

# TEL4520 Series

HV power supply | +3kV,33kW,precise,high frequency,Excimer laser power supply



- efficiency>85%
- 33kW output power
- Missing phase protection
- Charging repeat precision  $\pm 0.1\%$
- Parallel available
- Auto inhibit function

## Information :

TEL4520 high voltage direct current power supply is a high-performance equipment with an output power of up to 33 kW adopting modular design and featuring excellent scalability and reliability. With an input voltage of 380 VAC and an output voltage of up to 3 kV, it has high precision control and high energy conversion efficiency, and is equipped with an efficient liquid cooling heat dissipation system to ensure stable operation for a long time. The device supports a charge and discharge repetition of 0.1 - 600 Hz, and has remote control function, allowing users to achieve precise regulation and real-time monitoring of output parameters through external interfaces. a high-power capacitor charging and discharging power supply, TEL450 is particularly suitable for excimer laser systems with strict requirements on power stability and response speed, and an ideal solution for industrial laser applications.

## Typical Application :

Laser power supply, capacitor charging and discharging.

## Specifications :

<b>Input</b>	380VAC (342 - 418VAC) 3Phase, 49.8-50.2 Hz. Power supply will recover from voltage dips and sags according to IEC 61000-4-11 (Grade one, the voltage drops to 70% of the rated voltage). Inrush current $\leq$ maximum operating current, Ground Leakage current $\leq$ 5 mA. Separate M6 ground stud (metric size) on the rear panel.
<b>Output</b>	0kV to 3kV. Output voltage overshoot smaller <b>0.1%</b> of full scale 3kV, measured at the 5 meter-long cable end output.
<b>Output power</b>	About at 100 % of rated voltage (charge 21 $\mu$ F in 1ms from 0V to 3000V), exact value determined by critical performance parameters: capacitance, charge rate/voltage/time.
<b>Efficiency</b>	> 85 % .
<b>Input Protection</b>	Phase loss detection. Equipped with a dedicated 3 phases circuit breaker.
<b>Power factor</b>	> 85%.

<b>AC power input connections</b>	Harting type Han B Base Panel 2 Levers.
<b>Power Functions and Performance</b>	Parallel operation. The HVPS can be paralleled with a second (third) HVPS to provide twice (triple) output power. Input power may be parallel and HV output power may be parallel. Interlocks for each unit displayed on the input panel.
<b>Regulation</b>	40% to 100% scale of rate output, $\pm 0.1\%$ peak to peak (6V total voltage range at 3kV) for 0-600Hz as measured on the first consecutive pulse after a change in output voltage or rep rate.
<b>Stability</b>	$\leq \pm 0.1\%$ within every 8 hours after 1 hour warm-up.
<b>Linearity of programmed output voltage</b>	40% to 100% scale of rate output, $\pm 1.0\%$ .
<b>Programming accuracy of output voltage</b>	40% to 100% scale of rate output, $\pm 0.1\%$ peak to peak (6V total voltage range at 3kV) for 0-600Hz measured on the first consecutive pulse after a change in output voltage or rep rate.
<b>Autoinhibit</b>	Adjustable self-rejection range from 10 $\mu$ s to 1010 $\mu$ s factory set self-rejection 500 $\mu$ s.
<b>External Inhibit</b>	The power supply allows external signals to control the output of the power supply for suppression. The high voltage is triggered by the light enable on the optical receiver, and the maximum external suppression time is 1010 $\mu$ s.
<b>Status Indicators</b>	Green LED for mains on, green LED for HV on. 5 red LEDs for interlocks phase loss, Overtemp, Overvoltage, Short circuit, Remote Error. The corresponding LED will remain lit until the system is manually reset or until the fault condition is resolved.
<b>MTBF</b>	18000 hours minimum. To be ensured by appropriate burn-in/ measurements with a load comparable to final application. Prototype burn-in time: 10 days, mass production machine burn-in time of 24 hours.
<b>Load capacitance</b>	21 $\mu$ F.
<b>Charging time for a single cycle</b>	1ms.
<b>Charging repetition rate</b>	0.1Hz ~ 600Hz . Indefinite pause before capacitor discharge is possible. Power supply will keep HV within regulation range.
<b>Charging repetition accuracy</b>	$\pm 0.1\%$ .
<b>Load Reversal</b>	Power supply and load will be separated by a magnetic isolator MI. Power supply is able to work with a starting voltage of about 1kV and endure voltage reversal 10V.
<b>End of charging signal</b>	EOC signal will be set, when output voltage has reached set level within regulation band.
<b>Load leakage current</b>	Load leakage current caused by pulser $< 10$ mA at 3kV.
<b>Cooling</b>	Water cooling.
<b>Water fittings</b>	On the housing the lower connector has to be labelled "water in", the upper connector "water out".
<b>Environmental</b>	Operating: 15°C to 50°C. Storage: 0°C to 85°C.
<b>Humidity</b>	10% to 95%RH, non-condensing.
<b>Dimensions</b>	L520mm, W270mm, H600mm.
<b>Weight</b>	About 50kg.
<b>HV output connector type</b>	Fisher connector. 5m long HV cable.

## Description of Model Code

The model code represents the performance and parameters of the power supply, which are:

Maximum output voltage in kV;

Maximum output power in W;

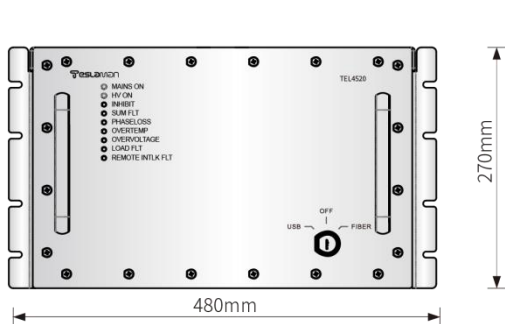
Output polarity, P for positive output;

TEL4520	P	3	-	33000
Model	Polarity	Maximum voltage		Maximum power

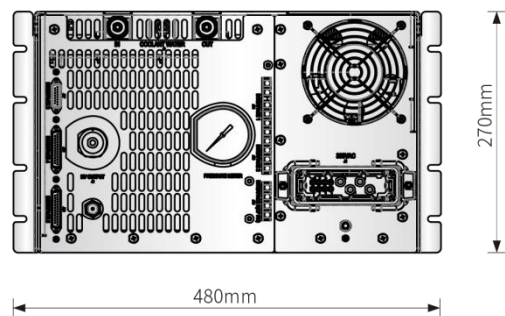
**TEL4520 Model selection table:**

Rated output		Model
kV	kW	Positive
3	33	TEL4520P3-33000

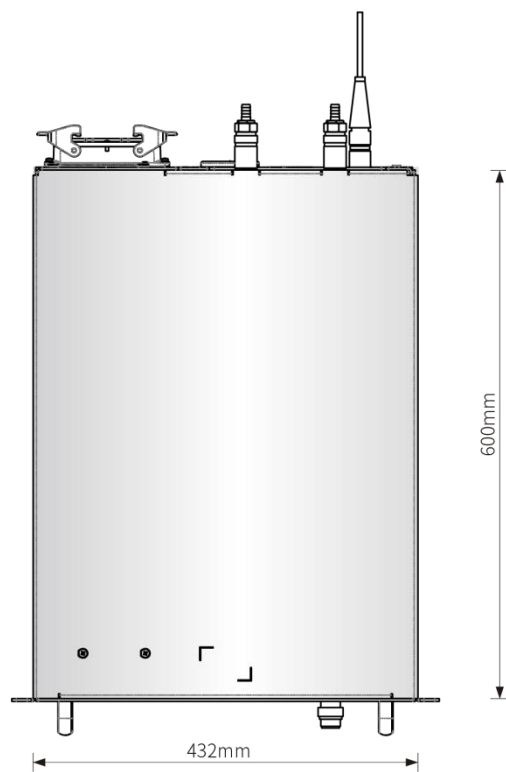
**Dimensions: mm**



### Front View



### Rear View



### Top View