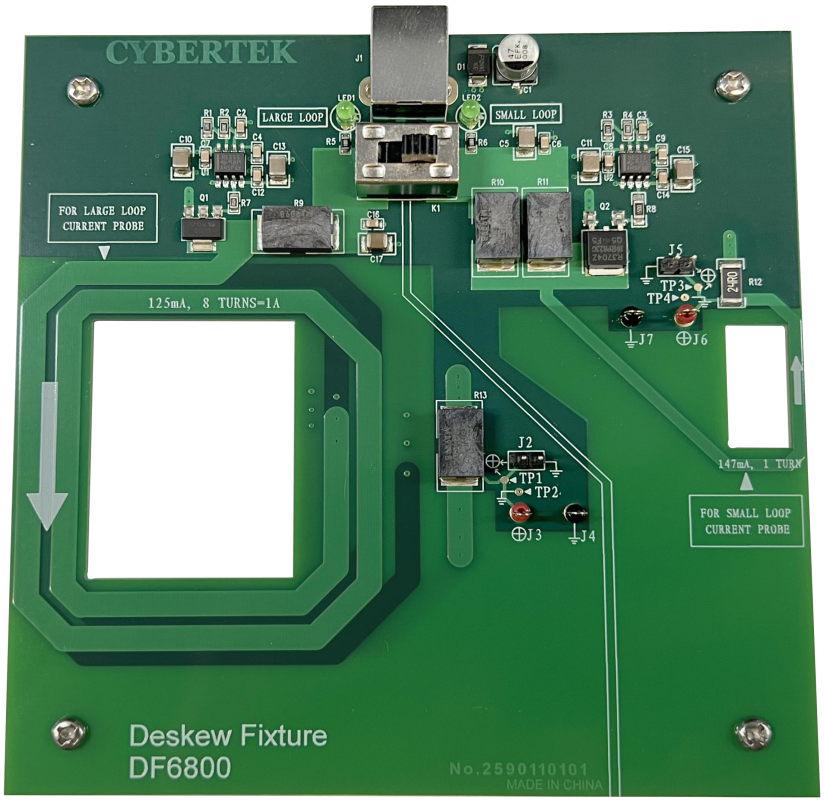
Deskew Fixture

DF6800



Shenzhen Zhiyong Electronics Co., Ltd.

Preface

First of all, thank you for purchasing our products, this instruction manual is the description about the function, usage, operation attention points, etc. Before use, please read the instructions carefully and use correctly.

Manual annotation will use the following symbols to distinguish.

This symbol means it is harmful to the machine and human body; you must strictly follow the instruction manual to operate.

Warn **In the case of wrong operation, the user risk injury. The content under this mark records the relevant matters needing attention to avoid such dangers.**

Notice **The user may suffer minor injuries and material damage with the wrong operation. To avoid such situation, the matters under this mark need**

Note **This symbolizes important note about how to use the machine.**

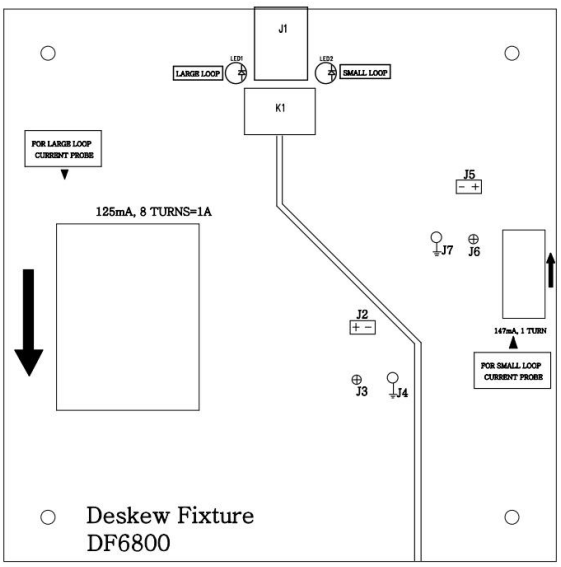
To the safely use the machine, you must abide by the following safety precautions strictly. The violation against the manual is likely to damage the protective function of the machine. In addition, the company is not responsible for any safety problem caused by the violation of matters needing attention in operation.

1. Summary

DF6800 Deskew Fixture is mainly used for skew calibration for Voltage Probe and Current Probe. To take accurate measurement on power, the delay of voltage and current probes must be the same. When using different type of probes, such as voltage probe and current probe, there's always little transmission lag between these groups of probes caused by the different circuits and cables. This difference is called "skew," and it will cause error when calculating switching loss or measuring time. Engineers always need to measure the control signal by nanosecond in the high-speed operation of power switching. DF6800 Deskew Fixture can drive the voltage and current probe using same pulse signal, and thus help the users to sync the period of voltage and current source, to measure delay between different probes and precisely take power analysis trough the delay compensation of oscilloscope channels.

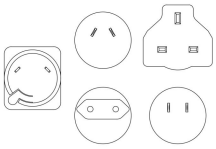
2. Introduction about the product and accessories

■ Deskew Fixture

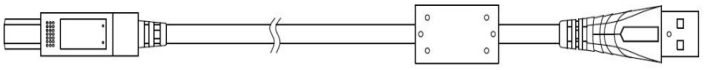


- **J1**: USB power supply port.
- **K1**：Switch with two power supply options: large current loop or small current loop.
- **LED1, LED2**： Power supply indicator for Large or small current loop
- **Large loop:** Providing square wave current of 1A, which suits the current probe with small clamp.
- **Small loop:** Providing square wave current of 147mA, which suits the current probe with small clamp
- **J2, J3, J4**：J2 is the 2.54mm connector, J3 and J4 is the test loop (alligator type). They provide voltage square wave signal and cooperate with the large current loop to realize skew calibration of current and voltage probe.
- **J5, J6, J7**：J5 is the 2.54mm space test pin, J6 and J7 is the test loop(alligator type). They provide voltage square wave signal and cooperate with the small current loop to realize skew calibration of current and voltage probe.

Accessories



CK-605A： Power supply adapter



CK-315B: USB line

Accessories Description

Type	Description
Power supply adapter (CK-605A)	USB 5V/1A
USB line(CK-315B)	TYPE A-B，1.5m

3. Product Electronic Specifications

Measurement Condition: 23℃； 60%RH； USB power supply port has voltage of 5V

Data		SMALL LOOP	LARGE LOOP
Square wave frequency		Approx. 22kHz	
Rise time	Voltage signal	85ns	335ns
	Current signal	85ns	380ns
Voltage square wave signal amplitude		3.5V	2.5V
Current square wave signal amplitude		147mA	1A
Power supply		USB 5V/1A	

4. Mechanic Specifications

Size (Length*Width*Height)	125*125*22mm
Size of small current clamp (Length*Width)	20*9.5mm
Size of large current clamp (Length*Width*Height)	42*32mm
Weight	60g

5. Environment Characteristics

Operating temperature	–10 °C to +55 °C
Storing temperature	–20 °C to +60 °C
Operating humidity	95% RH at 40 °C for 24 hr
Storing humidity	90% RH at 65 °C for 24 hr
Operating altitude	4,570 m (15,000 ft)
Storing altitude	15,244 m (50,000 ft)
Indoor	Used indoor only

6. Operating Method

Take the High Frequency Current Probe and High Voltage Differential Probe of our company as examples

	SMALL LOOP	LARGE LOOP
Current probe HCP8000 series	☞ HCP8030/C/D/H ☞ HCP8050 ☞ HCP8070	☞ HCP8150(A) ☞ HCP8300(A) ☞ HCP8500
High voltage differential probe DP6000 series	➢ J5(2.54mm connector) ➢ J6,J7(alligator type)	➢ J2(2.54mm connector) ➢ J3,J4(alligator type)

- ✧ Degaussing zero for the HCP8000 series current probe and connect Channel 1 of the oscilloscope, setting the related parameters correctly.
- ✧ Connect the HCP8000 series probe with the current loop of DF6800 and connect them according to the correct current direction as shown in Fig 1 and 2 below.
- ✧ Connect the differential probe with the corresponding voltage test point and the Channel 2 of the oscilloscope. Set the related parameters correctly
- ✧ Turn the switch of DP6800 to the corresponding position to the probe and power it up by the USB port of the oscilloscope or the standard adapter.
- ✧ Use the Skew function between the Channel 1 and 2 of the oscilloscope and measure the Skew time as shown by Fig 3 below.
- ✧ By using the delay compensation function of Channel 1 or 2, compensate the Skew time and change Skew to 0, thus finish the offset compensation as Fig 4 shown below. Record the delay compensation time of Channel 1 or 2 for later use.

Note

Attention: the length of BNC output line of the probe will influence the delay time. Please pay attention to the length of the BNC line used.

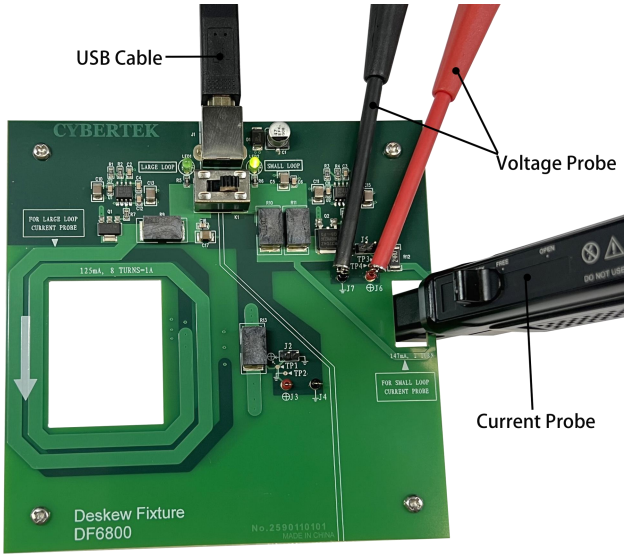


Figure 1

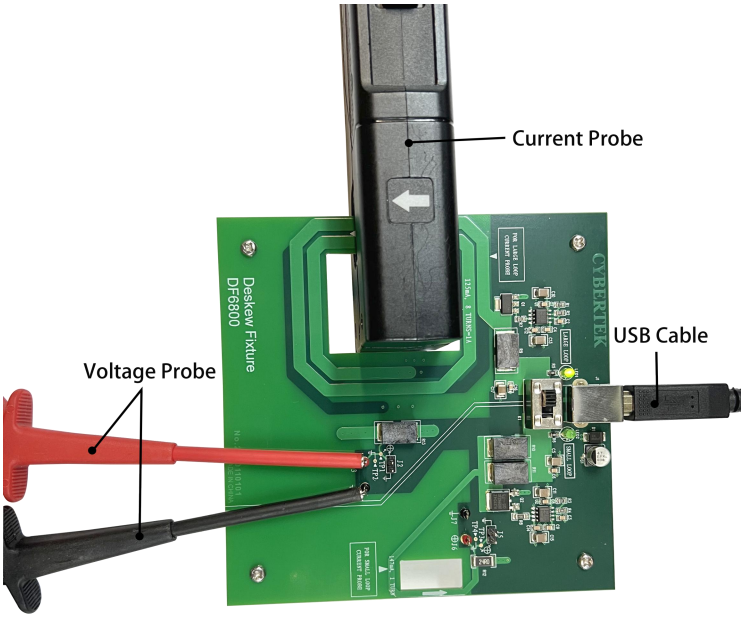


Figure 2

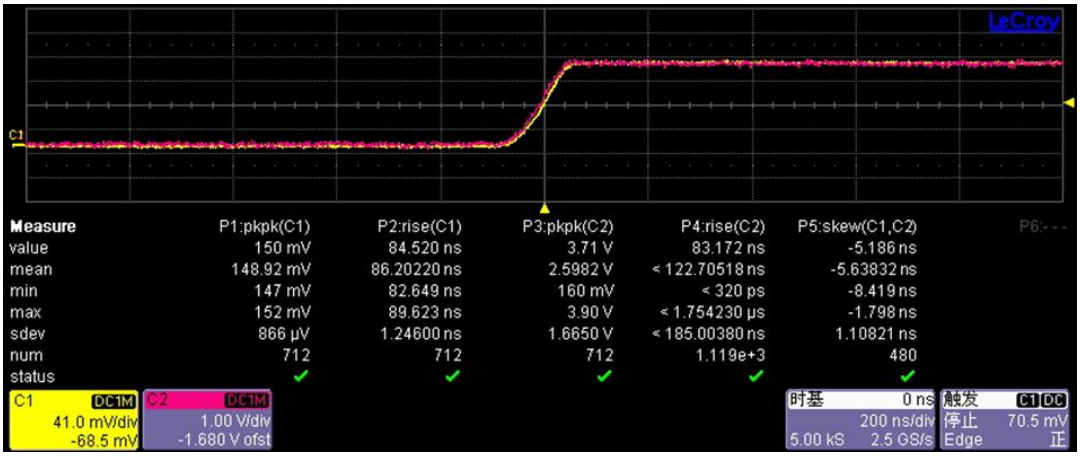


Figure 3: HCP8000 series & DP6000 series Skew time measurement

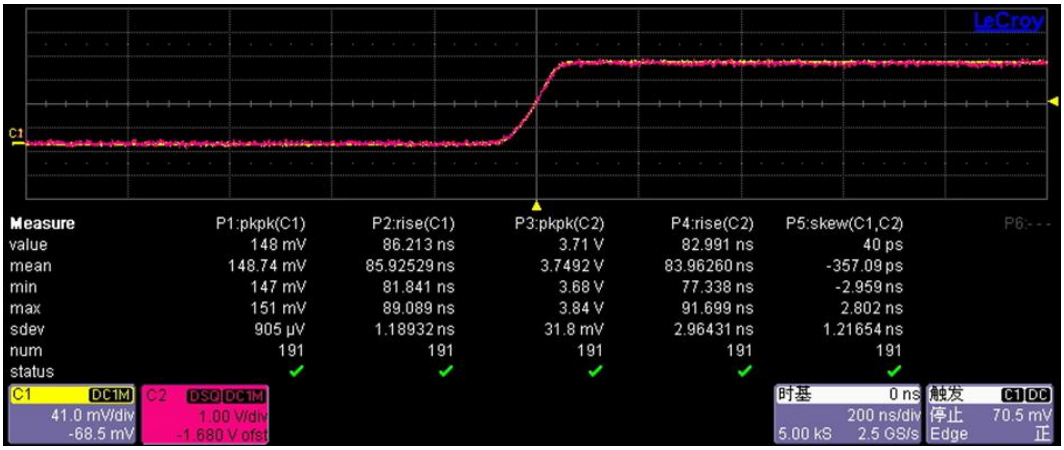


Figure 4:HCP8000 series & DP6000 series measurement, Skew time compensated

7. Packing List

Packing List	
Name	Quantity
DF6800	1
USB line(CK-315B)	1
Power Adapter (CK-605A)	1
Instruction book &warranty card	1
Calibration report	1

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