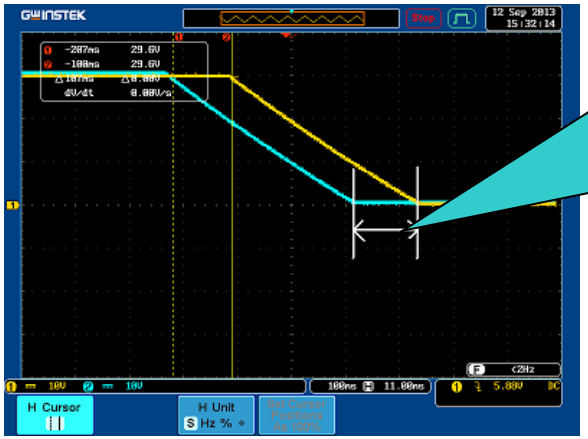


Without Delay among Output Channels of GPP-series

Power output on &off timing for each channel of GPP-series is synchronous.



There are 12ms time differences between ch1& ch2 of the DP832A

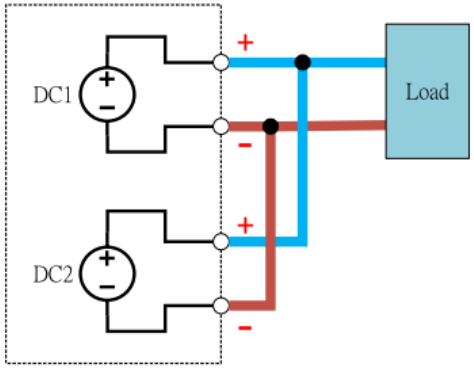


There are 100ms time differences between ch1& ch2 of the DP832A when it powers off

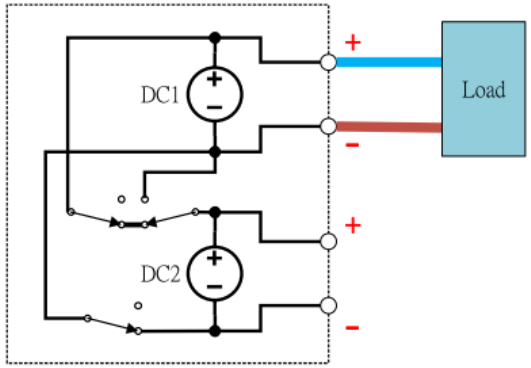
Comparison

Tracking Function

Other Band

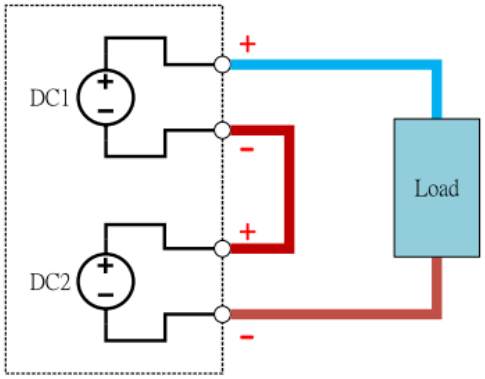


GW

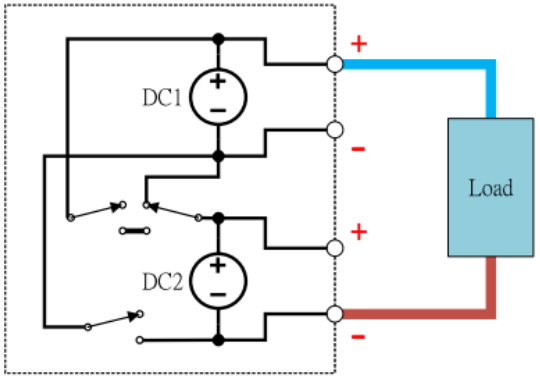


Parallel

Other Band



GW



Series

Outline

- Introduction
- Features
- Comparison
- FAB
- Applications

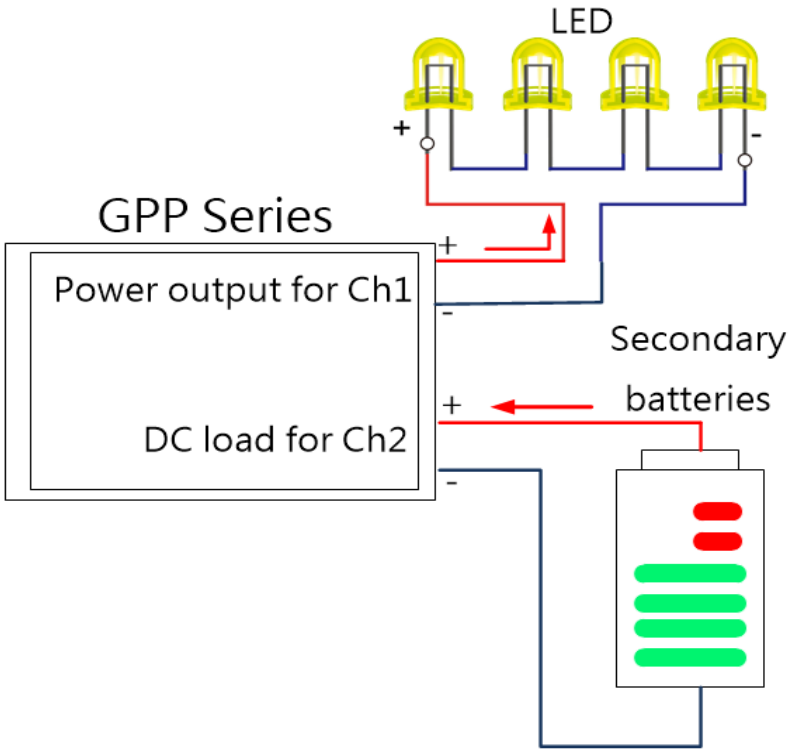
FAB

Features	Advantages	Benefits
CH1/CH2 are designed with the load function	A single GPP series can simultaneously set one channel as the power output, and one channel as the load function to consume the power of the DUT.	Power output and load test to be conducted by a single power supply
Linear power output characteristics	Low noise, low ripple power output	Applicable to DUTs requiring low noise power output
Sequence output function + 8 built-in Templet waveforms	Users edit (*.CSV) on a stand-alone power supply or the PC according to the requirements. Upload it to the power supply to generate a sequential power output or a dynamic load waveform.	Templet waveform simplifies the steps and time for users to edit sequential waveforms.
Delay output function + 3 built-in waveform timing modes	Users can edit (*.CSV) on a stand-alone power supply or the PC according to their needs and upload them to the power supply to generate different timing on/off output waveforms.	Three built-in timing modes are to simplify the steps and time for users to edit Delay output waveform.
Hardware wiring tracking function	Series Tracking or Parallel Tracking output of CH1 and CH2 do not need additional external wiring	Provides users not only convenience for operating procedures, but also a more stable output
Output monitoring function	Users set the monitoring conditions according to the requirements, sound an alarm or stop the output during the measurement process.	While measuring the DUT, it can also protect the DUT.
Output recorder function	The voltage & current parameters of the output process can be recorded as (*.CSV) files for users to export to Excel to conduct analysis.	It is convenient for users to record and analyze the measurement of the DUT.
Standard RS-232, USB, Ext I/O Optional: LAN, LAN+GPIB	Users can select the required communications interfaces according to their needs.	A variety of user interfaces facilitate users.

Outline

- Introduction
- Features
- Comparison
- FAB
- Applications

Applications



Applications:
Scientific research and experimental testing
Battery charging and discharging test
Electronic parts test
3C electronic product test

Thank you !!

GW INSTEK

Made to Measure

固緯電子實業股份有限公司