# **TLP2081 Series Rack Mount DC High Voltage Power Supply**



1kV-30kV, 15kW, Efficiency Reaches 94%, Parallel System Power Up to 1MW

Teslaman TLP2081 series is a high performance "standard rack-mounted high voltage power supply. The digital control mode can meet the functional requirements of customers' various control settings. The nanosecond arc transient response capability ensures that the power supply runs without faults, and the efficiency reaches over 94%. This series of products have complete functions and wide output range, and can also add the functions that customers need to customize through software.

- Output Voltage 1kV-30kV
- Digitally Programmable
- Nanosecond Protection Response
- RS-485 Isolated Digital Communication
- Security Interlock Function
- The Output Power is 15kW, in Parallel Could Reach 1MW
- Over-Voltage, Over-Current, Short Circuit, Arc And Over-**Temperature Protection**
- Charging And Continuous DC Operation Modes Are Optional
- **OEM Customization Available**

#### **Typical Application:**

Ion implantation; Electrostatic spraying; Electrostatic electret; Withstand voltage test; Particle acceleration; Electrostatic field; Ion beam power supply; Electron beam power supply; Accelerator power supply; Insulation test; Shore base of deep-sea observation network; High voltage capacitor charging; High voltage power taking; Scientific research, etc.

## **Specifications:**

**Input:** AC  $380V \pm 10\%$ , 50/60 Hz.

Output: Maximum output voltages could be designed from 1kV to 30kV and the maximum output power is 15kW. 0 to the highest voltage continuously adjustable, output positive or negative single polarity, voltage level can be customized.

#### **Voltage Control:**

Local control: The multi-turn potentiometer of the power supply can set the output voltage between 0 and the highest voltage.

External control: External 0 to 10V control signal can adjust the output from 0 to the highest output voltage.

#### **Current Control:**

Local control: The multi-turn potentiometer of the power supply can set the current between 0 and the highest current.

External control: The external 0 to 10V control signal can set the current between 0 and the highest current.

### Voltage Regulation Rate:

Line:  $\pm 0.01\%$  for  $\pm 10\%$  change in input voltage.

#### **Current Adjustment Rate:**

Load: 0.01% of output current from 0 to rated voltage.

## **Optional Capacitor Charging Mode:**

Peak charging power: 24kW.

Energy storage: < 0.3 J.

Pulse repetition accuracy is less than 0.1% at 100Hz.

**Ripple Voltage:** Ripple Voltage RMS is 1% of the maximum output voltage (0.1%)

Vp-p optional) under rated output conditions.

#### **Environmental:**

Operational: 0 °C to + 45 °C.

Storage: -20 °C to +80 °C.

Temperature Coefficient: 0.01% per °C.

**Stability:** less than 0.1% every 8 hours after 1/2 hour warm up.

Overall Dimensions: 482.6 mm wide, 266mm high and 666mm deep.

Weight: About 60kg.

### Remote Control of Output Voltage and Current:

External potentiometer can be used to control the output voltage and current remotely by using 10V reference voltage inside the power supply.

Remote Voltage and Current Indication: 25-pin terminal contains 0 to 10V voltage and current indication signals, which can be externally connected with various digital or pointer meters.

Connector: Recessed plastic insulated conduit and probed high voltage cable are connected by metal connector with diameter of 16mm/28mm. The standard high voltage cable is 2 meters long



## **TLP2081 Series High Voltage Power Supply Model Selection Table (15kW):**

| Output<br>Rating |       | Type of Power Supply |                      |
|------------------|-------|----------------------|----------------------|
| kV               | mA    | Positive Polarity    | Negative<br>Polarity |
| 5.000            | 3.000 | TLP2081P5-15000      | TLP2081N5-15000      |
| 10.00            | 1.500 | TLP2081P10-15000     | TLP2081N10-15000     |

## Power input terminal J1:

| Identificat<br>ion | Signal    | Identificat<br>ion | Signal         |
|--------------------|-----------|--------------------|----------------|
| L1                 | Live Wire | L3                 | Live Wire      |
| L2                 | Live Wire | G                  | Ground<br>wire |

### **RS-485 Communication Interface J2:**

| Foot Position | Signal | Description |
|---------------|--------|-------------|
| 1             | A      | RS485 +     |
| 2             | G      | Ground Wire |
| 3             | В      | RS485-      |

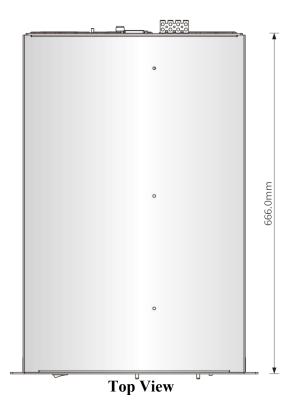
# **TLP2081 Power DB25 Connector Signal Definition**

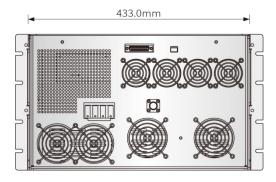
| Pin       | Signal                   | Description                     |
|-----------|--------------------------|---------------------------------|
| 1         | Remote                   | Open collector and conduct      |
|           | Indication               | is remote control               |
| 2         | Constant                 | Open collector, conduction      |
|           | Voltage                  | means constant voltage          |
|           | Indication               | output                          |
| 3         | High Voltage             | Open collector and turn it      |
|           | Off Indication           | on, that is, turn off the high  |
|           |                          | voltage output                  |
| 4         | High Voltage             | The rising edge opens           |
|           | On Signal                | immediately (+ 15V for 17       |
| -         | D                        | feet)                           |
| 5         | Remote                   | High (+ 15V) is effective       |
| 6         | Enable                   | High († 1537) in effection      |
| 0         | Security Lock<br>Enabled | High (+ 15V) is effective       |
| 7         | + 15V                    | + 15V, 100mA (max)              |
| 8         | Current                  | 0 to 10V = 0 to 100% rated      |
| 0         | Setting                  | output                          |
| 9         | Voltage Setting          | 0 to 10V = 0 to 100% rated      |
|           | voitage setting          | output                          |
| 10        | + 15V                    | + 15V, 100mA (max)              |
| 11        | + 10V                    | + 10V, 1mA (max)                |
| 12        | Voltage                  | 0  to  10V = 0  to  100%  rated |
| 12        | Display                  | output                          |
| 13        | Current                  | 0 to 10V = 0 to 100% rated      |
| 10        | Display                  | output                          |
| 14        | Fault                    | Open collector and turn it      |
|           | Indication               | on, that is, the power supply   |
|           |                          | is faulty                       |
| 15        | Constant                 | Open collector, conduction      |
|           | Current                  | means constant current          |
|           | Indication               | output                          |
| 16        | High Pressure            | Open collector, conduction,     |
|           | On Indication            | that is, high voltage output    |
|           |                          | is turned on                    |
| 17        | High Voltage             | Falling edge is high pressure   |
| 10        | Off Signal               | V-1-                            |
| 18        | Fault Reset              | High (+ 15V) is reset           |
| 19        | Ground                   | Signal ground wire              |
| 20        | Ground                   | Signal ground wire              |
| 21        | Ground                   | Signal ground wire              |
| 22        | Ground                   | Signal ground wire              |
| 23        | Ground                   | Signal ground wire              |
| 24        | Ground                   | Signal ground wire              |
| 25        | Ground                   | Signal ground wire              |
| Shielding | Ground                   | Signal ground wire              |
|           |                          |                                 |

# **Overall Dimensions: mm**



**Front View** 





**Rear View**