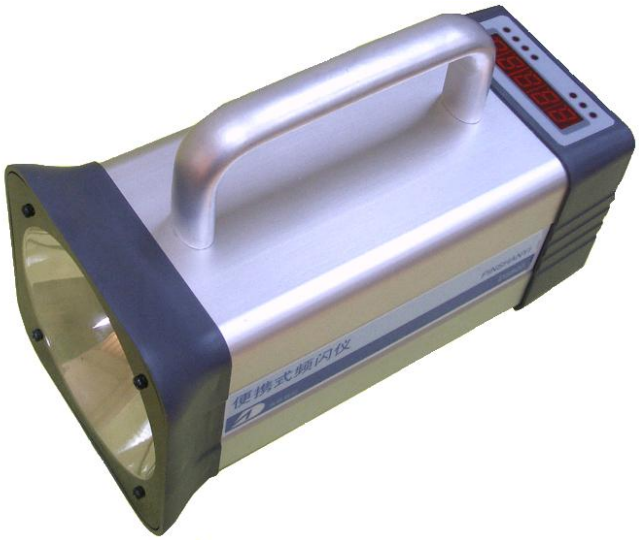
DS800 stroboscope

OPERATION MANUAL



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This product is subjuc to change without notice. Please immediately contact the company if the product works unmorally.

1. Quick Star

The default setting of DS800 stroboscope is SIG (F-0), flash frequency is 800, the stroboscope's Single operating time is 120 seconds, namely 2 minutes（See page 8 for "the single operating time", see page 10，（4） for restore the default setting）.

(1). Turn on the power switch，the stroboscope starts frequency flashing；

(2). If it's the first time turn on the stroboscope，it displays 800，the **INT&rpm** indicator is bright， the stroboscope operates according to 800/minute frequency flash. （If it isn't the first time, the stroboscope keeps last turn off status）；

(3).Adjust the knob of flying shuttle encoder or press keys × **2**, ÷ **2**, ＋, － until reach the required frequency;

(4).After approximately 2 minutes， the stroboscope stops the frequency flash LED displays "P... ... " with flashing， press any key the stroboscope will restore the frequency flash.

2. Introduction

The stroboscope also called the frequency flash static image meter, the frequency flash lamp or the tachometer.

The stroboscope flashes short and high frequency flashlights. When we adjust the flash frequency and make it close to or synchronize to the object's rotation rate or moving speed, the object looks moving slowly or relatively static though the object is moving with a high speed. The temporarily vision pause makes a person easily to observe the surface mass and moving condition of a high-speeding moving object with eyes. The stroboscope's flash frequency equal to rotation rate or vibration frequency of a measuring object (for example: Electrical machinery), also may using the stroboscope to analysis and to observe an object's vibration status, the high speed motion object's path as well as to print the result of the on-line observation and monitoring etc.

DS800 portable stroboscope is one of our company's newly developed series of flashing products. It used high performance and high anti-jamming single micro-processor, special chip to drive LED which displays real-time flash frequency per minute or test data and working condition. The characters of the stroboscope are the advanced structure and technology, volume small, weight light, with strong data processing software and real-time operation system, the user interface becomes friendly; the imported flying shuttle encoder makes adjustment of frequency fast and convenient; and the imported flash lamp is more brightness, more reliable and longer working time.

The stroboscope is widely suitable for the packing printing industry: It can inspect high speed rotogravure line such as match ink colors, die cutting, hole making, folding etc; It also can inspect entire material on-line, the label, the form, the supple version, reticle mark examination in the intaglio printing; It can control the ultraviolet quantity by measure the quality of the fluorescence print, the final quality control for the paper cutting machine and the rolled paper machine, the dynamic analysis to folding machine; Engine and gear synchronization control etc. In the textile industry: it can monitor rotation speed of textile spindle and reel on the spinning machine and winding machine; monitor mechanical braiding machine's weft; Find out whether has the crooked latitude parallel before the fabric leaves stretches; Monitors spin yarn and other components' movement conditions on the sewing machine; Examine the spindle rotational speed and the loom delivers the weft and so on. In the mechanical manufacturing industry: Non- contact measuring rotation rate, examine vibration oscillation amplitude and vibration frequency; Use "slowly play" function show the process of the complex movement, monitor production tool such as drill bit and file's condition; Measure the coupling and the conveyer belt's slipping factor; Monitor

intermediate gear meshes space between teeth in the gear box; Diagnose all kind of rotors, gears meshing, vibration equipments. It also can be used in the airplane manufacture, the automobile manufacture, the electric cable manufacture, the mining, the packing, the shipbuilding, the steel and iron, the chemical industry, the optics (high-speed photography, image processing) industries and medical industry etc.

The main characters of the stroboscope:

- Portable, volume small, weight light, easy to use
- Used the imported flying shuttle encoder knob which can easily adjust frequency accurately and fast
- Phase shifting function: by adjust flying shuttle encoder inner loop knob, people can observe the 'position' of a 'static' design (namely phase adjustment), it is enormous convenience on printing design observation
- There are three work ways: the internal trigger (F-0), Exterior triggers 1 (F-1), Exterior triggers 2 (F-2) ;
- When choose exterior triggers 1 and exterior triggers 2, the stroboscope can automatically track the design. Especially the choice of exterior triggers 2 (F-2) can automatically track printing surface that is not fixed color code, that's mean in the situation of difficult to get automatically tracking cursor, it still can realize the on-line automatically track and observe "static" design;
- Twice frequency, double actual working frequency for roughly adjustment.
- Half frequency, decrease half actual working frequency for roughly adjustment.

- The function of automatically stops flashing can save energy and make the flash bulb's working time longer.
- Used imported new style flash lamp which increased flash brightness and the brightness is also adjustable according user's requirement.

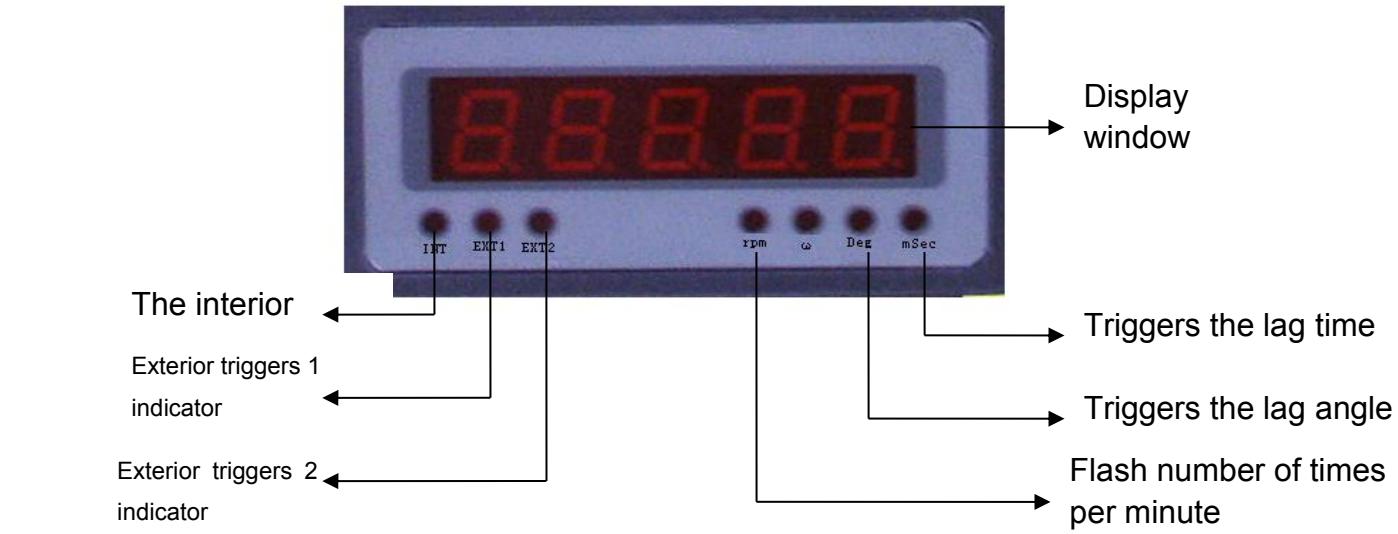
3. Technical Specification

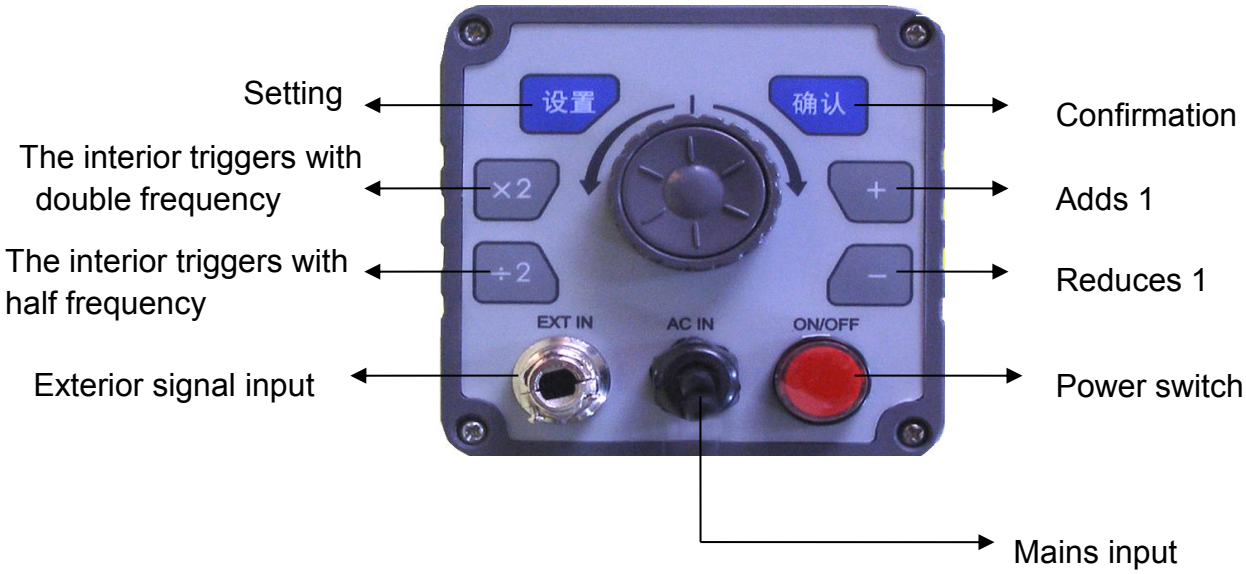
(1) Electricity: AC 220V±10%, 2A, 50Hz
(2) Power: Maximum power lower than 80W
(3) The interior trigger's the frequency range: 50/minute ~ 28,800/minute
The suggested trigger frequency: 600/minute ~ 3,600/minute
(4)Exterior trigger's the frequency range: 50/minute ~ 14,400/minute
(5)Single operating time: set by the function key without restriction (default setting is 120 seconds)
(6)Environment illuminance: lower than 10,000 luces
(7)Exterior trigger signal range: 5V ~ 12V pulse signal
(8)The external dimensions (long × width × high): 240mm×118mm×155mm

4. Function and operation

(1) Operation panel

The operation panel of DS800 Stroboscope shows as following figure， it composed by LED display window, indicators, function keys and interfaces of exterior trigger, power line and power switch etc.





(2) Key function

① 设置: This key switches 3 different trigger ways---interior trigger/exterior trigger 1/ exterior trigger 2 and the display window also shows 3 trigger ways---INT(interior trigger) / EXT1(exterior trigger 1) / EXT2 (exterior

trigger 2) relatively.

●The internal trigger way (display F-0): the stroboscope generates trigger signals with fixed frequency, press [+] and [—] could increase or reduce the trigger frequency, press [× 2] to double trigger frequency and press [÷ 2] to reduce half trigger frequency.

●The exterior trigger ways (display F-1 or F-2): the exterior resource (such as printing machine) generates trigger signals. If no exterior synchronized signal input, LED displays " 0". Normally exterior trigger signal is generated by electronic/light switch from tracking printing color code, this way can automatically track flash frequency.

②[确认]: Confirm the trigger way and frequency chosen from step ①.

③[× 2] : Double the trigger frequency suitable only in the interior trigger way.

④[÷ 2]: Reduce half of the trigger frequency suitable only in the interior trigger way.

⑤[+]: With the interior trigger way (F-0), press the key one time, the trigger frequency increases 1, press the key continuously the trigger frequency increases continuously. Under the exterior trigger 2 status (F-2), this key used for increasing data setting.

⑥[—]: Under the interior trigger status (F-0), press the key one time, the trigger frequency decreases 1, press the key continuously the trigger frequency decreases continuously. Under the exterior trigger 2 status (F-2), this key used for decreasing data setting.

⑦ Flying shuttle encoder knob: the outer circle can adjust trigger frequency and parameter quickly. The rotation clockwise increases frequency, the rotation count-clockwise decreases frequency. Under interior trigger status, the rotation clockwise moves phase (moves image); under exterior trigger status, the rotation clockwise and count-clockwise moves phrase up/down or left/right (moves image).

⑧Power switch (red key with lock): Stroboscope power switch.

⑨ **INT**：Interior triggers the indicator.

⑩ **EX1**：Exterior triggers 1 the indicator

①① **EX2**：Exterior triggers 2 the indicator.

①② **rpm** indicator: display flash frequency per minute.

①③ **deg** indicator: under interior/exterior trigger status, display angle of lag or ahead of synchronized trigger signal.

①④ **mSec** indicator: under interior/exterior trigger status, display time

(Millisecond) of lag/ahead of synchronized trigger signal.

5. Single operating time

The single operating time is an interval between starting flash and stop flash automatically when no any key touched. While flash stopped, the LED displays a flicking "P……". By press any key, it restarts next operating time circle.

The purpose of this setting is for save energy and making the bulb's working time longer. If don't need this setting, just set the single operating time to 0.

Change single operating time:

⑴ Turn off power supply.
⑵ Press down 设置 continually and turn on power supply.
⑶ LED displays last single operating time (second), the default setting is 120s.
⑷ Press keys ＋ － × 2 ÷ 2 and turn the knob of flying shuttle encoder to set a new single operating time.
⑸ Press 确认 to save setting and start flash.

Prompt:
The single operating time should match with real working requirement, and should not increase the Single operating time unnecessary which will shorten flash bulb's working time.

6. Operating procedure

After set single operating time, turn on the power switch, press 设置 and 确认 to choose trigger way (interior trigger F-0 or exterior trigger F-1/F2).

Attention: If not choose trigger way, the stroboscope will choose last trigger way which may memorize from last time turn off.

(1) Interior trigger

When observe the print image dynamically, the way to adjust frequency as follows:

●First estimate the frequency of moving design
Frequency N = (1000÷L) ×V
N：Stroboscope's internal trigger frequency/minute;
L：Each image's length/millimeter
V：Moving speed, meter/minute
For example: Moving speed V=100 rice/minute, image length L=50 millimeter;
The interior trigger frequency =1000÷50 ×100=2000. That's mean the interior trigger frequency should be about 2000, then press ＋ － to adjust flash frequency until the moving image looks static relatively.

- During the working time, if the stroboscope stopped flash and entered waiting status (display a flicking "P….."), it could restart work by press any key.

(2) Exterior triggers

There are 2 exterior triggers ways: Exterior trigger 1 （F-1） and exterior trigger 2（F-2）.

●Exterior trigger 1: the electro-optical sensor directly tracks printing image's color code, produces a electro-optical signal which triggers one flash;

① Install the electro-optical sensor firmly, and then adjust electro-optical sensor's sensitivity, until each passed color code triggers one flash.

② At this moment the printing speed could be changed at will, and the observed image always stays as static status relatively.

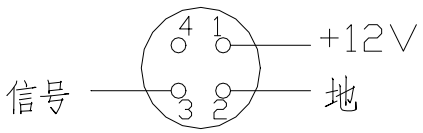
③ During the working time, if the stroboscope stopped flash and entered waiting status (display a flicking "P….."), it could restart working by press any key.
④ It should adjust the sensor's focus and sensitivity correctly for acquiring accurate electro-optical signal and other 5V-12V impulse signal of exterior trigger.
⑤ When test rotation rate, the electro-optical sensor should focus on the rotary axle to acquire stable electro-optical signal.

(3) **Phase adjustment**
During the observation of stable image and the image looks "static", under interior trigger status the image could be moved (move phase) by turn the clockwise; Under exterior status, turn the inner circle of encoder's knob clockwise/count-clockwise or up/down or left/right to move image (move phase).

(4) Restore default setting
First turn off the power, next press down 确认 continually and turn on the power, then release the 确认 key, it'll restore the default setting: under interior trigger status (F-0), the flash frequency is 800, single operating time is 120 second.

7. Exterior connection

● Signal wire connection: (right chart)
No.1 ——electro-optical sensor's power supply +12V
No.2——electro-optical sensor's power supply ground 0
No.3——Exterior input signal



8. Causing and trouble shooting

⑴ Attention

To avoid the stroboscope's permanent damage caused by lashed current, the interval time between each turn on and turn off should not short than 5 seconds. The power supply's plug should be connected well.

⑵ When the Stroboscope works unmorally, please check following trouble shooting table

Phenomenon	Trouble shooting method
Power on, stopped work and no display	1、check the AC220V power supply 2、check the power switch 3、If both normal, contact our company
Power on, display normal but stopped work	1、If display ' P... ..', press any key to restart work 2、Under exterior trigger status, if display "0", just press 设置 and 确认 to change to interior trigger status
Power on, work normal but no display	The display circuit has the problem, contact our company
Under exterior trigger status, can not display frequency	Exterior triggers the electro-optical sensor to work whether normally
Exterior triggers when the work cannot demonstrate the frequency	If rpm and EX1 or EX2 indicators are not bright, just press 设置 and 确认 until above indicators become bright.
Omitted the flash	1. Check frequency, it should range between suggested frequencies. 2. If the flash bulb is aging, please replace the bulb with a new one.

9. List of Items

Serial number	Name	Quantity	Note
1	DS800 Stroboscope	1	
2	Three cores standard power lines	1	3 meters (or 2 meters)
3	Connector of four cores electro-optical sensor	1	Used for exterior trigger
4	Product instruction	1	
5	Product qualification	1	

Exterior dimension: