

# Power Electric Tester

## III. TH6900 Series Programmable DC Power Supply

### Features

- The output range is 3 times of the equal power "rectangular" power supply
- High frequency LLC multi-resonant inverter, the efficiency of the whole machine is as high as 93%
- Active PFC, power factor up to 0.99
- High resolution, high precision; low ripple, low noise
- ≤2ms fast transient response
- The rising edge and falling edge speed of the output are adjustable
- Power supply constant voltage (CV), constant current (CC), constant power (CP) mode
- The master-slave mode supports parallel connection, active current sharing, and parallel connection of up to 10 units of the same type
- OVP, OCP, OPP, OTP, input undervoltage protection, SENSE terminal reverse connection protection
- Built-in function generator
- Equipped with discharge circuit (Uout< 10V within 1s)
- Separate control of power output through external analog interface
- High-brightness color LCD display
- Flexible and powerful sequence test function
- Support SCPI command language
- Interface: RS232, USB HOST, Optional (RS485, LAN )

### Application

- General testing for R&D and design verification
- New energy solar cells, new power vehicles, electric bicycles
- Routine test and maintenance of production line workbench
- Automated device integration testing
- Solar photovoltaic simulation test
- Teaching laboratory
- LED test

### Specifications

| Parameter                          | Model             | TH6940-60                                   | TH6980-30 | TH69200-12.5 | TH69360-7.5 | TH69500-5 | TH69750-3 | TH691000-2.5 |
|------------------------------------|-------------------|---------------------------------------------|-----------|--------------|-------------|-----------|-----------|--------------|
| Rated Output                       | Voltage           | 40V                                         | 80V       | 200V         | 360V        | 500V      | 750V      | 1000V        |
|                                    | Current           | 60A                                         | 30A       | 12.5A        | 7.5A        | 5A        | 3A        | 2.5A         |
|                                    | Power             | 750W                                        |           |              |             |           |           |              |
|                                    | Efficient         | ≤92%                                        | ≤92%      | ≤92%         | ≤93%        | ≤93%      | ≤93%      | ≤93%         |
| Load Regulation Rate               | Voltage           | <=0.05%FS (0-100% Load Regulation Rate)     |           |              |             |           |           |              |
|                                    | Current           | <=0.15%FS (0-100%ΔUDC Load Regulation Rate) |           |              |             |           |           |              |
| Line Regulation Rate               | Voltage           | <=0.02%FS (±10%ΔUAC Input)                  |           |              |             |           |           |              |
|                                    | Current           | <=0.05%FS (±10%ΔUAC Input)                  |           |              |             |           |           |              |
| Set Value Resolution               | Voltage           | 10mV                                        | 10mV      | 10mV         | 10mV        | 10mV      | 10mV      | 10mV         |
|                                    | Current           | 10mA                                        | 10mA      | 10mA         | 1mA         | 1mA       | 1mA       | 1mA          |
| Readback Value Resolution          | Voltage           | 10mV                                        | 10mV      | 10mV         | 10mV        | 10mV      | 10mV      | 10mV         |
|                                    | Current           | 10mA                                        | 10mA      | 10mA         | 1mA         | 1mA       | 1mA       | 1mA          |
| Set Value Accuracy (25°C±5°C)      | Voltage           | ≤±(0.05%+0.04%FS)                           |           |              |             |           |           |              |
|                                    | Current           | ≤±(0.15%+0.1%FS)                            |           |              |             |           |           |              |
|                                    | Power             | ≤±0.8%FS                                    |           |              |             |           |           |              |
| Readback Value Accuracy (25°C±5°C) | Voltage           | ≤±(0.05%+0.04%FS)                           |           |              |             |           |           |              |
|                                    | Current           | ≤±(0.15%+0.1%FS)                            |           |              |             |           |           |              |
|                                    | Power             | ≤±0.8%FS                                    |           |              |             |           |           |              |
| "Ripple and Noise (20Hz-2MHz)"     | RMS (20Hz-300kHz) | 10mVrms                                     | 10mVrms   | 20mVrms      | 40mVrms     | 50mVrms   | 75mVrms   | 100mVrms     |
|                                    | P-P (20Hz-2MHz)   | 75mVpp                                      | 100mVpp   | 175mVpp      | 250mVpp     | 325mVpp   | 500mVpp   | 650mVpp      |
| Rise Time (No Load)                | 10%-100%          | ≤2ms                                        |           |              |             |           |           |              |
| Rise Time (Full Load)              | 10%-90%           | ≤30ms                                       |           |              |             |           |           |              |
| Protection                         |                   | OTP, OVP, OCP, OPP, PF                      |           |              |             |           |           |              |



### TH6900

Rack mount (mm): 482(W) x 88(H) x 455(D)  
Net weight : 13.5kg

RS232

standard

USB HOST

standard

### Brief Introduction

■ TH6900 series is a programmable switching DC power supply with a wide range of output. There are 21 models of 750W, 1500W and 3000W available. The instrument supports up to 10 master-slave units of the same model in parallel to meet higher output current and output power requirements.

TH6900 series supports sequence test function, allowing users to set a series of voltage, current, power, and automatically output according to the set rules, to better meet the user's application of automatic test and burn-in test. The instrument can store 50 sequences, each sequence contains 22 steps, the function of each step can be set independently, a total of 12 independent functions, including loop control, slope mode output and other rich control functions.

This instrument can output sine wave, square wave, triangle wave, trapezoidal wave, etc. according to the set parameters such as voltage and current. Based on these waveforms, users can form a sequence output. The sequence can be set up to ten steps, and each step can be set to any A waveform and the duration of the waveform, which is convenient for users to test products. In addition, the TH6900 power supply has a solar cell array simulation function. In addition to CC, CV, EN50530 and other modes output through the host computer software, the single machine also has a built-in model for simulating the output curve of the solar cell array.

This series of power supplies also have adjustable rising and falling edge speeds. In all modes (source CV, CC, CP), the rise and fall time can be set, and the setting range is 0.01S~999.99S.

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## III. TH6900 Series Programmable DC Power Supply

|                            |                |                                                                                                                            |
|----------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------|
| Isolated Withstand Voltage |                | 1000VDC (Output to Ground)                                                                                                 |
| Master-Slave Control       |                | Connect up to 10 products (via shared bus) with true master-slave operation                                                |
| Storage                    |                | 10 groups of working modes; 50 sequences, 20 steps per group                                                               |
| Analog Interface           | Specification  | Built-in 15-pin D-Sub female connector, electrically isolated                                                              |
|                            | Signal Range   | 0-5V or 0-10V (Switchable)                                                                                                 |
|                            | U/I/P Accuracy | 0-10V: $\leq 0.2\%FS$ 0-5V: $\leq 0.4\%FS$                                                                                 |
| Communication Interface    | Standard       | RS232, USB HOST                                                                                                            |
|                            | Optional       | RS485, CAN, LAN                                                                                                            |
| Power Supply               | Phase          | 1ph+N+PE                                                                                                                   |
|                            | Voltage        | 220VAC $\pm 10\%$                                                                                                          |
|                            | Frequency      | 45-66Hz                                                                                                                    |
|                            | Power Factor   | $\geq 0.99$                                                                                                                |
| Working Environment        |                | Indoor type; Working temperature: 0~50°C, Humidity: <80%, no condensation, Storage temperature: -20~70°C, Altitude: <2000m |
| Size W×H×D(mm)             |                | 482mm×88mm×455mm (W×H×D) Standard Frame, 2U High.                                                                          |
| Weight                     |                | 9.6kg                                                                                                                      |

| Parameter                                       | Model             | TH6935-100                                                                                                                 | TH6980-60   | TH69200-25  | TH69360-15  | TH69500-10  | TH69750-6   | TH691000-5  |
|-------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Rated Output                                    | Voltage           | 35V                                                                                                                        | 80V         | 200V        | 360V        | 500V        | 750V        | 1000V       |
|                                                 | Current           | 100A                                                                                                                       | 60A         | 25A         | 15A         | 10A         | 6A          | 5A          |
|                                                 | Power             | 1500W                                                                                                                      |             |             |             |             |             |             |
|                                                 | Efficient         | $\leq 92\%$                                                                                                                | $\leq 92\%$ | $\leq 92\%$ | $\leq 93\%$ | $\leq 93\%$ | $\leq 93\%$ | $\leq 93\%$ |
| Load Regulation Rate                            | Voltage           | $\leq 0.05\%FS$ (0-100% Load Regulation Rate)                                                                              |             |             |             |             |             |             |
|                                                 | Current           | $\leq 0.15\%FS$ (0-100% $\Delta UDC$ Load Regulation Rate)                                                                 |             |             |             |             |             |             |
| Line Regulation Rate                            | Voltage           | $\leq 0.02\%FS$ ( $\pm 10\%\Delta UAC$ Input)                                                                              |             |             |             |             |             |             |
|                                                 | Current           | $\leq 0.05\%FS$ ( $\pm 10\%\Delta UAC$ Input)                                                                              |             |             |             |             |             |             |
| Set Value Resolution                            | Voltage           | 10mV                                                                                                                       | 10mV        | 10mV        | 10mV        | 10mV        | 10mV        | 10mV        |
|                                                 | Current           | 10mA                                                                                                                       | 10mA        | 10mA        | 10mA        | 10mA        | 1mA         | 1mA         |
| Readback Value Resolution                       | Voltage           | 10mV                                                                                                                       | 10mV        | 10mV        | 10mV        | 10mV        | 10mV        | 10mV        |
|                                                 | Current           | 10mA                                                                                                                       | 10mA        | 10mA        | 10mA        | 10mA        | 1mA         | 1mA         |
| Set Value Accuracy (25°C $\pm 5^\circ C$ )      | Voltage           | $\leq \pm(0.05\%+0.04\%FS)$                                                                                                |             |             |             |             |             |             |
|                                                 | Current           | $\leq \pm(0.15\%+0.1\%FS)$                                                                                                 |             |             |             |             |             |             |
|                                                 | Power             | $\leq \pm 0.8\%FS$                                                                                                         |             |             |             |             |             |             |
| Readback Value Accuracy (25°C $\pm 5^\circ C$ ) | Voltage           | $\leq \pm(0.05\%+0.04\%FS)$                                                                                                |             |             |             |             |             |             |
|                                                 | Current           | $\leq \pm(0.15\%+0.1\%FS)$                                                                                                 |             |             |             |             |             |             |
|                                                 | Power             | $\leq \pm 0.8\%FS$                                                                                                         |             |             |             |             |             |             |
| "Ripple and Noise (20Hz-2MHz)"                  | RMS (20Hz-300kHz) | 10mVrms                                                                                                                    | 10mVrms     | 20mVrms     | 40mVrms     | 50mVrms     | 75mVrms     | 100mVrms    |
|                                                 | P-P (20Hz-2MHz)   | 75mVpp                                                                                                                     | 100mVpp     | 175mVpp     | 250mVpp     | 325mVpp     | 500mVpp     | 650mVpp     |
| Rise Time (No Load)                             | 10%-100%          | $\leq 2ms$                                                                                                                 |             |             |             |             |             |             |
| Rise Time (Full Load)                           | 10%-90%           | $\leq 30ms$                                                                                                                |             |             |             |             |             |             |
| Protection                                      |                   | OTP, OVP, OCP, OPP, PF                                                                                                     |             |             |             |             |             |             |
| Isolated Withstand Voltage                      |                   | 1000VDC (Output to Ground)                                                                                                 |             |             |             |             |             |             |
| Master-Slave Control                            |                   | Connect up to 10 products (via shared bus) with true master-slave operation                                                |             |             |             |             |             |             |
| Storage                                         |                   | 10 groups of working modes; 50 sequences, 20 steps per group                                                               |             |             |             |             |             |             |
| Analog Interface                                | Specification     | Built-in 15-pin D-Sub female connector, electrically isolated                                                              |             |             |             |             |             |             |
|                                                 | Signal Range      | 0-5V or 0-10V (Switchable)                                                                                                 |             |             |             |             |             |             |
|                                                 | U/I/P Accuracy    | 0-10V: $\leq 0.2\%FS$ 0-5V: $\leq 0.4\%FS$                                                                                 |             |             |             |             |             |             |
| Communication Interface                         | Standard          | RS232, USB HOST                                                                                                            |             |             |             |             |             |             |
|                                                 | Optional          | RS485, CAN, GPIB, LAN                                                                                                      |             |             |             |             |             |             |
| Power Supply                                    | Phase             | 1ph+N+PE                                                                                                                   |             |             |             |             |             |             |
|                                                 | Voltage           | 220VAC $\pm 10\%$                                                                                                          |             |             |             |             |             |             |
|                                                 | Frequency         | 45-66Hz                                                                                                                    |             |             |             |             |             |             |
|                                                 | Power Factor      | $\geq 0.99$                                                                                                                |             |             |             |             |             |             |
| Working Environment                             |                   | Indoor type; Working temperature: 0~50°C, Humidity: <80%, no condensation, Storage temperature: -20~70°C, Altitude: <2000m |             |             |             |             |             |             |
| Size W×H×D(mm)                                  |                   | 482mm×88mm×455mm (W×H×D) Standard Frame, 2U High.                                                                          |             |             |             |             |             |             |
| Weight                                          |                   | 10.8kg                                                                                                                     |             |             |             |             |             |             |

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## III. TH6900 Series Programmable DC Power Supply

| Parameter                        | Model             | TH6935-200                                                                                                               | TH6980-120 | TH69200-50 | TH69360-30 | TH69500-20 | TH69750-12 | TH691000-10 |
|----------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|-------------|
| Rated Output                     | Voltage           | 35V                                                                                                                      | 80V        | 200V       | 360V       | 500V       | 750V       | 1000V       |
|                                  | Current           | 200A                                                                                                                     | 120A       | 50A        | 30A        | 20A        | 12A        | 10A         |
|                                  | Power             | 3000W                                                                                                                    |            |            |            |            |            |             |
|                                  | Efficient         | ≤92%                                                                                                                     | ≤92%       | ≤92%       | ≤93%       | ≤93%       | ≤93%       | ≤93%        |
| Load Regulation Rate             | Voltage           | ≤0.05%FS (0-100% Load Regulation Rate)                                                                                   |            |            |            |            |            |             |
|                                  | Current           | ≤0.15%FS (0-100%ΔUDC Load Regulation Rate)                                                                               |            |            |            |            |            |             |
| Line Regulation Rate             | Voltage           | ≤0.02%FS (±10%ΔUAC Input)                                                                                                |            |            |            |            |            |             |
|                                  | Current           | ≤0.05%FS (±10%ΔUAC Input)                                                                                                |            |            |            |            |            |             |
| Set Value Resolution             | Voltage           | 10mV                                                                                                                     | 10mV       | 10mV       | 10mV       | 10mV       | 10mV       | 10mV        |
|                                  | Current           | 10mA                                                                                                                     | 10mA       | 10mA       | 10mA       | 10mA       | 10mA       | 10mA        |
| Readback Value Resolution        | Voltage           | 10mV                                                                                                                     | 10mV       | 10mV       | 10mV       | 10mV       | 10mV       | 10mV        |
|                                  | Current           | 10mA                                                                                                                     | 10mA       | 10mA       | 10mA       | 10mA       | 10mA       | 10mA        |
| Set Value Accuracy (25℃±5℃)      | Voltage           | ≤±(0.05%+0.04%FS)                                                                                                        |            |            |            |            |            |             |
|                                  | Current           | ≤±(0.15%+0.1%FS)                                                                                                         |            |            |            |            |            |             |
|                                  | Power             | ≤±0.8%FS                                                                                                                 |            |            |            |            |            |             |
| Readback Value Accuracy (25℃±5℃) | Voltage           | ≤±(0.05%+0.04%FS)                                                                                                        |            |            |            |            |            |             |
|                                  | Current           | ≤±(0.15%+0.1%FS)                                                                                                         |            |            |            |            |            |             |
|                                  | Power             | ≤±0.8%FS                                                                                                                 |            |            |            |            |            |             |
| "Ripple and Noise (20Hz-2MHz)"   | RMS (20Hz-300kHz) | 10mVrms                                                                                                                  | 10mVrms    | 20mVrms    | 40mVrms    | 50mVrms    | 75mVrms    | 100mVrms    |
|                                  | P-P (20Hz-2MHz)   | 75mVpp                                                                                                                   | 100mVpp    | 175mVpp    | 250mVpp    | 325mVpp    | 500mVpp    | 650mVpp     |
| Rise Time (No Load)              | 10%-100%          | ≤2ms                                                                                                                     |            |            |            |            |            |             |
| Rise Time (Full Load)            | 10%-90%           | ≤30ms                                                                                                                    |            |            |            |            |            |             |
| Protection                       |                   | OTP, OVP, OCP, OPP, PF                                                                                                   |            |            |            |            |            |             |
| Isolated Withstand Voltage       |                   | 1000VDC (Output to Ground)                                                                                               |            |            |            |            |            |             |
| Master-Slave Control             |                   | Connect up to 10 products (via shared bus) with true master-slave operation                                              |            |            |            |            |            |             |
| Storage                          |                   | 10 groups of working modes; 50 sequences, 20 steps per group                                                             |            |            |            |            |            |             |
| Analog Interface                 | Specification     | Built-in 15-pin D-Sub female connector, electrically isolated                                                            |            |            |            |            |            |             |
|                                  | Signal Range      | 0-5V or 0-10V (Switchable)                                                                                               |            |            |            |            |            |             |
|                                  | U/I/P Accuracy    | 0-10V: ≤0.2%FS 0-5V: ≤0.4%FS                                                                                             |            |            |            |            |            |             |
| Communication Interface          | Standard          | RS232, USB HOST                                                                                                          |            |            |            |            |            |             |
|                                  | Optional          | RS485, CAN, GPIB, LAN                                                                                                    |            |            |            |            |            |             |
| Power Supply                     | Phase             | 1ph+N+PE                                                                                                                 |            |            |            |            |            |             |
|                                  | Voltage           | 220VAC±10%                                                                                                               |            |            |            |            |            |             |
|                                  | Frequency         | 45-66Hz                                                                                                                  |            |            |            |            |            |             |
|                                  | Power Factor      | ≥0.99                                                                                                                    |            |            |            |            |            |             |
| Working Environment              |                   | Indoor type; Working temperature: 0~50℃, Humidity: <80%, no condensation, Storage temperature: -20~70℃, Altitude: <2000m |            |            |            |            |            |             |
| Size W×H×D(mm)                   |                   | 482mm×88mm×455mm (W×H×D) Standard Frame, 2U High.                                                                        |            |            |            |            |            |             |
| Weight                           |                   | 13.5kg                                                                                                                   |            |            |            |            |            |             |