

# TS0708 Series

**Electron Optics High-Voltage Power Supply System | 13 outputs (10 voltage sources, 3 current sources), main lens source ripple <10 ppm, high stability and low noise.**



- Main lens source: ~7000 V @ 2 mA
- Bipolar deflection source:  $\pm 1000$  V to  $\pm 4000$  V
- Retarding field source:  $-1500$  V to 0 V
- High-precision current source: 0–2 A / 25 V
- Ripple and noise: better than 20 ppm (0.02–50 Hz)
- Adjustment resolution: voltage step 0.01 V, current step 0.1 mA
- Stability: ppm-level ultra-low drift across all channels
- Standard rack-mount form factor

## Product Introduction:

TS0708 is specifically designed for electron beam metrology and surface analysis equipment, providing precision power supplies for electron optical columns and microchannel plate detectors. The system integrates 13 independent outputs, including a 7 kV high-voltage lens source, a kilovolt-level bipolar deflection source, and high-stability current sources. All channels deliver ppm-level ultra-low ripple and precision stepping in millivolt and milliamperere increments, ensuring nanometer-scale focusing and deflection of the electron beam. The compact chassis incorporates a 26-pin D-SUB control interface, supporting digital remote adjustment. It is an ideal auxiliary power supply for high-end equipment such as CD-SEM and electron beam review systems.

## Typical Applications

CD-SEM (Critical Dimension Scanning Electron Microscope), EBI (Electron Beam Inspection), e-Beam Review Tool, Energy Analyzer, high-end electron beam metrology systems, and Microchannel Plate (MCP).

## Specifications:

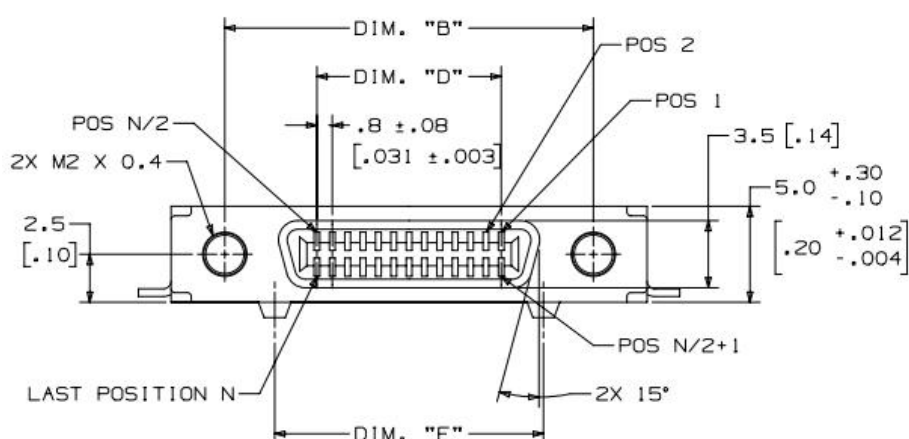
|                                |                                                                                                                              |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Input Voltage</b>           | AC 220 V $\pm 10\%$ , 50/60 Hz.                                                                                              |
| <b>Output Voltage</b>          | 13 output channels, including 3 current sources and 10 voltage sources. Detailed parameters are provided in the table below. |
| <b>Power</b>                   | Peak and rated power: <550 W and <450 W respectively.                                                                        |
| <b>Stability</b>               | <30 ppm per 8 hours after 0.5-hour warm-up.                                                                                  |
| <b>Ripple and Noise</b>        | See table below.                                                                                                             |
| <b>Protection Functions</b>    | Overvoltage, overcurrent, short-circuit, and overtemperature protection.                                                     |
| <b>Temperature Coefficient</b> | Better than 30 ppm/ $^{\circ}$ C for voltage and current.                                                                    |
| <b>Ambient Temperature</b>     | Operating: 0 $^{\circ}$ C to 60 $^{\circ}$ C; Storage: $-20$ $^{\circ}$ C to 80 $^{\circ}$ C.                                |
| <b>Humidity</b>                | $\leq 80\%$ RH, non-condensing; operating humidity $\leq 70\%$ RH.                                                           |
| <b>Cooling</b>                 | Forced air cooling.                                                                                                          |
| <b>Dimensions</b>              | 482 mm (W) $\times$ 352 mm (H) $\times$ 500 mm (D).                                                                          |
| <b>Weight</b>                  | Total weight 34 kg.                                                                                                          |
| <b>Interface Connectors</b>    | DB26 connector, RJ45 connector, DB9 connector.                                                                               |
| <b>Grounding Method</b>        | Common ground with chassis.                                                                                                  |

|                          |                                                                      |
|--------------------------|----------------------------------------------------------------------|
| <b>Cable Exit</b>        | Cable output.                                                        |
| <b>Output Connection</b> | MHV cable ×4, SHV cable ×1, CF35 cable ×1, 2-pin connector cable ×1. |

**Output Voltage Detailed Parameter Table:**

| Electrode                     | Type           | Adjustment Range | Output     | Adjustment Resolution | Ripple(0.02-50Hz) |
|-------------------------------|----------------|------------------|------------|-----------------------|-------------------|
| Main Lens L1                  | Voltage source | 0~7kV            | 7kV,2mA    | 0.1V                  | 200mV(20ppm)      |
| Second Lens L2+               | Voltage source | 0~1kV            | 1kV,1mA    | 0.01V                 | 40mV(40ppm)       |
| Second Lens L2-               | Voltage source | -1kV~0           | -1kV,1mA   | 0.01V                 | 40mV(40ppm)       |
| Electromagnetic Lens LM1      | Voltage source | 0~0.3A           | 0.3A,10V   | 0.1mA                 | 0.1mA             |
| Electromagnetic Lens LM2      | Voltage source | 0-2A             | 2A,25V     | 0.1mA                 | 0.1mA             |
| Stigmator Correction MT       | Voltage source | -0.3~0.3A        | ±1A,1V     | 0.1mA                 | 0.1mA             |
| Retarding RP (Large)          | Voltage source | -1.5kV-0         | -1.5kV,1mA | 0.01V                 | 32mV(20ppm)       |
| Deflection H+ (Large)         | Voltage source | -1.5kV~0.5kV     | ±1.5kV,1mA | 0.01V                 | 16mV(10ppm)       |
| Deflection H- (Large)         | Voltage source | -1.5kV~0         | -1.5kV,1mA | 0.01V                 | 16mV(10ppm)       |
| Fine Deflection DF (Large)    | Voltage source | -1.5kV-0.5kV     | ±1.5kV,1mA | 0.1V                  | 30ppm             |
| Main Deflection DM (Large)    | Voltage source | -1kV-2kV         | ±2kV,1mA   | 0.1V                  | 30ppm             |
| Deflection Group B DB (Large) | Voltage source | -0.5kV-3.5kV     | ±3.5kV,1mA | 0.1V                  | 30ppm             |
| Deflection Group A DA (Large) | Voltage source | -0.5kV-4kV       | ±4kV,1mA   | 0.1V                  | 30ppm             |

**TS0708 Power Supply DB26 Connector Signal Definitions:**



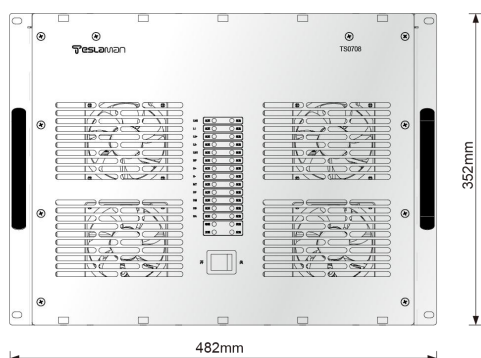
| Pin | Signal   | Description            | Detailed Description                           |
|-----|----------|------------------------|------------------------------------------------|
| 1   | CLK_OUT+ | Control clock signal + | Control sampling SPI differential clock signal |
| 2   | CLK_OUT- | Control clock signal - |                                                |
| 3   | SDI_OUT+ | Control input signal + | Control sampling SPI differential input signal |
| 4   | SDI_OUT- | Control input signal - |                                                |

|       |         |                              |                                                      |
|-------|---------|------------------------------|------------------------------------------------------|
| 5-6   |         |                              |                                                      |
| 7     | CLK_IN+ | Return clock signal +        | Return data SPI differential clock signal            |
| 8     | CLK_IN- | Return clock signal –        |                                                      |
| 9     | SDI_IN+ | Return input signal +        | Return data SPI differential chip select signal      |
| 10    | SDI_IN- | Return output signal –       |                                                      |
| 11    | CS_IN+  | Return chip select signal +  | Return data SPI differential chip select signal      |
| 12    | CS_IN-  | Return chip select signal –  |                                                      |
| 13    | NC      |                              | Reserved for grounding                               |
| 14    | CS_OUT+ | Control chip select signal + | Control sampling SPI differential chip select signal |
| 15    | CS_OUT- | Control chip select signal – |                                                      |
| 16-26 | NC      | /                            | /                                                    |

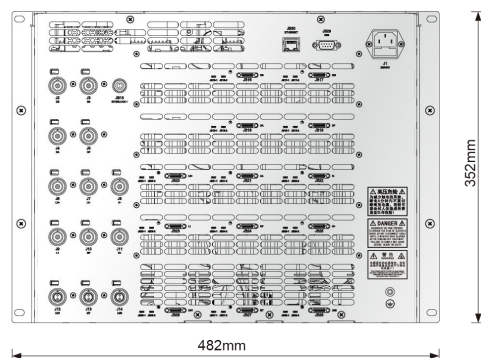
#### TS0708 Power Supply DB9 Connector Signal Definitions:

| Pin | Signal  | Description      |
|-----|---------|------------------|
| 1   | GND     | Ground pin       |
| 2   | IO_LOCK | Interlock signal |
| 3-9 | NC      | /                |

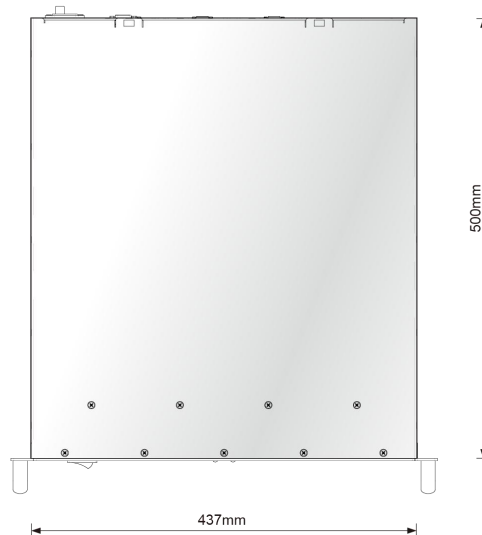
#### Dimensions:mm



Front View



Rear View



Top View