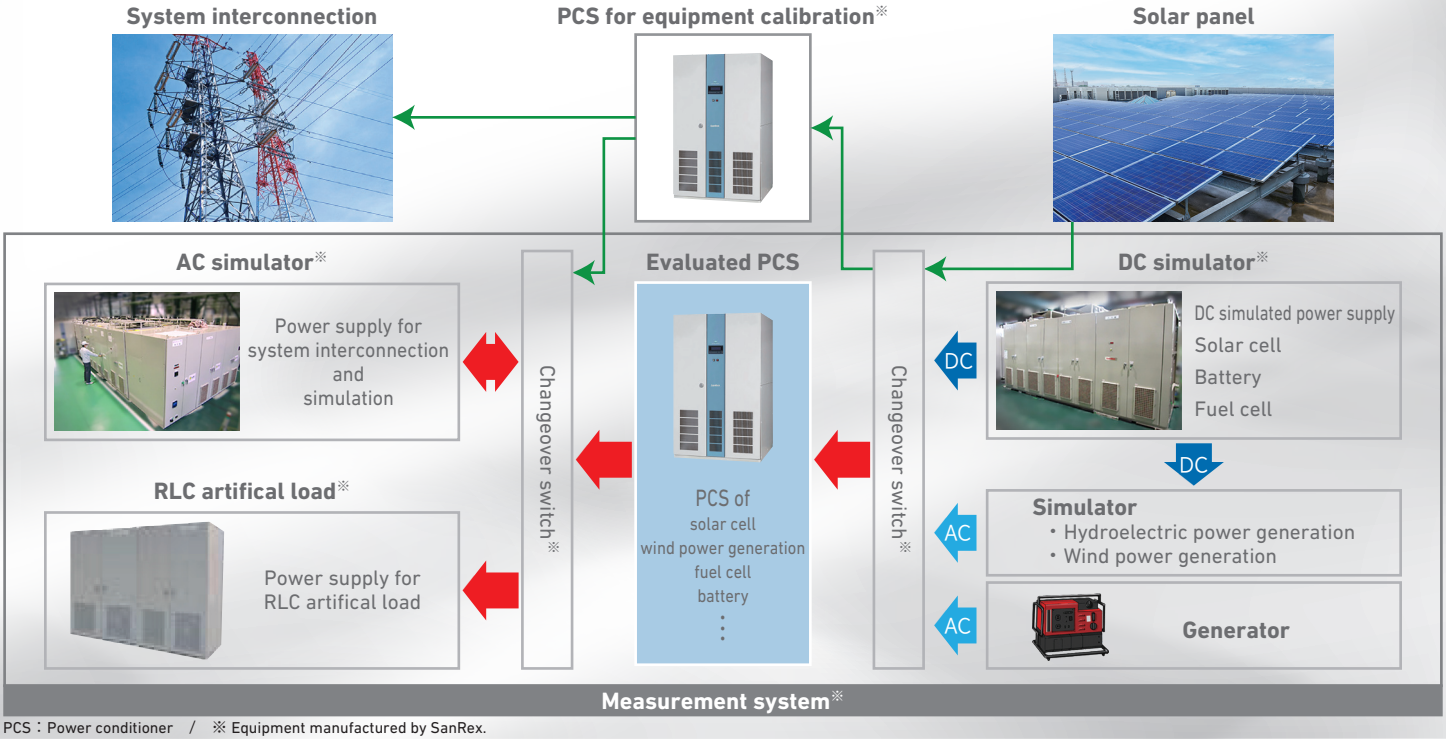
SanRex LEADING THE NEW POWER ELECTRONICS ▶▶

# Power Conditioner Evaluation System

## Testing of grid-connected power conditioners can be performed under various simulated conditions!

Compatible with a variety of power conditioners for new energy sources such as solar cells, fuel cells, wind power, and small hydroelectric power generation. We delivered a 5MVA evaluation system to the National Institute of Advanced Industrial Science and Technology (AIST) as our largest capacity achievement. A system testing fuel cell stack and storage battery can be built with various configurations.




PCS：Power conditioner / ※ Equipment manufactured by SanRex.

## Functions overview

### AC simulator

This equipment recreates the changes of grid voltage such as frequency fluctuation or power failure, to test the behavior and performance of the power conditioner under various conditions.
By superimposing up to 40 high harmonics, it can reproduce real-life DC waveforms.

### DC simulator

Can recreate power output fluctuations of an abnormality, or fluctuations of wind or solar power generation due to various climatic conditions.

### RLC artificial load

To evaluate the operation of the system interconnection protective equipment, the RLC artificial load produces power and balanced load conditions.

### Measurement System

Its role is to record and measure the PCS performance and test them effortlessly under a wide range of parameters.

## PCS evaluation system lineup

Our systems cover the following range: 125kVA, 300kVA, 500kVA, 835kVA and 1670kVA, and they can be combined to accommodate bigger power needs.

## Track Records

The National Institute of Advanced Industrial Science and Technology (AIST)

Simulation systems for research and testing in global certification development in infrastructure dpt (METI)

5MVA AC simulator

3MW DC simulator

## System breakdown

- 5MVA AC simulator with 40 high harmonic superimposition ×1
- 3MW DC simulator ×1
- 3 MVA RLC artifical load device ×1
- Measurement system (×1, measuring instruments not included) ( ×4 for 4 test chambers)

## Other Records

- Korea Institute of Energy Research (KIER)
- Other power conditioner manufacturers

**SANSHA ELECTRIC MFG.**

# PCS's Evaluation System

## AC Simulator

| Item | Specifications | | | | |
|---|---|---|---|---|---|
| Insulation system | Built-in commercial frequency transformer (insulated) | | | | |
| Output capacity | ±125kVA | ±300kVA | ±500kVA | ±835kVA | ±1670kVA |
| Output voltage | AC 0 to 576V | | | | |
| | Capacitance reduction under AC320V | | | Capacitance reduction under AC360V | |
| AC output | 3 cables in 3-phase/4 cables in 3-phase | | | | |
| Output current max.(rms) | 188A | 560A | 935A | 1350A | 2500A |
| Output voltage distortion (THD) | Overall under 1.0% *Support Harmonic current measurement | | | | |
| Resolving power setting | 0.1V | | | | |
| Accuracy | Within±0.42V(at 420V) | | | | |
| Output frequency | 45.00 to 66.00Hz | | | | |
| Accuracy | Within 0.01Hz | | | | |
| Phase setting | 0 to 360° | | | | |
| Phase setting resolution power | 1° | | | | |
| AC input capacity | 148kVA | 326kVA/276kVA | 543kVA/460kVA | 918kVA/769kVA | 918kVA/769kVAx2circuit |
| System interconnection input | 3 Cables in 3-phase, AC420V±10% , 50/60Hz | | | | |
| Protection function of system interconnection | Installed *Bidirectional power converter | | | | |
| System current distortion (THD) | Overall under 5.0%, each harmonic under 3.0% | | | | |
| Others | Supports FRT·LVRT | | | | |
| System solution SW | Installed *For standalone Operation Use | | | | |
| External interface | Ethernet | | | | |

## DC Simulator

| Item | Specifications | | | |
|---|---|---|---|---|
| Insulation system | Built-in commercial frequency transformer (insulated) | | | |
| Output capacity | ±300kW | ±550kW | ±550kWx2circuit | ±550kWx3circuit |
| Output voltage | DC 0 to 1000V | | | |
| | Capacitance reduction under DC400V | Capacitance reduction under DC 370V | | |
| Max. Output current | DC750A | DC1500A | DC1500Ax2Circuit | DC1500Ax3Circuit |
| AC Input capacity | 326kVA/276kVA | 658kVA/547kVA | 658kVA/547kVAx2Circuit | 658kVA/547kVAx3Circuit |
| System interconnection input | 3 cables in 3-phase, AC420V±10%, 50/60Hz | | | |
| Power regeneration function | Installed *Bidirectional power converter | | | |
| System current distortion (THD) | Overall under 5.0%, Each harmonic under 3.0% | | | |
| IV curve setting | PC display | | | |
| Scheduled operation | Supports EN50530 | | | |
| MPPT efficiency measurement | Installed | | | |
| External interface | Ethernet | | | |

## RLC artifical load

| Item | Specifications | | | |
|---|---|---|---|---|
| R | 250kW (at AC380V) | 500kW (at AC380V) | 750kW (at AC380V) | 1000kW (at AC380V) |
| L | 250kVar(at AC380V) | 500kVar(at AC380V) | 750kVar(at AC380V) | 1000kVar(at AC380V) |
| C | 250kVar(at AC380V) | 500kVar(at AC380V) | 750kVar(at AC380V) | 1000kVar(at AC380V) |
| Control panel | LCD touch screen | | | |
| External interface | Ethernet | | | |

## Measurement System

| Item | Specifications |
|---|---|
| DC voltage/Current/Power | High accuracy *Wattmeter space |
| PCS voltage/Current/Power | High accuracy |
| System voltage/Current/Power | 3CT type |
| Recorder | For Waveform record |

※ It is possible to extend the capacity by parallel operation of AC simulator, DC simulator and artificial load panel.



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