

CW Lamp Power Supply

The STCW series laser power supplies are made for CW lamp-pumped Nd:YAG lasers. The main circuit of the power supply is based on power electronic module IGBT, adopts PWM technique to yield conversion efficiency more than 90%, and outputs constant current with high accuracy and low current ripple. Ignition circuits which produce a high voltage pulse consists of three steps: series high voltage unit for igniting the lamp, LC unit to relay the power, and low –voltage-constant-current to continue the lamp current. Automatic igniting is achieved with igniting-detecting circuit. The successful ratio of one-time ignition is more than 99%. The high voltage rises smoothly, and its magnitude can be adjusted to meet the dispersible characteristics of the krypton lamps, and to reduce the spattering of the electrode material at the same time, and further to reduce the damage to the krypton lamp caused by high voltage triggering.



The soft-charging circuit and soft-starting circuit are provided to avoid the voltage spiking and in-rush current in the event of starting. Display shows the set current and operation current at different time. The function of “work/sleep” is designed to output normal current at working and low holding current at the time of stand by, so as to increase the efficiency of the power supply, lighten the heat exchanger system, and prolong the lifetime of the lamp as well. Conveniently turns switch to Run/Stop status, adjust output current, and show the working status through the inner/outer control selection.

Excellent design makes the power supply maintained easily and perfect design of circuit protects the device from over voltage, over current and over heat.

There are the following advantages of our products:

- High reliability
- Advanced design of the whole circuits system highly improves the electrical characteristics of the power supply.
- Anti-dust design
- Anti-vibration design
- Easy maintenance
- Malfunction indicators
- Strict testing and 48hour full-load testing in the factory
- Temperature test in $-10^{\circ}\text{C}\sim 70^{\circ}\text{C}$ to ensure that it works stably in the ambient temperature at $0^{\circ}\text{C}\sim 50^{\circ}\text{C}$.
- Test in relative humidity 90%.
- Measure the current ripple and test the stability of the output current accurately in factory to make sure the output current meet the requirements of the Kr lamp.

Part Number Description:

STCWxyzT

STCW – STCW series CW laser power supplies

X ----- maximum output current (2 means 20A or 25A, 3 means 30A, 4 means 40A)

Y ----- Maximum output voltage (4 means 400V, 2 means 200V)

Z ----- input electricity (A means 3-phase 380VAC, B means 1-phase 220VAC, C means 3-phase 220VAC)

T ----- others

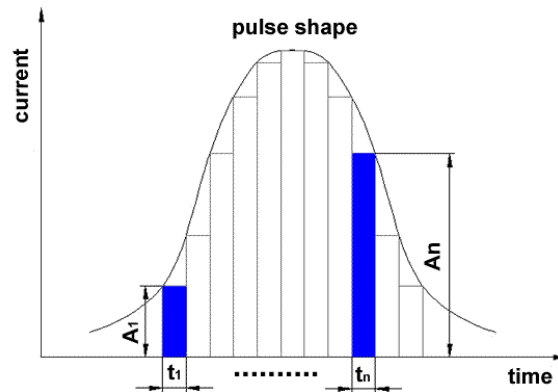
Model	STCW-24A STCW-34A	STCW-22C STCW-32C STCW-42C	STCW-22A STCW-32A STCW-42A	STCW-22B STCW-32B
Max output current	20/30A	20/30/40A	20/30/40A	20/30A
Max output voltage	400V	200V	200V	200V
Current range	7-20/30A	7-20/30/40A	7-20/30/40A	7-20/30A
Current ripple	$\leq 0.4\%$	$\leq 0.4\%$	$\leq 0.4\%$	$\leq 0.4\%$
Control accuracy	0.4%	0.4%	0.4%	0.4%
Repeatability	0.1%	0.1%	0.1%	0.1%
Start Delay(s)	6	6	6	6
Switching frequency	12-35KHZ	12-35KHZ	12-35KHZ	12-35KHZ
Allowed input voltage tolerance	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$
Environment temperature	0~50°C	0~50°C	0~50°C	0~50°C
Environment humidity	$\leq 90\%$	$\leq 90\%$	$\leq 90\%$	$\leq 90\%$
Input electricity	3phase 380VAC	3phase 220VAC	3phase 380VAC	1phase 220VAC

Remark: the power supply can be externally controlled.



Pulsed Flashlamp Power Supply

CM series pulsed laser power supply is our latest developed, which is based on a touch screen control of high precision intelligent constant-current power supply. Its internal adopts basing FPGA and ARM embedded system software programming, external with 65536 color LCD display, supported operating via touch and press, provided water temperature, water pressure, lack of phase, over-voltage and other various alarm functions, realized the programming of multiple segmented laser wave-form and parameters, display in real time like oscilloscope. And also provides communication interface and USB interface, which can be easily connected to host computer via serial interface to control the power supply through the USB interface to read the parameters, storage and hardware upgrades. V2.2 version supports remote upgrading function. The user may send machine codes of the equipment to us and the activation codes from inputting feedback into the touch control screen can upgrade the device's current, pulse width, frequency, maximum power and other configure parameters. This series pulsed laser power supply, human-machine interface elegant, function powerful, quality reliable, and various technical parameters are leading level in the industry. It is the standard pulsed Nd:YAG laser power supply.



As indicated in above figure, a pulse can be divided into 32 sections and each section may have its own current and pulse width, and pulse repetition rate. According to different current and pulse width setting in each section, the various pulse waveforms can be achieved.

Typical characteristics

- 1) Based on modular circuit programming design, can be used to drive single lamp, dual lamp, four lamps or eight lamps.
- 2) Based on industrial site date communicate, ensure good anti-interference ability, communication. The distance can be 100m.
- 3) 65536-color high resolution 7 inch LCD color screen, support for touch-control;
- 4) The system alarm operate information complete, provide protection for less current, over current, over-load, phase failure and phase sequence fault, pressure over-load, temperature over run, radiator over-temperature, alarm reminding function can real-time display more than 100 fault handling information.
- 5) With the corresponding interface circuit to achieve 128 sets of parameters continuous light soft hand-over and 64 sets of parameters hard hand-over (soft handover is software control hand-over, can be set in the touch control interface; hard handover is hardware control hand-over, can be controlled by external logic circuit given relative level).
- 6) The pulse waveform can be set in 32 section wave-form arbitrarily at least. Each section provides current slope rise and fall and the system can save 100 programs for user to be used.
- 7) From the interface, external control can set the valve to start ahead before laser output or delay time after laser stopped.
- 8) Intelligent optical switch control. Delay time in milliseconds of time can be customized according to user's needs, ensuring total blackout.
- 9) Slowly ascending and descending control can be set by user and current amplitude and starting point can be set for ascending or descending.
- 10) Can realize energy real time feed-back, make the output energy stabilization error within $\pm 2\%$.
- 11) Current parameter is split into starting current and end current, can set them discriminability, in order to gain more ideal wave-form. The highest current can be up to 600A.
- 12) Pulse width can realize 0.1ms stable laser output, highest up to 20ms.
- 13) Frequency highest up to 1000Hz, can alternated light acting on the xenon flash lamp to alternating the light intensity.

- 14) Beam control, in the scope of 0.1-0.3mm laser beam control, and have starting up self-motion function, that is when starting up it automatically adjusts to negative limit minimum values. Parameters of step motor adjustable.
- 15) Support USB testing, convenient for maintenance and debugging.
- 16) Can edit program in the process of working.
- 17) Real-time display working current wave-form, can customize process wave-form via dragging the lines.
- 18) Support power on self test, and report the specific problem of the main chip.
- 19) Offer remote up-grating model, only need to offer machine code of equipment, parameters can be configured according to user requirements for the upgrade.

Technical Parameters

1. Working mode: pulse
2. Control current: 60A-600A(single lamp)
3. Pulse width: 0.1ms-20ms
4. Laser frequency: 0Hz-500Hz(0Hz is dot pin, can be customized to high frequency)
5. Spot diameter: 0.1-3.0mm
6. Warm-up time: about 1 minute
7. Power output: ≤20KW
8. Display: 65536 high resolution LCD, support touch screen control.
9. Handover No.: 128 set (soft hand-over); 64 set (hard hand-over)
10. Real-time feedback error: less than 2%.
11. Working environment: input power 3 phase 380V±10%, using at ambient temperature below30°C drying condition, air dust <0.01g/cubic metres, no condensation.

Model	CM-1-A	CM-1-B	CM-4-SMC	CM-4-C
Xenon lamp No.	Single lamp	Single lamp	Four lamps	Four lamps
Structure	Drawer	Cart	Drawer	Frame
Dimension, mm	478×586×200	900×520×1145	478×586×800	882×500×1310
Weight, kg	20	22	80	80
Output current	50-600A	50-600A	50-600A	50-600A
Output pulse width	0.1-20ms	0.1-20ms	0.1-20ms	0.1-20ms
Output pulse frequency	0-500Hz	0-500Hz	0-500Hz	0-500Hz
Output power	6KW	6KW	24-32KW	24-32KW
Input voltage	220V	220V	380V	380V
Section programming	32 waveform programming			
Air valve	Light in advance 0.01-5s; light delay 0.01-5s			
Eye brake	Support eye switch delay adjustable			
Slowly ascending & descending	Support slow ascending, descending and starting point adjustable			
Handover	Support 64 channel hard handover and 128 channel soft handover			
Display	65536 color high resolution LCD screen, support touch screen control			
Spot diameter	0.1-3mm(optional)			
Energy feedback	Energy real-time feedback error: less than 2% (optional)			
Industrial control	RS232/485 serial communication (optional)			

Model	CM-SMC	CM-SD	CM-SD(500HZ)	CM-SD(500HZ)-F
Xenon lamp No.	Dual lamp	Dual lamp	Dual lamp	Dual lamp
Structure	Drawer	Cart	Cart	Frame
Dimension, mm	478×586×400	900×520×1145	900×520×1145	882×500×655
Weight, kg	40	42	42	40
Output current	50-600A	50-600A	50-600A	50-600A
Output pulse width	0.1-20ms	0.1-20ms	0.1-20ms	0.1-20ms
Output pulse frequency	0-500Hz	0-500Hz	0-500Hz	0-500Hz
Output power	12-14KW	12-14KW	16-24KW	16-24KW
Input voltage	380V	380V	380V	380V
Section programming	32 waveform programming			
Air valve	light in advance 0.01-5s; light delay 0.01-5s			

Eye brake	Support eye switch delay adjustable
Slowly ascending & descending	Support slow ascending, descending and starting point adjustable
Handover	Support 64 channel hard handover and 128 channel soft handover
Display	65536 color high resolution LCD screen, support touch screen control
Spot diameter	0.1-3mm(optional)
Energy feedback	Energy real-time feedback error: less than 2% (optional)
Industrial control	RS232/485 serial communication (optional)

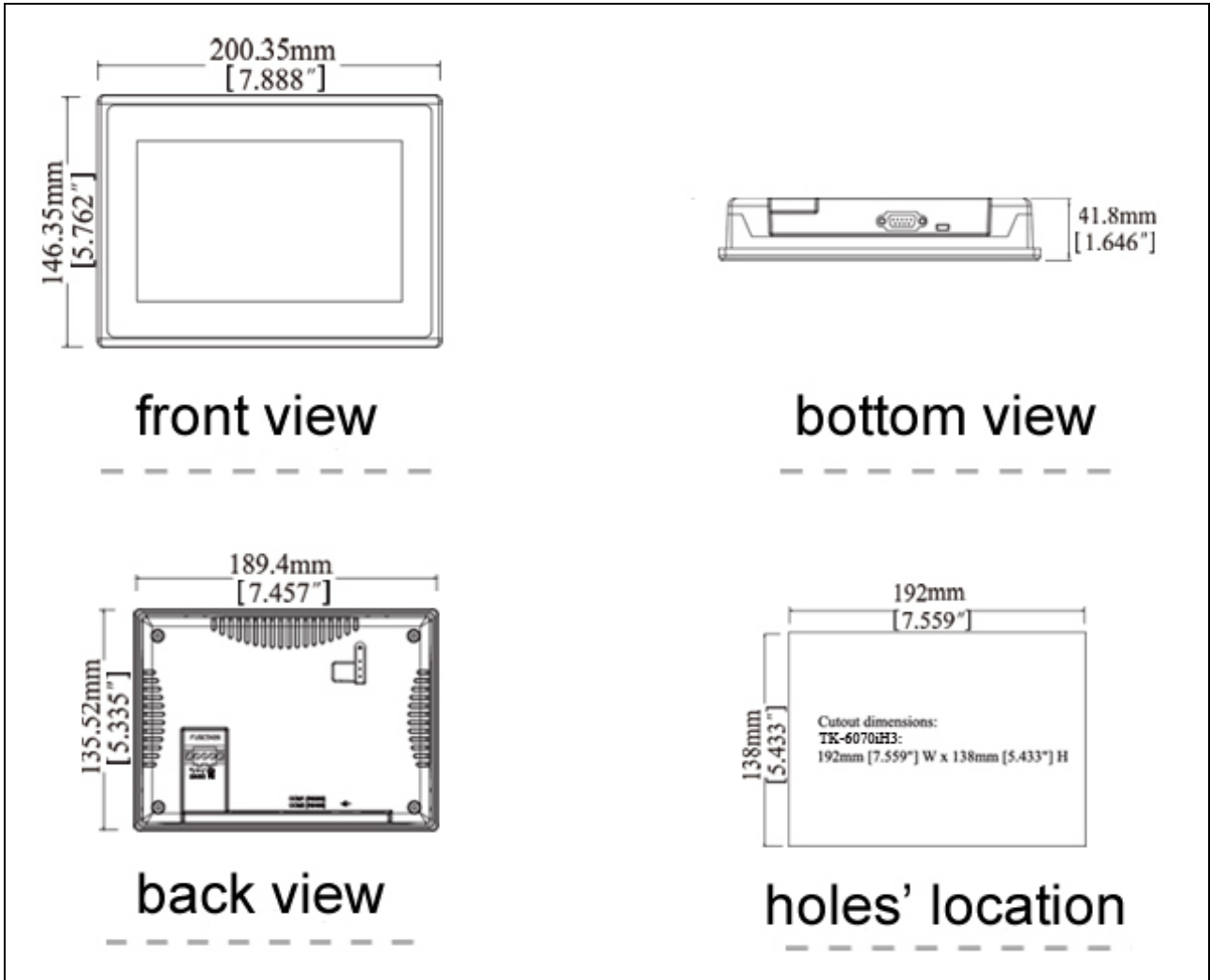
Model	CM-SD(500HZ)-FS	CM-SD(500HZ)-S
Xenon lamp No.	Dual lamp	Dual lamp
Structure	Frame	Cart
Dimension	882×500×655mm	900×520×1145mm
Weight	40	42
Output current	50-600A	50-600A
Output pulse width	0.1-20ms	0.1-20ms
Output pulse frequency	0-500Hz	0-500Hz
Output power	16-24KW	16-24KW
Input voltage	380V	380V
Section programming	32 waveform programming	
Air valve	Light in advance 0.01-5s; light delay 0.01-5s	
Eye brake	Support eye switch delay adjustable	
Slowly ascending & descending	Support slow ascending, descending and starting point adjustable	
Handover	Support 64 channel hard handover and 128 channel soft handover	
Display	65536 color high resolution LCD screen, support touch screen control	
Spot diameter	0.1-3mm(optional)	
Energy feedback	Energy real-time feedback error: less than 2% (optional)	
Industrial control	RS232/485 serial communication (optional)	

Structure outline

Drawer-type with external touch screen



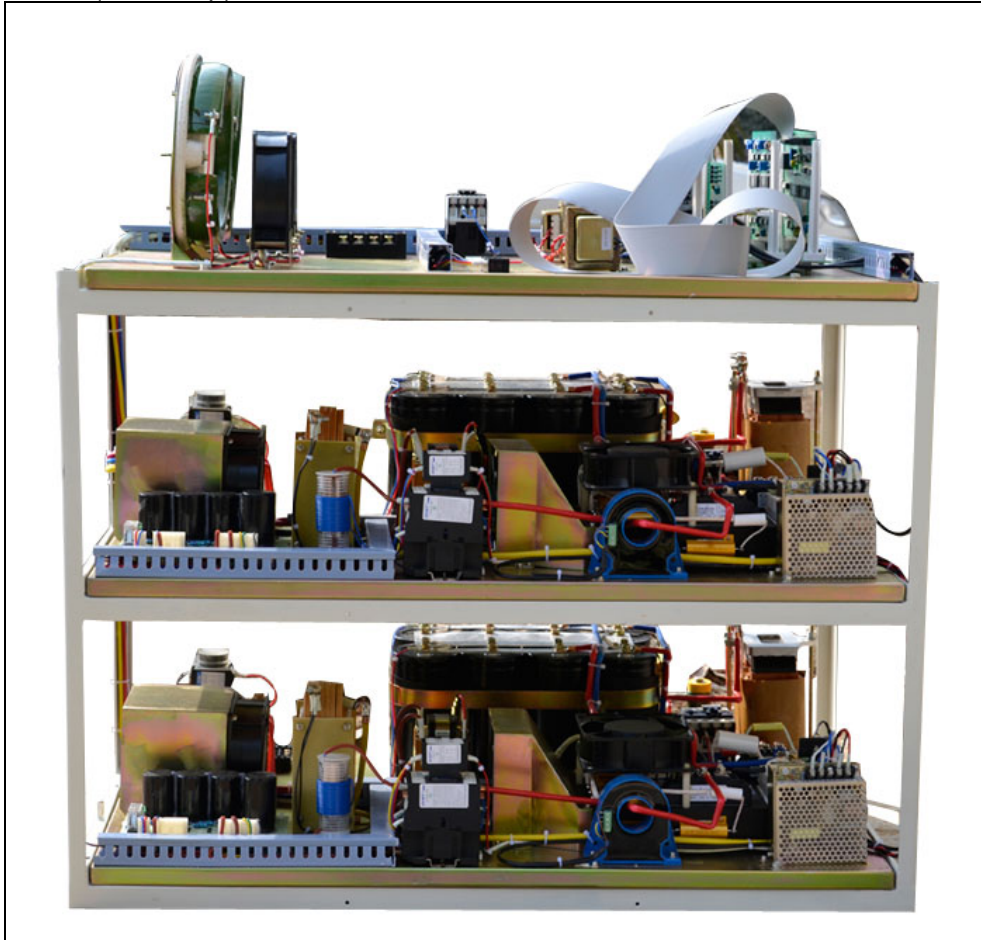
Dimension of touch screen



Cart (dual lamp)



Frame (dual lamp)with external touch screen



IPL Power Supply

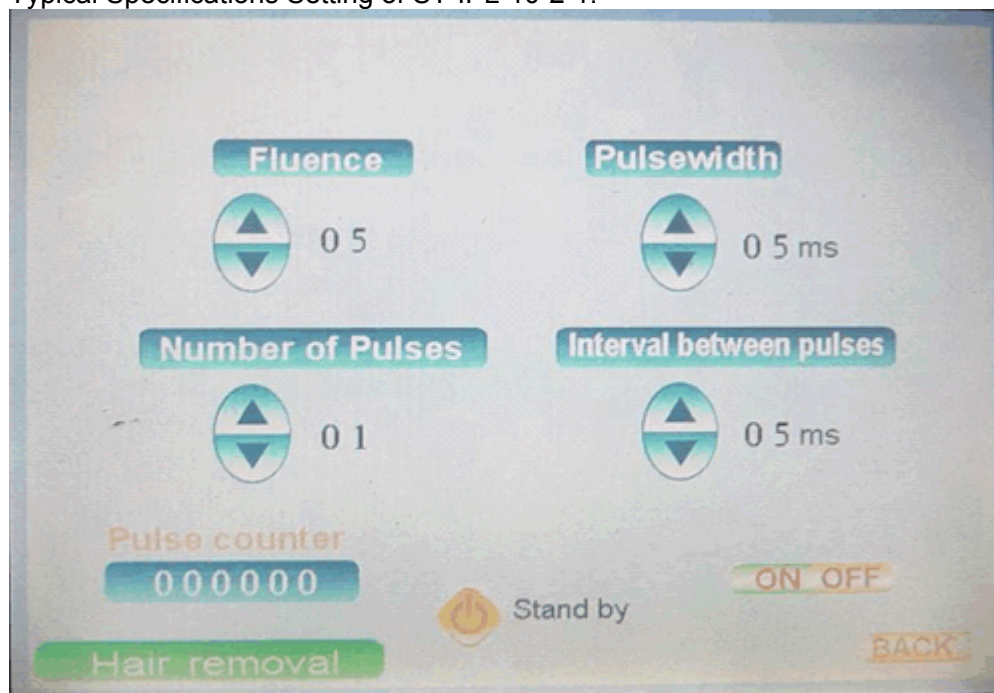
Model	Input	Output power	No. of driven lamps	Max. output voltage	Display	Weight	Dimension (cm)
ST-IPL-03-1	220VAC	300W	1	360V	240x128 LCD	3kg	16x18x14
ST-IPL-04-1	220VAC	400W	1	360V	240x128 LCD	3kg	16x18x14
ST-IPL-10-1-A	220VAC	1000W	1	360V	240x128 LCD	5kg	20x27x14
ST-IPL-10-1-B	220VAC	1000W	1	360V	240x128 LCD	5.2kg	19x24x14
ST-IPL-08-2	220VAC	800W	2	400V	240x128 LCD	5.7kg	20x30x14
ST-IPL-10-2	220VAC	1000W	2	360V	240x128 LCD	5.7kg	20x30x14
ST-IPL-10-2-1	220VAC	1000W	2	360V	colour touch screen	6kg	25x30x14
ST-IPL-10-3	220VAC	1000W	3	360V	240x128 LCD	8kg	38x31x14
ST-IPL-30-1	3P 208VAC	3kW	1	450V	240x128 LCD	70kg	44x44x40
ST-IPL-30x2-1x2	3P 208VAC	2x3kW	2	450V	240x128 LCD	140kg	88x44x40

Description of Model: ST- IPL-XX-YY-Z

ST-	IPL	XX	YY	Z
Model	IPL driver	Output power, unit=100W	Number of driven lamp	Others

Remark: When multi-lamp is driven, the lamps are not simultaneously driven. If all lamps are simultaneously driven, the total output power will be summed by all lamps.

Typical Specifications Setting of ST-IPL-10-2-1:



(8.5" colour touch screen)

Fluence: setting of pulse energy, range 05 to 35, corresponding to output voltages 130 to 360V.

Pulsewidth: setting of pulse width, range 05 to 35ms.

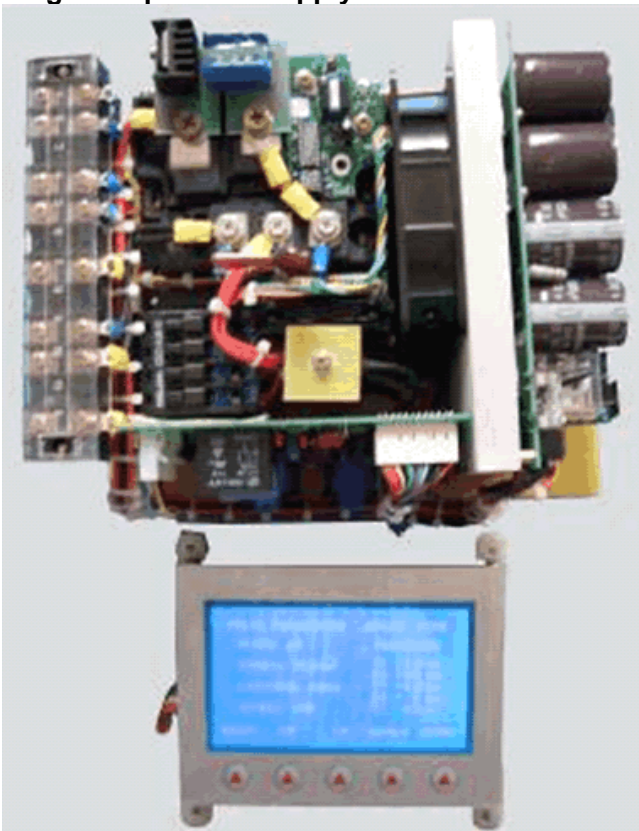
Number of pulses: setting of pulse number, range 01-07.

Interval between pulses: spacing of neighbour pulses.

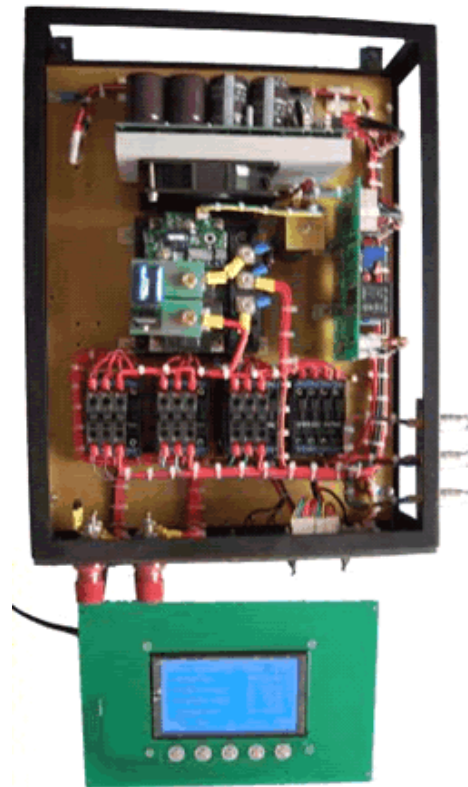
Pulse counter: counting the pulse number.

Specifications of ST-IPL-30x2-1x2

Model	ST-IPL-30x2-1x2	
DC Voltage control	100 – 450 V	
Capacitor	450 V/ 100, 000 uF	
Repetition Rate	1 Hz	Frequency of triggering (one triggering can include multiple pulses)
Pulse sequence	10 Hz	Pulse frequency in each triggering
Pulse number control	1 – 100	Through LCD controller
Pulse duration	1 – 100 ms	Through LCD controller, 0.1 ms step increase
Pulse gap	5 – 100 ms	Through LCD controller, 1 ms step increase
Simmer trigger error check	yes	
Dual output	2 x 3 kW	2 separate LCD, to control each channel output
Power	3P 208VAC/50-60Hz or 3P 380VAC/50-60Hz	

Single-lamp Power Supply


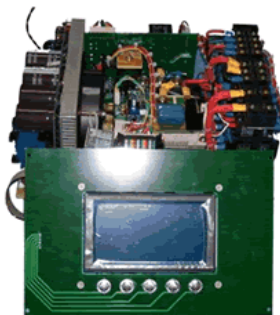
190x240x140mm

3-lamp Power Supply


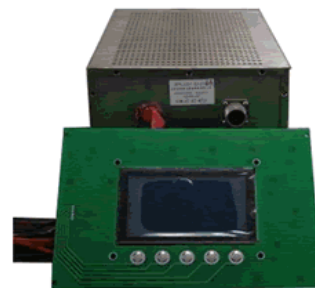
310x380x140mm

Dual-lamp Power Supply


240*300*140mm



200*300*140mm



| 240*360*170mm