

## Regenerative Grid Simulator ANRGS(F) Series



### Product Introduction

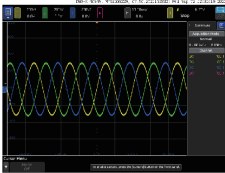
The ANRGS(F) Series Regenerative Grid Simulator adopts advanced SPWM technology, FPGA digital processing technology and high-power switching power supply technology, and it can output AC, DC, and AC+DC power supply, providing precise power input for AC load, DC load, rectifier load, etc. The power supply has the function of 100% rated power feedback to the grid, enabling four-quadrant operation and significant energy savings to reduce operating costs. It can set waveform switch-on and switch-off angles for testing surge current and output maintenance time. It can also set the rate of change of voltage and frequency to scan the range of power input specifications for the object to be tested. The power supply can simulate abnormal instantaneous rise, drop, short circuit, jitter and other phenomena in the power grid, stimulate distortion of the mains power waveform and provide accurate and fast measurement of power parameters. The ANRGS Series Regenerative Grid Simulator adopts advanced SPWM technology with excellent power output quality, widely used in laboratories and production lines in the photovoltaic, new energy vehicle, and other industries.

### Features

- It has advanced SPWM technology and FPGA digital processing technology and high-power switching power supply technology with high power density.
- It has output modes include AC, DC, and AC+DC.
- It has 100% rated power feedback to the grid, and the power supply can operate in all four quadrants.
- It can realize three-phase and single-phase parallel operation, and the single-phase output after parallel connection can reach the maximum capacity of the whole unit.
- It has harmonic synthesis function for 2-50 times interharmonics with a synthesis bandwidth of 3,000Hz.
- It has three programming functions: sequence, pulse, and step, which simulate the interference in the actual grid, with a minimum programming step size of 1ms.
- It has a 5-inch LCD, which is small in size, light in weight and 4U in height, meeting the installation requirements of standard cabinets.
- It is equipped with RS485 and Ethernet communication interfaces as standard, with optional RS232 and GPIB communication interfaces.
- It comes with upper computer software, which can import and export arbitrary waveforms and set parameters through the upper computer.

## Applications

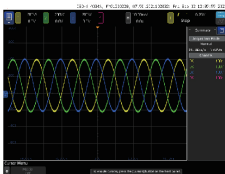
**AC+DC output mode:** Three output modes: AC, DC, and AC+DC



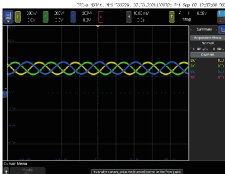
AC mode



DC mode

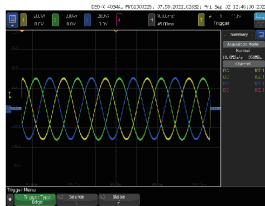


AC+DC mode



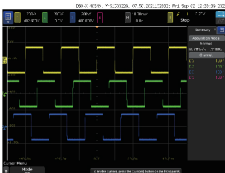
AC+DC mode

**Start-stop angle:** In the conventional mode, the start-stop angles of the waveform can be set to facilitate surge current tests.

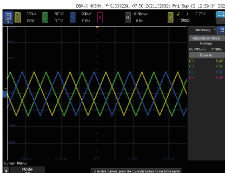


U-phase starts at 90° and stops at 270° waveform

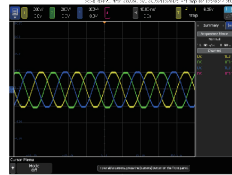
**Output waveform options:** The three-phase output waveform can be independently set to select sine wave, square wave, triangular wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of user-defined waveforms.



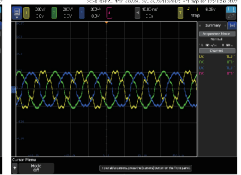
Square wave



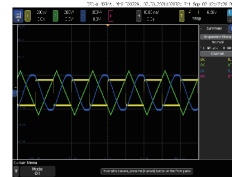
Triangular wave



Clipped sine wave

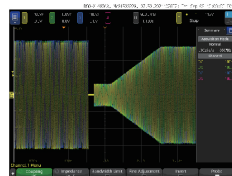


Built-in waveform

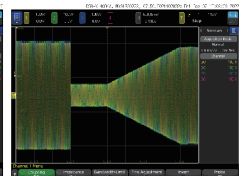


Different waveforms set for three phases

**Sequence mode:** It has universally programmable settings, where each phase of AC voltage, DC voltage, frequency, phase, waveform, and time can be independently set according to single-step settings. Trigger phase and loop count can be set, and parameters of three-phase outputs can be separately configured. Any phase abrupt change/crossing test can be achieved. Rich sequence combinations with high degree of freedom in parameter settings. By setting different combined sequence parameters, high and low voltage crossing tests can be completed. Minimum programming setting time is 1ms, capable of completing a 1ms stop test. Each sequence in each phase can independently set one of the 6 waveforms.



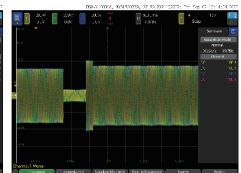
Zero voltage crossing test



Low voltage crossing test



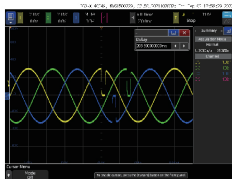
High voltage crossing test



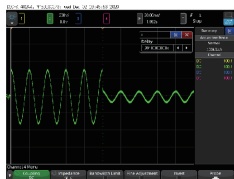
High and low voltage crossing tests



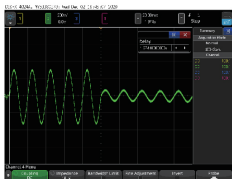
Different waveforms can be selected during testing



Each phase stops within 1ms at 90°

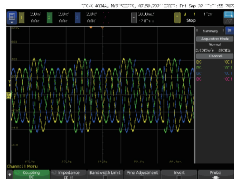


90° crossing



0° crossing

**Pulse mode:** it periodically changes the output state, where the power output will cyclically vary between regular power supply and pulse voltage. Each phase of AC voltage, DC voltage, frequency, angle, waveform, time, etc. can be independently set.



Pulse output waveform

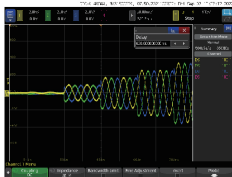


Pulse output waveform

**Step mode:** also known as staircase mode, where the output voltage gradually increases or decreases according to the set step size from the initial value. Each phase's AC voltage, DC voltage, and frequency can be independently set for initial value and change amount. Angle, waveform, step count, and step time for each phase can also be set independently.

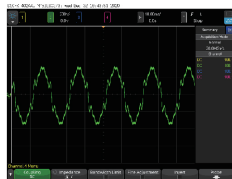


Step output waveform

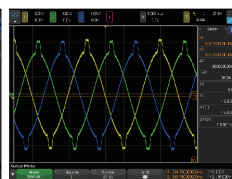


**Harmonic synthesis:** the power supply has harmonic editing function (2-50 times), and various harmonic components can be added to the standard sine wave.

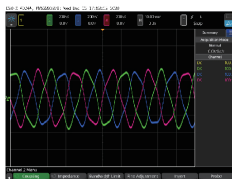
It has 3 sets of percentage harmonic storage groups and 3 sets of amplitude harmonic storage wave voltage, harmonic content, angle, etc., of each phase can be independently set. Under the percentage mode, the content and angle of each harmonic can be set, with a single harmonic up to 30%, no limit on total harmonic content, and no limit on the number of harmonic superimpositions. Under the amplitude mode, specific voltage values can be set for harmonic components, without any percentage relationship with fundamental wave voltage.



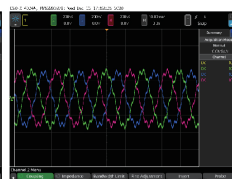
Harmonic output waveform



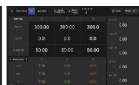
**Interharmonic synthesis:** the power supply has interharmonic editing function, allowing addition of interharmonic components to the standard sine wave. Interharmonic trigger angle, start-stop frequencies, content, and scan time can be set, with an interharmonic frequency range of 16-3,000Hz.



Interharmonic output waveform



**Operation:** 5-inch color capacitive touch screen and knobs can be used to set the voltage and frequency in the conventional mode, with buttons responsible for starting and stopping the conventional mode.



**Upper computer:** It is equipped with the standard upper computer software, with a graphical user interface for convenient and efficient operation.



## Selection List

| Model            | Complete machine Power | Output phase number        | AC voltage | Frequency        | DC voltage      | Per-phase current | Overall Dimensions W×H×D(mm) |
|------------------|------------------------|----------------------------|------------|------------------|-----------------|-------------------|------------------------------|
| ANRGS003S-350(F) | 3kVA                   | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS005S-350(F) | 5kVA                   | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS006S-350(F) | 6kVA                   | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS010S-350(F) | 10kVA                  | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 60A               | 432×175×735                  |
| ANRGS012S-350(F) | 12kVA                  | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 70A               | 432×175×700                  |
| ANRGS015S-350(F) | 15kVA                  | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 70A               | 432×175×700                  |
| ANRGS020S-350(F) | 20kVA                  | Single-phase               | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 120A              | 432×175×735                  |
| ANRGS006A-350(F) | 6kVA                   | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS009A-350(F) | 9kVA                   | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS012A-350(F) | 12kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS015A-350(F) | 15kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS018A-350(F) | 18kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 35A               | 432×175×700                  |
| ANRGS020A-350(F) | 20kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 60A               | 432×175×735                  |
| ANRGS025A-350(F) | 25kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 60A               | 432×175×735                  |
| ANRGS030A-350(F) | 30kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 60A               | 432×175×735                  |
| ANRGS050B-350(F) | 50kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 120A              | 600×1230×1000                |
| ANRGS060B-350(F) | 60kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 120A              | 600×1230×1000                |
| ANRGS075B-350(F) | 75kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 180A              | 600×1230×1000                |
| ANRGS090B-350(F) | 90kVA                  | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 180A              | 600×1230×1000                |
| ANRGS100B-350(F) | 100kVA                 | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 240A              | 600×1230×1000                |
| ANRGS120B-350(F) | 120kVA                 | Three-phase & single-phase | 0~350.00V  | 30.000~100.000Hz | -495.00~495.00V | 240A              | 600×1230×1000                |

## Specifications

| Model                 |                 | ANRGS<br>003S<br>-350(F)                    | ANRGS<br>005S<br>-350(F)  | ANRGS<br>006S<br>-350(F) | ANRGS<br>010S<br>-350(F) | ANRGS<br>012S<br>-350(F) | ANRGS<br>015S<br>-350(F) | ANRGS<br>018A<br>-350(F) |        |
|-----------------------|-----------------|---|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------|
| Power supply capacity |                 | 3000VA                                      | 5000VA                    | 6000VA                   | 10000VA                  | 12000VA                  | 15000VA                  | 20000VA                  |        |
| AC<br>input           | Voltage         | Line voltage: 342V-480V; 3-phase 3-wire+ PE |                           |                          |                          |                          |                          |                          |        |
|                       | Current (@342V) | 15A Max                                     | 22A Max                   | 25A Max                  | 39A Max                  | 40A Max                  | 50A Max                  | 65A Max                  |        |
|                       | Frequency       | 47 ~ 63Hz                                   |                           |                          |                          |                          |                          |                          |        |
|                       | Power factor *1 | ≥0.98                                       |                           |                          |                          |                          |                          |                          |        |
| AC<br>output          | Phase number    | Single-phase                                | Single-phase              | Single-phase             | Single-phase             | Single-phase             | Single-phase             | Single-phase             |        |
|                       | Power           | 3000VA                                      | 5000VA                    | 6000VA                   | 10000VA                  | 12000VA                  | 15000VA                  | 20000VA                  |        |
|                       | Voltage         | Range                                       | 0.00 ~ 350.00V            |                          |                          |                          |                          |                          |        |
|                       |                 | Resolution                                  | 0.01V                     |                          |                          |                          |                          |                          |        |
|                       |                 | Accuracy                                    | 0.1%F.S.                  |                          |                          |                          |                          |                          |        |
|                       |                 | Distortion *2                               | 0.3%@50/60Hz; 1%@30-100Hz |                          |                          |                          |                          |                          |        |
|                       |                 | Source effect *3                            | ≤0.02%                    |                          |                          |                          |                          |                          |        |
|                       |                 | Load effect *4                              | ≤0.02%                    |                          |                          |                          |                          |                          |        |
|                       | Current /phase  | Effective value range                       | 35A                       | 35A                      | 35A                      | 60A                      | 70A                      | 120A                     | 120A   |
|                       |                 | Peak value range                            | 105A                      | 105A                     | 105A                     | 180A                     | 210A                     | 360A                     | 360A   |
|                       | Frequency       | Range                                       | 30.000 ~ 100.000Hz        |                          |                          |                          |                          |                          |        |
|                       |                 | Resolution                                  | 0.001Hz                   |                          |                          |                          |                          |                          |        |
|                       |                 | Accuracy                                    | 0.01%                     |                          |                          |                          |                          |                          |        |
|                       | Power           | Range                                       | 3000W                     | 5000W                    | 6000W                    | 10000W                   | 12000W                   | 15000W                   | 20000W |



| Model   |  |   | ANRGS<br>003S<br>-350(F)  | ANRGS<br>005S<br>-350(F)  | ANRGS<br>006S<br>-350(F) | ANRGS<br>010S<br>-350(F) | ANRGS<br>012S<br>-350(F) | ANRGS<br>015S<br>-350(F) | ANRGS<br>018A<br>-350(F) |      |
|---|--|---|---|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| DC<br>output                                    | Voltage                                | Range   | -495.00 ~ 495.00V   |   |                          |                          |                          |                          |                          |      |
|   |  | Resolution  | 0.01V   |   |                          |                          |                          |                          |                          |      |
|   |  | Accuracy  | 0.1%F.S.  |   |                          |                          |                          |                          |                          |      |
|   | Current                                | Range   | 35A   | 35A   | 35A                      | 60A                      | 70A                      | 120A                     | 120A                     |      |
| Mea-<br>sure-<br>ment<br>accu-<br>racy          | Voltage                                | Range   | AC: 350.00V; DC: 495.00V  |   |                          |                          |                          |                          |                          |      |
|   |  | Resolution  | 0.01V   |   |                          |                          |                          |                          |                          |      |
|   |  | Accuracy *5   | 0.1%F.S.  |   |                          |                          |                          |                          |                          |      |
|   | Current                                | Range   | Effective value   | 35A   | 35A                      | 35A                      | 60A                      | 70A                      | 120A                     | 120A |
|   |  |   | Peak value  | 105A  | 105A                     | 105A                     | 180A                     | 210A                     | 360A                     | 360A |
|   |  | Resolution  | 0.01A   |   |                          |                          |                          |                          |                          |      |
|   |  | Effective value accuracy*6  | 0.2%F.S.  |   |                          |                          |                          |                          |                          |      |
|   |  | Peak value accuracy*6   | 0.5%F.S.  |   |                          |                          |                          |                          |                          |      |
|   | Power                                  | Resolution  | 0.01W   |   |                          |                          |                          |                          |                          |      |
|   |  | Accuracy *7   | 0.3%F.S.  |   |                          |                          |                          |                          |                          |      |
|   | Mea-<br>sure-<br>ment<br>accu-<br>racy | Display   |   | 5-inch color touch screen LCD   |                          |                          |                          |                          |                          |      |
|   |  | Waveform selection  |   | Sine wave, triangle wave, square wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of custom waveforms |                          |                          |                          |                          |                          |      |
| Start-stop angle                                |  | 0-359.9°  |   |   |                          |                          |                          |                          |                          |      |
| Knob function                                   |  | Knob adjustment available for conventional mode voltage and frequency settings  |   |   |                          |                          |                          |                          |                          |      |
| Parallel operation function                     |  | Can achieve parallel operation of multiple units  |   |   |                          |                          |                          |                          |                          |      |
| Harmonics                                       |  | 2-50 times  |   |   |                          |                          |                          |                          |                          |      |
| Harmonic and interharmonic simulation bandwidth |  | 3000Hz  |   |   |                          |                          |                          |                          |                          |      |
| Sequence mode                                   |  | 200 steps with 9,999 loops. Voltage, frequency, and phase angle can be programmatically outputted                             |   |   |                          |                          |                          |                          |                          |      |
| Pulse mode                                      |  | 9,999 loops. Cyclic changes in voltage amplitude, frequency, and angle  |   |   |                          |                          |                          |                          |                          |      |
| Step mode                                       |  | 9,999 loops. Change the voltage frequency according to the set voltage and frequency step values                              |   |   |                          |                          |                          |                          |                          |      |
| Online regulation function                      |  | Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online |   |   |                          |                          |                          |                          |                          |      |
| Line drop compensation                          |  | The device has Sense terminals that allow remote sampling compensation  |   |   |                          |                          |                          |                          |                          |      |
| Communication interface                         |  | RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)                    |   |   |                          |                          |                          |                          |                          |      |
| Work-<br>ing<br>envi-<br>ron-<br>ment           |  | Remote control  |   | None  |                          |                          |                          |                          |                          |      |
|   | Temperature                            |   | 0 ~ 40 °C   |   |                          |                          |                          |                          |                          |      |
|   | Humidity                               |   | 30 ~ 90%RH  |   |                          |                          |                          |                          |                          |      |
| Efficiency *8                                   |  |   | ≥92%  |   |                          |                          |                          |                          |                          |      |
| Protection                                      |  |   | Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating              |   |                          |                          |                          |                          |                          |      |
| Shape   | Height                                 |   | 4U  |   |                          |                          |                          |                          |                          |      |
|   | Dimensions<br>(W×H×D mm)               |   | 432×175×<br>700   | 432×175×<br>700   | 432×175×<br>700          | 432×175×<br>735          | 432×175×<br>700          | 432×175×<br>735          | 432×175×<br>735          |      |
|   |  |   | The width of 432mm is the standard 19-inch chassis size without handles, with handles the width is 480mm.   |   |                          |                          |                          |                          |                          |      |
|   |  |   | The height of 175mm is without feet, with feet the height is 188mm. The feet are detachable.  |   |                          |                          |                          |                          |                          |      |
|   |  |   | The depth of 700mm/735mm is the front and rear panel size excluding terminals and protective parts, the depth including terminals is 779mm/814mm. |   |                          |                          |                          |                          |                          |      |
| Weight (Kg)                                     |  |   | ≤25   | ≤25   | ≤25                      | ≤26                      | ≤35                      | ≤38                      | ≤38                      |      |

Any changes to the above parameter specifications will not be notified separately.

| Model                       |   | ANRGS<br>006A<br>-350(F)                    | ANRGS<br>009A<br>-350(F)   | ANRGS<br>012A<br>-350(F) | ANRGS<br>015A<br>-350(F) | ANRGS<br>018A<br>-350(F) | ANRGS<br>020A<br>-350(F) | ANRGS<br>025A<br>-350(F) | ANRGS<br>030A<br>-350(F) |         |      |
|-----------------------------|---|---|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------|------|
| Power supply capacity       |   | 6000VA                                      | 9000VA   | 12000VA                  | 15000VA                  | 18000VA                  | 20000VA                  | 25000VA                  | 30000VA                  |         |      |
| AC<br>input                 | Voltage   | Line voltage: 342V-480V; 3-phase 3-wire+ PE |  |                          |                          |                          |                          |                          |                          |         |      |
|                             | Current (@342V)   | 20A Max                                     | 25A Max  | 30A Max                  | 35A Max                  | 40A Max                  | 45A Max                  | 55A Max                  | 65A Max                  |         |      |
|                             | Frequency   | 47 ~ 63Hz                                   |  |                          |                          |                          |                          |                          |                          |         |      |
|                             | Power factor *1   | ≥0.98                                       |  |                          |                          |                          |                          |                          |                          |         |      |
| AC<br>output                | Phase number  |   | Three-phase & single-phase   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Power   | Total Power                                 | 6000VA   | 9000VA                   | 12000VA                  | 15000VA                  | 18000VA                  | 20000VA                  | 25000VA                  | 30000VA |      |
|                             |   | Power per phase                             | 2000VA   | 3000VA                   | 4000VA                   | 5000VA                   | 6000VA                   | 6667VA                   | 8333VA                   | 10000VA |      |
|                             |   | RRange                                      | 0.00 ~ 350.00V   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Voltage   | Resolution                                  | 0.01V  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Accuracy                                    | 0.1%F.S.   |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Distortion *2                               | 0.3%@50/60Hz; 1%@30-100Hz  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Source effect *3                            | ≤0.02%   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Current /phase  | Load effect *4                              | ≤0.02%   |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Effective value range                       | Three-phase mode   | 35A                      | 35A                      | 35A                      | 35A                      | 35A                      | 60A                      | 60A     | 60A  |
|                             |   | Effective value range                       | Single-phase mode  | 105A                     | 105A                     | 105A                     | 105A                     | 105A                     | 180A                     | 180A    | 180A |
|                             |   | Peak value range                            | Three-phase mode   | 105A                     | 105A                     | 105A                     | 105A                     | 105A                     | 180A                     | 180A    | 180A |
|                             |   | Peak value range                            | Single-phase mode  | 315A                     | 315A                     | 315A                     | 315A                     | 315A                     | 540A                     | 540A    | 540A |
| DC<br>output                | Frequency   | Range                                       | 30.000 ~ 100.000Hz   |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Resolution                                  | 0.001Hz  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Accuracy                                    | 0.01%  |                          |                          |                          |                          |                          |                          |         |      |
|                             | Power   | Total Power                                 | 6000W  | 9000W                    | 12000W                   | 15000W                   | 18000W                   | 20000W                   | 25000W                   | 30000W  |      |
|                             |   | Power per channel                           | 2000W  | 3000W                    | 4000W                    | 5000W                    | 6000W                    | 6667W                    | 8333W                    | 10000W  |      |
|                             | Voltage   | Range                                       | -495.00 ~ 495.00V  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Resolution                                  | 0.01V  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Accuracy                                    | 0.1%F.S.   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Current   | Range                                       | Single channel   | 35A                      | 35A                      | 35A                      | 35A                      | 35A                      | 60A                      | 60A     | 60A  |
|                             |   |   | Parallel connection  | 105A                     | 105A                     | 105A                     | 105A                     | 105A                     | 180A                     | 180A    | 180A |
| Measure<br>ment<br>accuracy | Voltage   | Range                                       | AC: 350.00V; DC: 495.00V   |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Resolution                                  | 0.01V  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Accuracy *5                                 | 0.1%F.S.   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Current   | Range                                       | Effective value  | 105A                     | 105A                     | 105A                     | 105A                     | 105A                     | 180A                     | 180A    | 180A |
|                             |   |   | Peak value   | 315A                     | 315A                     | 315A                     | 315A                     | 315A                     | 540A                     | 540A    | 540A |
|                             |   | Resolution                                  | 0.01A  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Effective value accuracy*6                  | 0.2%F.S.   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Power   | Peak value accuracy*6                       | 0.5%F.S.   |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Resolution                                  | 0.01W  |                          |                          |                          |                          |                          |                          |         |      |
|                             |   | Accuracy *7                                 | 0.3%F.S.   |                          |                          |                          |                          |                          |                          |         |      |
| Function                    | Display   |   | 5-inch color touch screen LCD  |                          |                          |                          |                          |                          |                          |         |      |
|                             | Waveform selection  |   | Sine wave, triangle wave, square wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of custom waveforms              |                          |                          |                          |                          |                          |                          |         |      |
|                             | Start-stop angle  |   | 0-359.9°   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Knob function   |   | Knob adjustment available for conventional mode voltage and frequency settings   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Parallel operation function   |   | Can achieve parallel operation of multiple units   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Harmonics   |   | 2-50 times   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Harmonic and interharmonic simulation bandwidth   |   | 3000Hz   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Sequence mode   |   | 200 steps with 9,999 loops. Voltage, frequency, and phase angle can be programmatically outputted                                    |                          |                          |                          |                          |                          |                          |         |      |
|                             | Pulse mode  |   | 9,999 loops. Cyclic changes in voltage amplitude, frequency, and angle   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Step mode   |   | 9,999 loops. Change the voltage frequency according to the set voltage and frequency step values                                     |                          |                          |                          |                          |                          |                          |         |      |
|                             | Online regulation function  |   | Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online        |                          |                          |                          |                          |                          |                          |         |      |
|                             | Line drop compensation  |   | The device has Sense terminals that allow remote sampling compensation   |                          |                          |                          |                          |                          |                          |         |      |
| Working<br>environment      | Communication interface   |   | RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)                           |                          |                          |                          |                          |                          |                          |         |      |
|                             | Remote control  |   | None   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Temperature   |   | 0 ~ 40 °C  |                          |                          |                          |                          |                          |                          |         |      |
| Shape                       | Humidity  |   | 30 ~ 90%RH   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Efficiency *8   |   | ≥92%   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Protection  |   | Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating |                          |                          |                          |                          |                          |                          |         |      |
| Shape                       | Height  |   | 4U   |                          |                          |                          |                          |                          |                          |         |      |
|                             | Dimensions W×H×D(mm)  |   | 432×175×700  | 432×175×700              | 432×175×700              | 432×175×700              | 432×175×735              | 432×175×735              | 432×175×735              |         |      |
|                             | The width of 432mm is the standard 19-inch chassis size without handles, with handles the width is 480mm. |   |  |                          |                          |                          |                          |                          |                          |         |      |

## Specifications

| Model                             | ANRGS<br>050B-350(F)                            | ANRGS<br>060B-350(F)   | ANRGS<br>075B-350(F) | ANRGS<br>090B-350(F) | ANRGS<br>100B-350(F) | ANRGS<br>120B-350(F) |
|-----------------------------------|---|--|----------------------|----------------------|----------------------|----------------------|
| Power supply capacity             | 50kVA   | 60kVA  | 75kVA                | 90kVA                | 100kVA               | 120kVA               |
| AC<br>input                       | Line voltage: 342V-480V: 3-phase 3-wire+PE      |  |                      |                      |                      |                      |
|                                   | Voltage   |  |                      |                      |                      |                      |
|                                   | Current (@342V)                                 | 110A Max   | 130A Max             | 165A Max             | 220A Max             | 260A Max             |
|                                   | Frequency                                       | 47-63Hz  |                      |                      |                      |                      |
| Power                             | Power factor *1                                 | ≥0.98  |                      |                      |                      |                      |
|                                   | Number of phase                                 | Three-phase & single-phase   |                      |                      |                      |                      |
|                                   | Total power                                     | 50kVA  | 60kVA                | 75kVA                | 90kVA                | 100kVA               |
|                                   | Power per phase                                 | 16.66kVA   | 20kVA                | 25kVA                | 30kVA                | 33.33kVA             |
|                                   | Range   | 0.00-350.00V   |                      |                      |                      |                      |
|                                   | Resolution                                      | 0.01V  |                      |                      |                      |                      |
|                                   | Accuracy  | 0.1%F.S.   |                      |                      |                      |                      |
|                                   | Distortion *2                                   | 0.3%@50/60Hz: 1%@30-100Hz  |                      |                      |                      |                      |
|                                   | Source effect *3                                | ≤0.02%   |                      |                      |                      |                      |
|                                   | Load effect *4                                  | ≤0.02%   |                      |                      |                      |                      |
| AC<br>output                      | Effective value range (three-phase mode)        | 120A   | 120A                 | 180A                 | 180A                 | 240A                 |
|                                   | Effective value range (single-phase mode)       | 360A   | 360A                 | 540A                 | 540A                 | 720A                 |
|                                   | Peak value range (three-phase mode)             | 360A   | 360A                 | 540A                 | 540A                 | 720A                 |
|                                   | Peak value range (single-phase mode)            | 1080A  | 1080A                | 1620A                | 1620A                | 2160A                |
|                                   | Range   | 30.000-100.000Hz   |                      |                      |                      |                      |
|                                   | Resolution                                      | 0.001Hz  |                      |                      |                      |                      |
|                                   | Accuracy  | 0.01%  |                      |                      |                      |                      |
|                                   | Total Power                                     | 50kW   | 60kW                 | 75kW                 | 90kW                 | 100kW                |
|                                   | Power per channel                               | 16.66kW  | 20kW                 | 25kW                 | 30kW                 | 33.33kW              |
|                                   | Range   | -495.00-495.00V  |                      |                      |                      |                      |
| DC<br>output                      | Resolution                                      | 0.01V  |                      |                      |                      |                      |
|                                   | Accuracy  | 0.1%F.S.   |                      |                      |                      |                      |
|                                   | Single channel                                  | 120A   | 120A                 | 180A                 | 180A                 | 240A                 |
|                                   | Parallel connection                             | 360A   | 360A                 | 540A                 | 540A                 | 720A                 |
|                                   | Range   | AC: 350V; DC: 495.00V  |                      |                      |                      |                      |
|                                   | Resolution                                      | 0.01V  |                      |                      |                      |                      |
|                                   | Accuracy *5                                     | 0.1%F.S.   |                      |                      |                      |                      |
|                                   | Effective value                                 | 360A   | 360A                 | 540A                 | 540A                 | 720A                 |
|                                   | Peak value                                      | 1080A  | 1080A                | 1620A                | 1620A                | 2160A                |
|                                   | Resolution                                      | 0.01A  |                      |                      |                      |                      |
| Measur-<br>ement<br>accu-<br>racy | Effective value accuracy*6                      | 0.2%F.S.   |                      |                      |                      |                      |
|                                   | Peak value accuracy*6                           | 0.5%F.S.   |                      |                      |                      |                      |
|                                   | Resolution                                      | 0.01W  |                      |                      |                      |                      |
|                                   | Accuracy *7                                     | 0.3%F.S.   |                      |                      |                      |                      |
|                                   | Display   | 5-inch color touch screen LCD  |                      |                      |                      |                      |
|                                   | Waveform selection                              | Sine wave, triangle wave, square wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of custom waveforms              |                      |                      |                      |                      |
|                                   | Start-stop angle                                | 0-359.9  |                      |                      |                      |                      |
|                                   | Knob function                                   | Knob adjustment available for conventional mode voltage and frequency settings   |                      |                      |                      |                      |
|                                   | Parallel operation function                     | None   |                      |                      |                      |                      |
|                                   | Harmonics                                       | 2-50 times   |                      |                      |                      |                      |
| Fun-<br>ction                     | Harmonic and interharmonic simulation bandwidth | 3000Hz   |                      |                      |                      |                      |
|                                   | Sequence mode                                   | 200 steps with 9999 loops. Voltage, frequency, and phase angle can be programmatically outputted                                     |                      |                      |                      |                      |
|                                   | Pulse mode                                      | 9999 loops. Cyclic changes in voltage amplitude, frequency, and angle  |                      |                      |                      |                      |
|                                   | Step mode                                       | 9999 loops. Change the voltage frequency according to the set voltage and frequency step values                                      |                      |                      |                      |                      |
|                                   | Online adjustment function                      | Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online        |                      |                      |                      |                      |
|                                   | Line drop compensation                          | The device has Sense terminals that allow remote sampling compensation   |                      |                      |                      |                      |
|                                   | Communication interface                         | RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)                           |                      |                      |                      |                      |
|                                   | Remote control                                  | None   |                      |                      |                      |                      |
|                                   | Temperature/                                    | 0-40 C   |                      |                      |                      |                      |
|                                   | humidity  | 30-90%RH   |                      |                      |                      |                      |
| Working<br>environ-<br>ment       | Efficiency *8                                   | ≥92%   |                      |                      |                      |                      |
|                                   | Protection                                      | Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating |                      |                      |                      |                      |
|                                   | Shape   | Dimensions(W×H×D mm)   |                      |                      |                      |                      |
|                                   | Weight (Kg)                                     | 600×1230 (the height with casters is 118)×1000   |                      |                      |                      |                      |
|                                   |   | ≤330   | ≤330                 | ≤380                 | ≤380                 | ≤440                 |
|                                   |   |  |                      |                      |                      | ≤440                 |
|                                   |   |  |                      |                      |                      |                      |
|                                   |   |  |                      |                      |                      |                      |
|                                   |   |  |                      |                      |                      |                      |
|                                   |   |  |                      |                      |                      |                      |
|                                   |   |  |                      |                      |                      |                      |

Any changes to the above parameter specifications will not be notified separately.