

# FTR9000 series

Feedback high power programmable DC electronic load



## Characteristic

- Single machine range: Voltage: 0 ~ 2250V, Current: 0 ~ 4500A , Power: 0 ~ 180kW;
- Master/slave parallel expansion power up to 1.8MW;
- Voltage accuracy: 0.05%+0.05%F.S. Current accuracy: 0.1%+0.1%F.S.;
- Power factor 0.99, the overall efficiency is higher than 93%;
- Automatic line loss compensation;
- With constant voltage, constant current, constant power, constant resistance function;
- Voltage and current slope can be set;
- Provides the battery discharge test function;
- With sequence and waveform functions, can achieve such as automotive electronic test voltage waveform, user-defined and other complex voltage and current waveform;
- Over voltage, over current, over power, over temperature, under voltage, power failure, island protection and other comprehensive protection functions;
- High voltage isolation digital, analog, monitoring, control interface;
- Communication ports LAN and USB are standard, RS485, CAN, or GPIB are optional;
- Communication protocol Support SCPI, MODBUS, CAN-OPEN (optional) protocol, provide host computer and SDK development kit for secondary development;
- TFT color LCD screen, Chinese, English, Chinese menu interface;
- Intelligent fan control;
- Standard 19-inch rack design, over 16U can choose wheel design;

## Application field

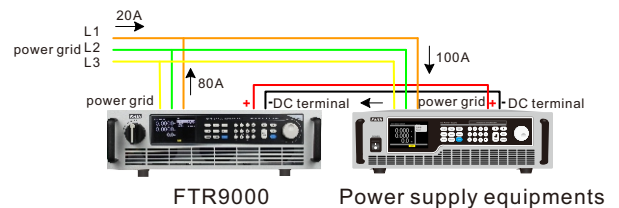
- Energy storage, microgrid equipment production and development;
- Production and development of server power supply, UPS and inverter;
- Solar arrays, wind power applications;
- Fuel cell, power battery, lead battery, ultracapacitor application;
- Aerospace, railway, new energy vehicles, motor drive test and application;
- UAV, laser, sensor applications.

## Summary

The FTR9000 series is a feedback programmable DC electronic load. It not only has the function of traditional consumption load, but also returns the energy consumed by the traditional load to the power grid cleanly to achieve the purpose of energy saving. Can be widely used in new energy equipment testing, lithium ion, fuel and other battery discharge test, automatic test system, AC/DC, DC/DC and other unidirectional module product testing, aging. The product is equipped with a rich communication, programming interface and color screen and a variety of text menu interface, easy to operate intuitive, power electronics, new energy, sensors, motor drive, system integration and other industries commonly used equipment.

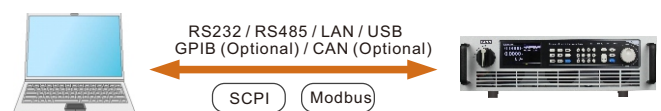
## Energy feedback

FTR9000 series products can recover the output energy of DC source equipment and return it to the internal power grid without pollution, and the recovered energy can be directly used by internal electrical appliances, reducing the heat generated by energy consumption, so as to achieve a win-win situation of work and energy saving.



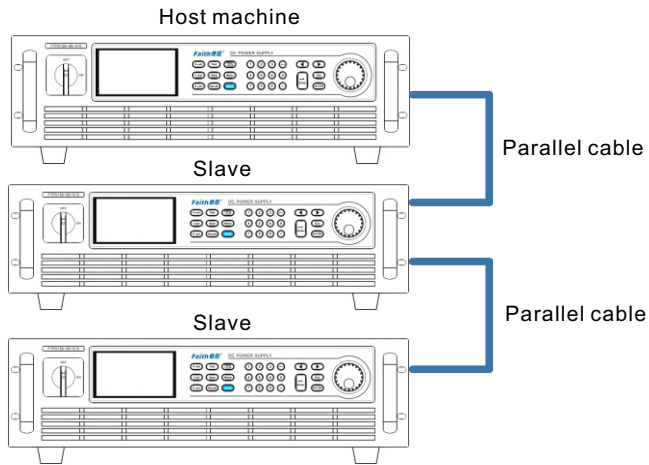
## Multi-interface and multi-protocol

The FTR9000 series is equipped with a variety of communication interfaces, and supports both SCPI and Modbus communication protocols. Users can configure the system on the menu according to their needs, which makes the system integration more flexible.



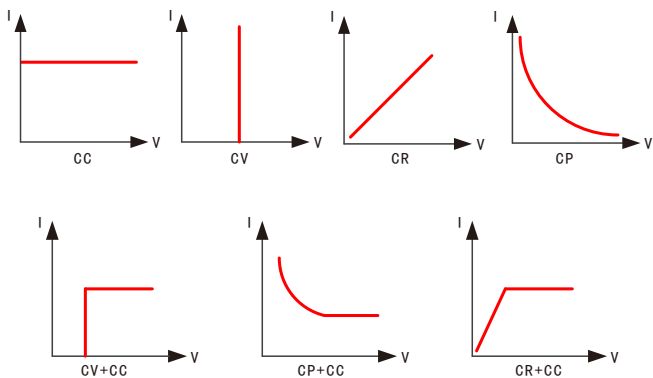
## Cascade

The cascading function of the FTR9000 series supports parallel use of up to 10 loads, extending the power usage range of electronic loads. During the cascading process, each load automatically equalizes traffic, and the slave automatically copies the load parameters of the host. Single machine can also be used independently, more flexible power configuration.



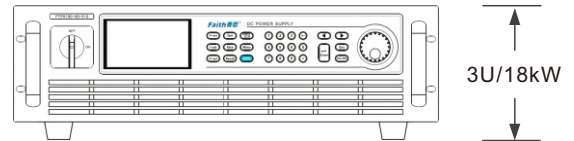
## Multiple operating modes

The FTR9000 series has four basic operating modes of constant current, constant voltage, constant resistance and constant power, which can meet a wide range of test needs. At the same time, it also has the function of CV+CC, CR+CC, CP+CC multiple composite operation modes. Users can set the current limit value according to their own test requirements to avoid overcurrent damage to the test product during the test process. Among them, CV+CC mode can be applied to simulate battery charging characteristics, test charging piles and similar products such as vehicle chargers. CR+CC mode simulates power supply voltage current limitation and accuracy testing.



## 3U/18kW High power density

The FTR9000 series feedback high power programmable DC electronic load adopts a high power density design, which reduces the volume of the same power by 80% compared to the ordinary energy consumption electronic load, and is more flexible and convenient to use.



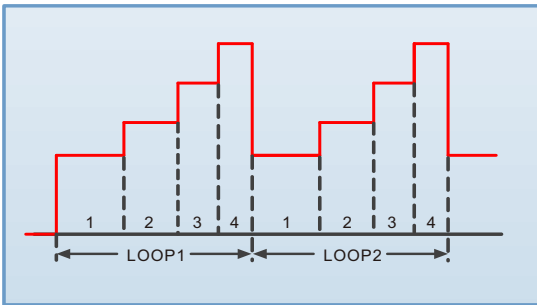
## Sine wave dynamic load

The FTR9000 series has sine-wave current-carrying capability and can be used for impedance analysis and testing of fuel cells.



## Sequence and waveform functions

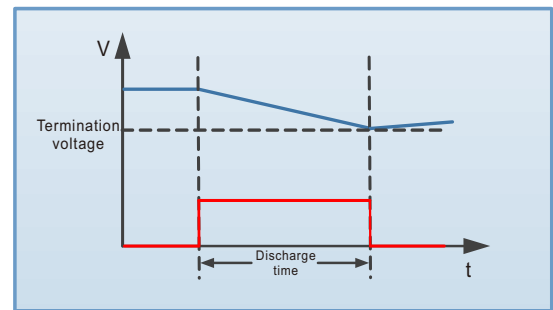
The FTR9000 series of electronic loads provides sequential test capabilities for editing up to 10 test files with 100 steps each. It supports load timing changes in CC, CV, CR, CP and other modes, and also supports sequence editing functions such as file link. A maximum of 5000 timing steps can be edited. The time range of a single step is 1ms to 99999s.



## Battery test

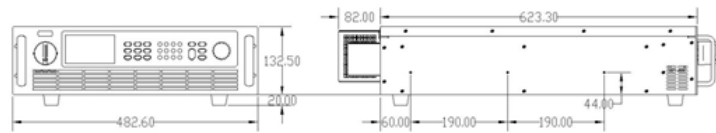
The FTR9000 series electronic loads feature battery testing. Three discharge modes of fixed current, fixed resistance and fixed power are provided, and the discharge cutoff conditions can be set by itself: cut-off voltage, cut-off time and cut-off power. If any of the three conditions are met, the discharge stops. During the discharge process, the discharge quantity and discharge time are recorded.

The FTR9000 series is tested for internal resistance and capacity by direct current discharge (DCR).

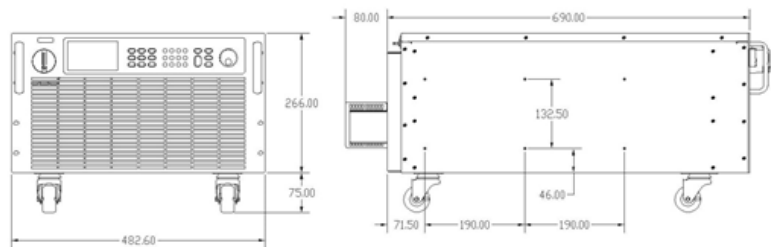


## Dimension Drawing

5kW~18kW Model Dimension Drawing



20kW~36kW Model Dimension Drawing



## Ordering Information \*Higher power specifications are not listed.

| Voltage | Model            | Current | Power | Dimension | Voltage | Model             | Current | Power | Dimension |
|---------|------------------|---------|-------|-----------|---------|-------------------|---------|-------|-----------|
| 80V     | FTR9050-80-150   | 150A    | 5kW   | 3U        | 300V    | FTR9060-300-75    | 75A     | 6kW   | 3U        |
|         | FTR9100-80-300   | 300A    | 10kW  | 3U        |         | FTR9120-300-150   | 150A    | 12kW  | 3U        |
|         | FTR9150-80-450   | 450A    | 15kW  | 3U        |         | FTR9180-300-225   | 225A    | 18kW  | 3U        |
|         | FTR9300-80-900   | 900A    | 30kW  | 6U        |         | FTR9360-300-450   | 450A    | 36kW  | 6U        |
|         | FTR9450-80-1350  | 1350A   | 45kW  | 16U       |         | FTR9540-300-675   | 675A    | 54kW  | 16U       |
|         | FTR9600-80-1800  | 1800A   | 60kW  | 16U       |         | FTR9720-300-900   | 900A    | 72kW  | 16U       |
|         | FTR9750-80-2250  | 2250A   | 75kW  | 22U       |         | FTR9900-300-1125  | 1125A   | 90kW  | 22U       |
| Voltage | Model            | Current | Power | Dimension | Voltage | Model             | Current | Power | Dimension |
| 500V    | FTR9060-500-40   | 40A     | 6kW   | 3U        | 800V    | FTR9060-800-25    | 25A     | 6kW   | 3U        |
|         | FTR9120-500-80   | 80A     | 12kW  | 3U        |         | FTR9120-800-50    | 50A     | 12kW  | 3U        |
|         | FTR9180-500-120  | 120A    | 18kW  | 3U        |         | FTR9180-800-75    | 75A     | 18kW  | 3U        |
|         | FTR9360-500-240  | 240A    | 36kW  | 6U        |         | FTR9360-800-150   | 150A    | 36kW  | 6U        |
|         | FTR9540-500-360  | 360A    | 54kW  | 16U       |         | FTR9540-800-225   | 225A    | 54kW  | 16U       |
|         | FTR9720-500-480  | 480A    | 72kW  | 16U       |         | FTR9720-800-300   | 300A    | 72kW  | 16U       |
|         | FTR9900-500-600  | 600A    | 90kW  | 22U       |         | FTR9900-800-375   | 375A    | 90kW  | 22U       |
| Voltage | Model            | Current | Power | Dimension | Voltage | Model             | Current | Power | Dimension |
| 1000V   | FTR9120-1000-40  | 40A     | 12kW  | 3U        | 1500V   | FTR9120-1500-25   | 25A     | 12kW  | 3U        |
|         | FTR9240-1000-80  | 80A     | 24kW  | 6U        |         | FTR9180-1500-40   | 40A     | 18kW  | 3U        |
|         | FTR9360-1000-120 | 120A    | 36kW  | 16U       |         | FTR9360-1500-80   | 80A     | 36kW  | 6U        |
|         | FTR9480-1000-160 | 160A    | 48kW  | 16U       |         | FTR9540-1500-120  | 120A    | 54kW  | 16U       |
|         | FTR9600-1000-200 | 200A    | 60kW  | 22U       |         | FTR9720-1500-160  | 160A    | 72kW  | 16U       |
| Voltage | Model            | Current | Power | Dimension | Voltage | Model             | Current | Power | Dimension |
| 2250V   | FTR9180-2250-25  | 25A     | 18kW  | 3U        | 2250V   | FTR9720-2250-100  | 100A    | 72kW  | 16U       |
|         | FTR9360-2250-50  | 50A     | 36kW  | 6U        |         | FTR9900-2250-125  | 125A    | 90kW  | 22U       |
|         | FTR9540-2250-75  | 75A     | 54kW  | 16U       |         | FTR91080-2250-150 | 150A    | 108kW | 22U       |

## Optional information

| Name                  | Model    | Instructions |
|-----------------------|----------|--------------|
| GPIB Interface        | Suffix G |              |
| CAN+485 Interface     | Suffix R |              |
| Composite signal port | Suffix F |              |

\* Test cables are optional. For details about specifications and models, see Optional Accessories in this manual.

# Specification information-1

|                                     |   |                          |                          |                         |
|-------------------------------------|---|--------------------------|--------------------------|-------------------------|
| <b>Model</b>                        | <b>FTR9050-80-150</b>   | <b>FTR9060-300-75</b>    | <b>FTR9060-500-40</b>    | <b>FTR9060-800-25</b>   |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 150A  | 75A                      | 40A                      | 25A                     |
| <b>Resistance</b>                   | 0.02~106Ω   | 0.3~800Ω                 | 0.5~2.5kΩ                | 1.2~6kΩ                 |
| <b>Power</b>                        | 5kW   | 6kW                      |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@150A   | 2V@75A                   | 3.1V@40A                 | 2.5V@25A                |
| <b>Current slope(Max)</b>           | 75A/ms  | 37.5A/ms                 | 20A/ms                   | 12.5A/ms                |
| <b>Model</b>                        | <b>FTR9100-80-300</b>   | <b>FTR9120-300-150</b>   | <b>FTR9120-500-80</b>    | <b>FTR9120-800-50</b>   |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 300A  | 150A                     | 80A                      | 50A                     |
| <b>Resistance</b>                   | 0.01~50Ω  | 0.15~400Ω                | 0.25~1.25kΩ              | 0.6~3kΩ                 |
| <b>Power</b>                        | 10kW  | 12kW                     |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@300A   | 2V@150A                  | 3.1V@80A                 | 2.5V@50A                |
| <b>Current slope(Max)</b>           | 150A/ms   | 75A/ms                   | 40A/ms                   | 25A/ms                  |
| <b>Model</b>                        | <b>FTR9150-80-450</b>   | <b>FTR9180-300-225</b>   | <b>FTR9180-500-120</b>   | <b>FTR9180-800-75</b>   |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 450A  | 225A                     | 120A                     | 75A                     |
| <b>Resistance</b>                   | 0.006~35Ω   | 0.1~266Ω                 | 0.16~833Ω                | 0.4~2kΩ                 |
| <b>Power</b>                        | 15kW  | 18kW                     |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@450A   | 2V@225A                  | 3.1V@120A                | 2.5V@75A                |
| <b>Current slope(Max)</b>           | 225A/ms   | 112.5A/ms                | 60A/ms                   | 37.5A/ms                |
| <b>Model</b>                        | <b>FTR9300-80-900</b>   | <b>FTR9360-300-450</b>   | <b>FTR9360-500-240</b>   | <b>FTR9360-800-150</b>  |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 900A  | 450A                     | 240A                     | 150A                    |
| <b>Resistance</b>                   | 0.003~17Ω   | 0.05~133Ω                | 0.08~416Ω                | 0.2~1kΩ                 |
| <b>Power</b>                        | 30kW  | 36kW                     |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@900A   | 2V@450A                  | 3.1V@240A                | 2.5V@150A               |
| <b>Current slope(Max)</b>           | 450A/ms   | 225A/ms                  | 120A/ms                  | 75A/ms                  |
| <b>Model</b>                        | <b>FTR9450-80-1350</b>  | <b>FTR9540-300-675</b>   | <b>FTR9540-500-360</b>   | <b>FTR9540-800-215</b>  |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 1350A   | 675A                     | 360A                     | 215A                    |
| <b>Resistance</b>                   | 0.002~11Ω   | 0.03~88Ω                 | 0.05~277Ω                | 0.1~666Ω                |
| <b>Power</b>                        | 45kW  | 54kW                     |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@1350A  | 2V@675A                  | 3.1V@360A                | 2.5V@215A               |
| <b>Current slope(Max)</b>           | 675A/ms   | 337.5A/ms                | 180A/ms                  | 107.5A/ms               |
| <b>Model</b>                        | <b>FTR9600-80-1800</b>  | <b>FTR9720-300-900</b>   | <b>FTR9720-500-480</b>   | <b>FTR9720-800-300</b>  |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 1800A   | 900A                     | 480A                     | 300A                    |
| <b>Resistance</b>                   | 0.002~8.8Ω  | 0.025~66Ω                | 0.042~208Ω               | 0.1~500Ω                |
| <b>Power</b>                        | 60kW  | 72kW                     |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@1800A  | 2V@900A                  | 3.1V@480A                | 2.5V@300A               |
| <b>Current slope(Max)</b>           | 900A/ms   | 450A/ms                  | 240A/ms                  | 150A/ms                 |
| <b>Model</b>                        | <b>FTR9750-80-2250</b>  | <b>FTR9900-300-1125</b>  | <b>FTR9900-500-600</b>   | <b>FTR9900-800-375</b>  |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 2250A   | 1125A                    | 600A                     | 375A                    |
| <b>Resistance</b>                   | 0.002~9Ω  | 0.02~53Ω                 | 0.033~166Ω               | 0.08~400Ω               |
| <b>Power</b>                        | 75kW  | 90kW                     |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@2250A  | 2V@1125A                 | 3.1V@600A                | 2.5V@375A               |
| <b>Current slope(Max)</b>           | 1125A/ms  | 562.5A/ms                | 300A/ms                  | 187.5A/ms               |
| <b>Model</b>                        | <b>FTR9900-80-2700</b>  | <b>FTR91080-300-1350</b> | <b>FTR91080-500-720</b>  | <b>FTR91080-800-450</b> |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 2700A   | 1350A                    | 720A                     | 450A                    |
| <b>Resistance</b>                   | 0.001~6Ω  | 0.017~44Ω                | 0.027~138Ω               | 0.066~333Ω              |
| <b>Power</b>                        | 90kW  | 108kW                    |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@2700A  | 2V@1350A                 | 3.1V@720A                | 2.5V@450A               |
| <b>Current slope(Max)</b>           | 1350A/ms  | 675A/ms                  | 360A/ms                  | 225A/ms                 |
| <b>Model</b>                        | <b>FTR91050-80-3150</b>   | <b>FTR91260-300-1575</b> | <b>FTR91260-500-840</b>  | <b>FTR91260-800-525</b> |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 3150A   | 1575A                    | 840A                     | 525A                    |
| <b>Resistance</b>                   | 0.001~4.4Ω  | 0.014~38Ω                | 0.024~119Ω               | 0.057~285Ω              |
| <b>Power</b>                        | 105kW   | 126kW                    |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@3150A  | 2V@1575A                 | 3.1V@840A                | 2.5V@525A               |
| <b>Current slope(Max)</b>           | 1575A/ms  | 787.5A/ms                | 420A/ms                  | 262.5A/ms               |
| <b>Model</b>                        | <b>FTR91200-80-3600</b>   | <b>FTR91440-300-1800</b> | <b>FTR91440-500-960</b>  | <b>FTR91440-800-600</b> |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 3600A   | 1800A                    | 960A                     | 600A                    |
| <b>Resistance</b>                   | 0.001~4.4Ω  | 0.013~33Ω                | 0.021~104Ω               | 0.05~250Ω               |
| <b>Power</b>                        | 120kW   | 144kW                    |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@3600A  | 2V@1800A                 | 3.1V@960A                | 2.5V@600A               |
| <b>Current slope(Max)</b>           | 1800A/ms  | 900A/ms                  | 480A/ms                  | 300A/ms                 |
| <b>Model</b>                        | <b>FTR91350-80-4050</b>   | <b>FTR91620-300-2025</b> | <b>FTR91620-500-1080</b> | <b>FTR91620-800-675</b> |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 4050A   | 2025A                    | 1080A                    | 675A                    |
| <b>Resistance</b>                   | 0.001~3.9Ω  | 0.011~30Ω                | 0.018~92Ω                | 0.044~222Ω              |
| <b>Power</b>                        | 135kW   | 162kW                    |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@4050A  | 2V@2025A                 | 3.1V@1080A               | 2.5V@675A               |
| <b>Current slope(Max)</b>           | 2025A/ms  | 1012.5A/ms               | 54A/ms                   | 337.5A/ms               |
| <b>Model</b>                        | <b>FTR91500-80-4500</b>   | <b>FTR91800-300-2250</b> | <b>FTR91800-500-1200</b> | <b>FTR91800-800-750</b> |
| <b>Voltage</b>                      | 80V   | 300V                     | 500V                     | 800V                    |
| <b>Current</b>                      | 4500A   | 2250A                    | 1200A                    | 750A                    |
| <b>Resistance</b>                   | 0.001~3.5Ω  | 0.01~26Ω                 | 0.017~83Ω                | 0.04~200Ω               |
| <b>Power</b>                        | 150kW   | 180kW                    |                          |                         |
| <b>Minimum on-load voltage</b>      | 0.5V@4500A  | 2V@2250A                 | 3.1V@1200A               | 2.5V@750A               |
| <b>Current slope(Max)</b>           | 2250A/ms  | 1125A/ms                 | 600A/ms                  | 375A/ms                 |
| <b>Constant voltage①</b>            |   |                          |                          |                         |
| Resolution                          | 16bits  |                          |                          |                         |
| Precision                           | 0.05%+0.05%F.S.   |                          |                          |                         |
| <b>Constant current①</b>            |   |                          |                          |                         |
| Resolution                          | 16bits  |                          |                          |                         |
| Precision                           | 0.1%+0.1%F.S.   |                          |                          |                         |
| <b>Constant resistance①</b>         |   |                          |                          |                         |
| Resolution                          | 0.001Ω  |                          |                          |                         |
| Precision                           | 1%+0.5%F.S.   |                          |                          |                         |
| <b>Constant power①</b>              |   |                          |                          |                         |
| Resolution                          | 1W  |                          |                          |                         |
| Precision                           | 0.5%F.S.  |                          |                          |                         |
| <b>External analog programming①</b> |   |                          |                          |                         |
| Resolution                          | 0~5V corresponds to 0~100%F.S.  |                          |                          |                         |
| Voltage precision                   | 0.5%F.S.  |                          |                          |                         |
| Current precision                   | 0.5%F.S.  |                          |                          |                         |
| <b>Voltage measurement①</b>         |   |                          |                          |                         |
| Resolution                          | 16bits  |                          |                          |                         |
| Precision                           | 0.05%+0.05%F.S.   |                          |                          |                         |
| <b>Current measurement①</b>         |   |                          |                          |                         |
| Resolution                          | 16bits  |                          |                          |                         |
| Precision                           | 0.1%+0.1%F.S.   |                          |                          |                         |
| <b>Resistance measurement①</b>      |   |                          |                          |                         |
| Resolution                          | 0.001Ω  |                          |                          |                         |
| Precision                           | 1%+0.5%F.S.   |                          |                          |                         |
| <b>Power measurement①</b>           |   |                          |                          |                         |
| Resolution                          | 1W  |                          |                          |                         |
| Precision                           | 0.5%F.S.  |                          |                          |                         |
| Transient response                  | The response time is less than 2ms  |                          |                          |                         |
| Parallel operation                  | Supports 10 masters and slaves of the same model with capacity expansion      |                          |                          |                         |
| Protection                          | Over-voltage, over-current, over-power, over-temperature, under-voltage, etc. |                          |                          |                         |
| Communication interface             | LAN, USB serial port(optional GPIB, CAN, RS485)                               |                          |                          |                         |
| Communication protocol              | SCPI, MODBUS, CAN-Open protocols (Optional)                                   |                          |                          |                         |
| <b>Input characteristic</b>         |   |                          |                          |                         |
| Input voltage                       | 340VAC~480VAC, frequency range 45Hz~63Hz                                      |                          |                          |                         |
| Power factor                        | 0.99 (typical value)  |                          |                          |                         |
| efficiency                          | >93% (typical value)  |                          |                          |                         |
| <b>Use environment</b>              |   |                          |                          |                         |
| Operating temperature               | 0°C~40°C  |                          |                          |                         |
| Storage temperature                 | -20°C~70°C  |                          |                          |                         |
| Use altitude                        | <2000m  |                          |                          |                         |
| Heat dissipation method             | Air-cooled, intelligent air control   |                          |                          |                         |
| Dimension(WxHxD)                    | 5kW~18kW: 482.6mm x 132.5mm x 740.0mm, includes output protection cover       |                          |                          |                         |
| Weight                              | 5kW=18kg, 10kW=25kg, 15kW=32kg  |                          |                          |                         |

## Specification information-2

|                                    |   |                          |                          |
|------------------------------------|---|--------------------------|--------------------------|
| <b>Model</b>                       | <b>FTR9120-1000-40</b>  | <b>FTR9180-1500-40</b>   | <b>FTR9180-2250-25</b>   |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 40A   | 40A                      | 25A                      |
| Resistance                         | 1~5kΩ   | 1.5~7.5kΩ                | 3.6~18k                  |
| Power                              | 12kW  | 18kW                     |                          |
| Minimum on-load voltage            | 6.2V#40A  | 9.3V#40A                 | 7.5V#25A                 |
| Current slope(Max)                 | 20A/ms  | 20A/ms                   | 12.5A/ms                 |
| <b>Model</b>                       | <b>FTR9240-1000-80</b>  | <b>FTR9360-1500-80</b>   | <b>FTR9360-2250-50</b>   |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 80A   | 80A                      | 50A                      |
| Resistance                         | 0.5~2.5kΩ   | 0.75~7.5kΩ               | 1.8~9kΩ                  |
| Power                              | 24kW  | 36kW                     |                          |
| Minimum on-load voltage            | 6.2V#80A  | 9.3V#80A                 | 7.5V#50A                 |
| Current slope(Max)                 | 40A/ms  | 40A/ms                   | 25A/ms                   |
| <b>Model</b>                       | <b>FTR9360-1000-120</b>   | <b>FTR9540-1500-120</b>  | <b>FTR9540-2250-75</b>   |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 120A  | 120A                     | 75A                      |
| Resistance                         | 0.33~1.6kΩ  | 0.5~2.5kΩ                | 1.2~6kΩ                  |
| Power                              | 36kW  | 54kW                     |                          |
| Minimum on-load voltage            | 6.2V#120A   | 9.3V#120A                | 7.5V#75A                 |
| Current slope(Max)                 | 60A/ms  | 60A/ms                   | 37.5A/ms                 |
| <b>Model</b>                       | <b>FTR9480-1000-160</b>   | <b>FTR9720-1500-160</b>  | <b>FTR9720-2250-100</b>  |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 160A  | 160A                     | 100A                     |
| Resistance                         | 0.25~1.25kΩ   | 0.375~1.875kΩ            | 0.9~4.5kΩ                |
| Power                              | 48kW  | 72kW                     |                          |
| Minimum on-load voltage            | 6.2V#160A   | 9.3V#160A                | 7.5V#100A                |
| Current slope(Max)                 | 80A/ms  | 80A/ms                   | 50A/ms                   |
| <b>Model</b>                       | <b>FTR9600-1000-200</b>   | <b>FTR9900-1500-200</b>  | <b>FTR9900-2250-125</b>  |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 200A  | 200A                     | 125A                     |
| Resistance                         | 0.2~1kΩ   | 0.3~1.5kΩ                | 0.72~3.6kΩ               |
| Power                              | 60kW  | 90kW                     |                          |
| Minimum on-load voltage            | 6.2V#200A   | 9.3V#200A                | 7.5V#125A                |
| Current slope(Max)                 | 100A/ms   | 100A/ms                  | 62.5A/ms                 |
| <b>Model</b>                       | <b>FTR9720-1000-240</b>   | <b>FTR91080-1500-240</b> | <b>FTR91080-2250-150</b> |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 240A  | 240A                     | 150A                     |
| Resistance                         | 0.166~800Ω  | 0.25~1.25kΩ              | 0.6~3kΩ                  |
| Power                              | 72kW  | 108kW                    |                          |
| Minimum on-load voltage            | 6.2V#240A   | 9.3V#240A                | 7.5V#150A                |
| Current slope(Max)                 | 120A/ms   | 120A/ms                  | 75A/ms                   |
| <b>Model</b>                       | <b>FTR9840-1000-280</b>   | <b>FTR91260-1500-280</b> | <b>FTR91260-2250-175</b> |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 280A  | 280A                     | 175A                     |
| Resistance                         | 0.143~714Ω  | 0.214~1.07kΩ             | 0.514~2.5kΩ              |
| Power                              | 84kW  | 126kW                    |                          |
| Minimum on-load voltage            | 6.2V#280A   | 9.3V#280A                | 7.5V#175A                |
| Current slope(Max)                 | 140A/ms   | 140A/ms                  | 87.5A/ms                 |
| <b>Model</b>                       | <b>FTR9960-1000-320</b>   | <b>FTR91440-1500-320</b> | <b>FTR91440-2250-200</b> |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 320A  | 320A                     | 200A                     |
| Resistance                         | 0.125~625Ω  | 0.188~938Ω               | 0.45~2.25kΩ              |
| Power                              | 96kW  | 144kW                    |                          |
| Minimum on-load voltage            | 6.2V#320A   | 9.3V#320A                | 7.5V#200A                |
| Current slope(Max)                 | 160A/ms   | 160A/ms                  | 100A/ms                  |
| <b>Model</b>                       | <b>FTR91080-1000-360</b>  | <b>FTR91620-1500-360</b> | <b>FTR91620-2250-225</b> |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 360A  | 360A                     | 225A                     |
| Resistance                         | 0.11~555Ω   | 0.167~833Ω               | 0.4~2kΩ                  |
| Power                              | 108kW   | 162kW                    |                          |
| Minimum on-load voltage            | 6.2V#360A   | 9.3V#360A                | 7.5V#225A                |
| Current slope(Max)                 | 180A/ms   | 180A/ms                  | 112.5A/ms                |
| <b>Model</b>                       | <b>FTR91200-1000-400</b>  | <b>FTR91800-1500-400</b> | <b>FTR91800-2250-250</b> |
| Voltage                            | 1000V   | 1500V                    | 2250V                    |
| Current                            | 400A  | 400A                     | 250A                     |
| Resistance                         | 0.1~500Ω  | 0.15~750Ω                | 0.36~1.8kΩ               |
| Power                              | 120kW   | 180kW                    |                          |
| Minimum on-load voltage            | 6.2V#400A   | 9.3V#400A                | 7.5V#250A                |
| Current slope(Max)                 | 200A/ms   | 200A/ms                  | 125A/ms                  |
| <b>Constant voltage</b>            |   |                          |                          |
| Resolution                         | 16bits  |                          |                          |
| Precision                          | 0.05%+0.05%F.S.   |                          |                          |
| <b>Constant current</b>            |   |                          |                          |
| Resolution                         | 16bits  |                          |                          |
| Precision                          | 0.1%+0.1%F.S.   |                          |                          |
| <b>Constant resistance</b>         |   |                          |                          |
| Resolution                         | 0.001Ω  |                          |                          |
| Precision                          | 1%+0.5%F.S.   |                          |                          |
| <b>Constant power</b>              |   |                          |                          |
| Resolution                         | 1W  |                          |                          |
| Precision                          | 1%F.S.  |                          |                          |
| <b>External analog programming</b> |   |                          |                          |
| Resolution                         | 0~5V corresponds to 0~100%F.S.  |                          |                          |
| Voltage precision                  | 0.5%F.S.  |                          |                          |
| Current precision                  | 0.5%F.S.  |                          |                          |
| <b>Voltage measurement</b>         |   |                          |                          |
| Resolution                         | 16bits  |                          |                          |
| Precision                          | 0.05%+0.05%F.S.   |                          |                          |
| <b>Current measurement</b>         |   |                          |                          |
| Resolution                         | 16bits  |                          |                          |
| Precision                          | 0.1%+0.1%F.S.   |                          |                          |
| <b>Resistance measurement</b>      |   |                          |                          |
| Resolution                         | 0.001Ω  |                          |                          |
| Precision                          | 1%+0.5%F.S.   |                          |                          |
| <b>Power measurement</b>           |   |                          |                          |
| Precision                          | 1%F.S.  |                          |                          |
| <b>Transient response</b>          | The response time is less than 2ms  |                          |                          |
| <b>Parallel operation</b>          | Supports 10 masters and slaves of the same model with capacity expansion      |                          |                          |
| <b>Protection</b>                  | Over-voltage, over-current, over-power, over-temperature, under-voltage, etc. |                          |                          |
| <b>Communication interface</b>     | LAN, USB series port (Optional GPIB, CAN, RS485)                              |                          |                          |
| <b>Communication protocol</b>      | SCPI, MODBUS, CAN-Open protocols (Optional)                                   |                          |                          |
| <b>Input characteristic</b>        |   |                          |                          |
| Input Voltage                      | 340VAC~480VAC, frequency range 45Hz~63Hz                                      |                          |                          |
| Power factor                       | 0.99 (typical value)  |                          |                          |
| efficiency                         | >93% (typical value)  |                          |                          |
| <b>Use environment</b>             |   |                          |                          |
| Operating temperature              | 0°C~40°C  |                          |                          |
| Storage temperature                | -20°C~70°C  |                          |                          |
| Use altitude                       | <2000m  |                          |                          |
| <b>Heat dissipation method</b>     | Air-cooled, intelligent air control   |                          |                          |
| <b>Dimension(WxHxD)</b>            | 5KW~18kW: 482.6mm x 132.5mm x 740.0mm, includes output protection cover       |                          |                          |
| <b>Weight</b>                      | 5KW≈18kg, 10KW≈25kg, 15KW≈32kg  |                          |                          |