Static Frequency Converter
TMP-TS250 Series
the Compact SFC
SFC is a load commutated inverter LCI, which drives a gas turbine generator like a synchronous motor, and accelerates up to the gas turbine’s self-sustaining speed. Our new compact SFC, TMP-TS250 Series, accumulates all major components in a single compact package. This contributes easy site work and space-saving for install.

**Features**

1. **High Reliability**

   TMEIC has over 3 decades experience and more than 160 SFC units with a total capacity more than 850MW in all over the world. We are continually developing SFC based on well-proven technology. This increases the reliability, safety and efficiency.

   ![](image)

   **Use for Hydro power plant**

   - The First Generation
     - Use for Thermal power plant (CE-HV Type)
   - The Second Generation
     - (CK-HV Type)
   - The Third Generation
     - (CF-WA Type)
   - The Fourth Generation
     - (TMP-TS150/TS170 Type)
   - The Fifth Generation
     - (TMP-TS250/TS250T Type)

   Total; More than 160 units, 850MW.

2. **High Efficiency : 98.5%**

   High efficiency approx.98.5% is achieved. This contributes the energy saving and reduces the demand on air conditioner.
3. Compact Footprint: 3.8m²

Space reduction to 47% of our conventional model achieved.

4. Easy Install

TMP-TS250 accommodates all circuits, including power converters, dc reactor and controls, in one package. No re-wiring work and no re-assembling work are required at site.

5. 12-pulsed Rectifier (Option)

12-pulse rectifier can be chosen to suit the particular requirements. 12-pulse rectifier decreases the harmonic distortion on the supply line.
6. Man-machine interface

Large LCD touch panel provided for excellent operability and maintainability.

Sample images of LCD touch panel

Main screen

Parameter setting

Failure indication

Event log

7. Trace Monitoring (Option)

“SFC Trace Monitoring” software indicates some useful wave data memorized just before and just after the failure on the PC screen. This contributes the trouble shooting, and increase the reliability.

Sample images of “SFC Trace Monitoring” software
System configuration

SFC consists of four main components, and they all are accommodated in one package.

Rectifier/Inverter  DC Reactor  Control

Input: system frequency

To main transformer

Turbine  Generator

Output: frequency synchronized with generator rotation

Rectifier
Converting the AC power to DC and controls the DC current by phase control of thyristors.

DC Reactor
Smothers the DC current.

Inverter
Converting the DC to AC synchronizing with generator motor rotation by phase control of thyristors.

Control
Controls and monitors the devices.
SFC is started, stopped, and operated by external requests as follows.

(1) **GT/SFC SELECTED REQUEST**
Activates the cooling fan for ready to start-up.

(2) **SFC START REQUEST**
Starts in the constant current control and the pulse mode. Then, SFC operation mode switches to the load commutation mode when the rotational speed and the generator voltage is increased enough.

(3) **SFC HIGH SPEED KEEP REQUEST**
Switches to the speed control and maintains the rotational speed of the gas turbine in constant (at firing speed).

(4) **SFC HIGH SPEED SPIN REQUEST OFF**
Gradually reduces the rotational speed of the gas turbine.

(5) **SFC LOW SPEED KEEP REQUEST**
Maintains the rotational speed of the gas turbine in constant (at firing speed).

(6) **SFC ACCELERATION REQUEST**
Reaccelerates the gas turbine when firing is completed. SFC increases the output current to the current set value.

(7) **SFC OFF REQUEST**
Gradually reduces the output current to zero. SFC stops after the output current gets down to zero.
### Dimensions

Unit: mm

- Weight: 6300kg TS250 (6pulse) type
- 6600kg TS250T (12pulse) type

### Circuit configurations

**TMP-TS250 (6pulse) type**

**TMP-TS250T (12pulse) type**
## Specifications

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<td>Output power (MW)</td>
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### Output voltage characteristics (Controlled by excitation system)

**50Hz area**

- **Output voltage**
  - V/f constant.
  - AVR voltage constant.

**60Hz area**

- **Output voltage**
  - V/f constant.
  - AVR voltage constant.