

新幹線電Ⓐ用電機品

Electrical Equipment for Shinkansen Super Express



乗る人に心地よく、環境に優しい 富士電機の新幹線電車用電機品

Fuji Electric produces electrical equipment for Shinkansen (bullet) trains, contributing to the famously safe, high-speed operation of Shinkansen trains.

新幹線に乗ると私達の数々の技術に出会えます。
富士電機は新幹線の高速安定走行に貢献しています。

- | | |
|---------|---------------|
| 低騒音 | 快適空間への追求 |
| 高効率 | 環境に優しい省エネシステム |
| 小形軽量 | コンパクトでパワフル |
| 高信頼性 | 安心を乗せて走る |
| 省メンテナンス | 車両をいたわる人に優しく |



The technical principles are as follows:

- Reduced noise level To increase the comfort of passengers and people living near the tracks
- Increased efficiency To achieve a high-target of reduction of energy consumption
- Downsizing To produce high-strength cars by effectively using the limited space
- Outstanding reliability To assure ultimate passenger safety and scheduled operation by minimizing failures
- Maintenance saving To facilitate maintenance work and to prolong the interval between maintenance



新幹線電車駆動システム Propulsion system for Shinkansen train

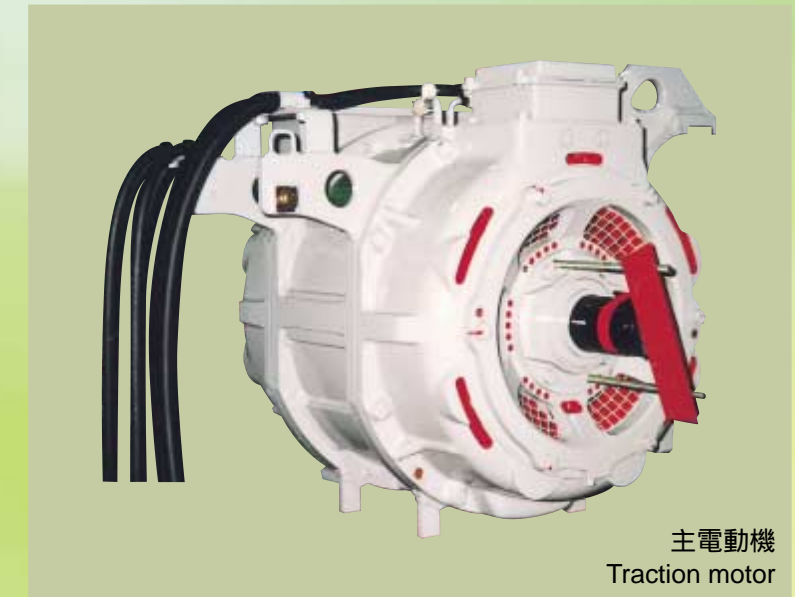
富士電機のパワーエレクトロニクスとシステムコントロール・テクノロジーで静粛性、高信頼性、高性能、高機能、高効率、小形・軽量、高速走行安定性に対応した新幹線電車駆動システムを実現しています。

Propulsion system of Fuji Electric, which is based on the latest power electronics and system control technology, offers the following features:

- Superior performance, functions and efficiency
- Superior stability at high-speed operation
- Outstanding reliability
- Low-noise level
- Smaller size

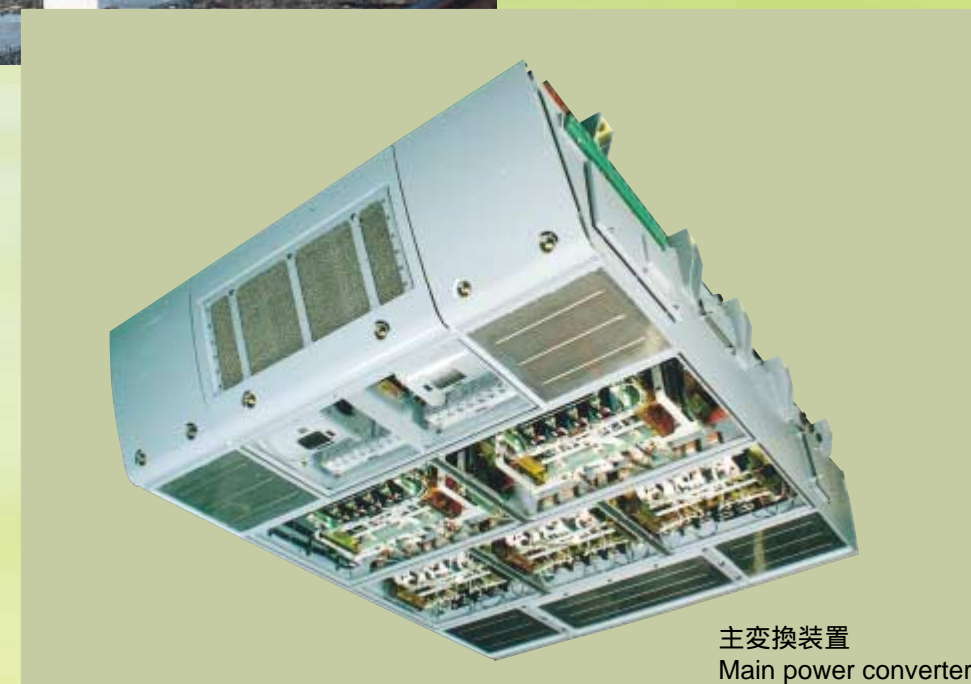
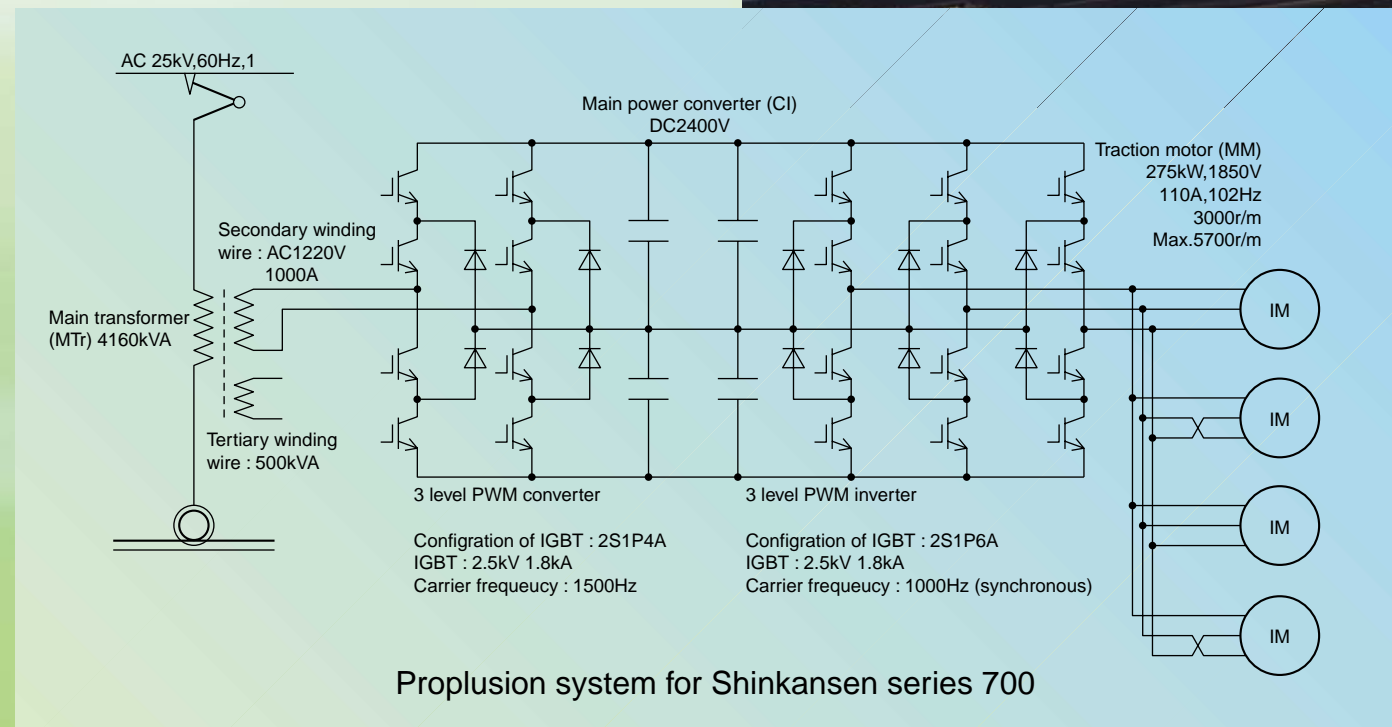


主変圧器
Main transformer



主電動機
Traction motor

主回路システム
Main circuit system



主変換装置
Main power converter

IGBT 主変換装置

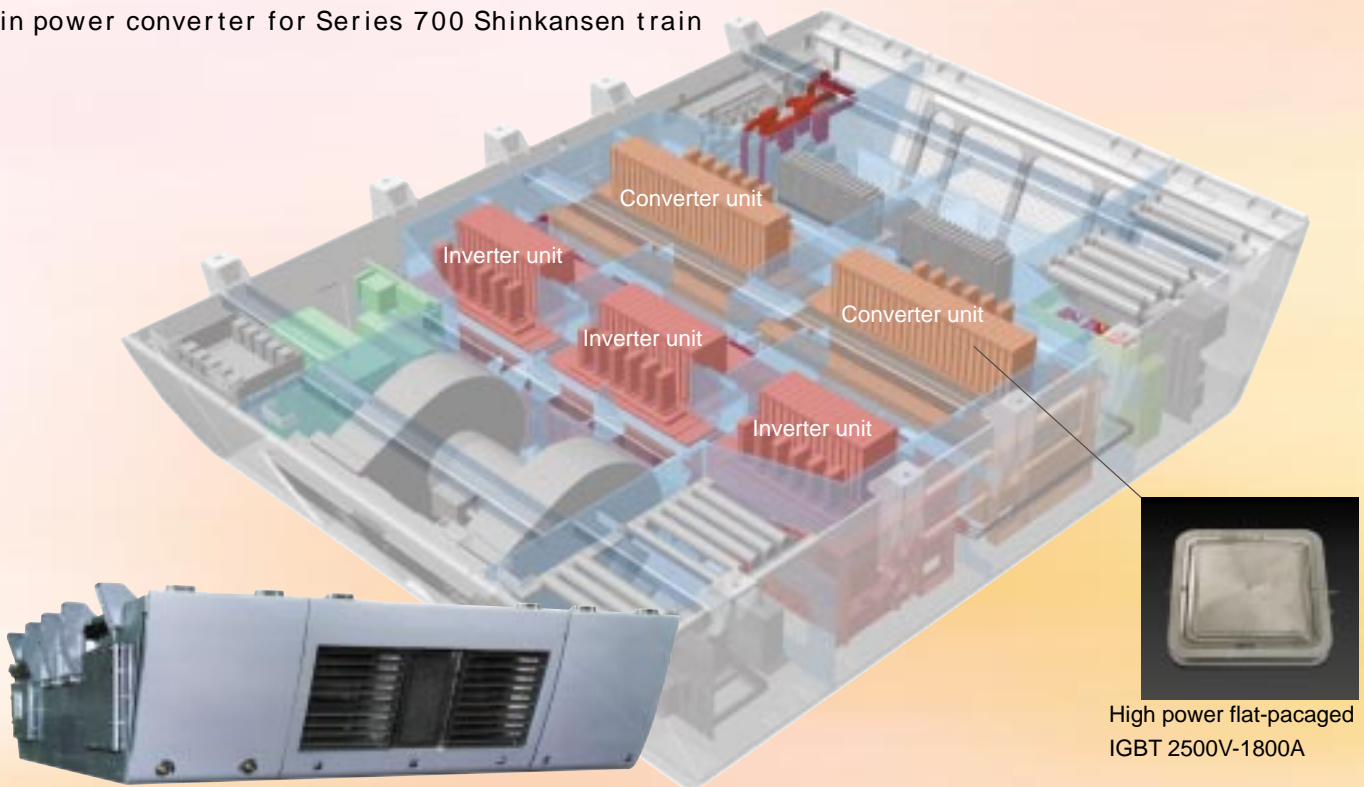
IGBT main power converter

高耐圧・大容量平形IGBT適用技術により高信頼性・高効率・
小形軽量・高性能・高機能・省メンテナンスを実現しています。

The IGBT main power converter of Fuji Electric incorporates high power flat-packaged IGBT, and provides the following features:

- Superior performance, functions and efficiency
- Outstanding reliability
- Downsizing

Main power converter for Series 700 Shinkansen train



パワーエレクトロニクス分野を常にリードしていく富士電機パワーデバイス

The power devices of Fuji Electric, which is a leader in the field of power electronics, are used in Shinkansen trains.



新幹線駆動制御ブロック図

Typical control block diagram of the Shinkansen train traction system

高性能・高機能な新幹線駆動制御システム

一次磁束基準磁束制御ベクトル制御方式

高性能 RISC (Reduced Instruction Set Computer),

DSP (Digital signal Processor)の適用

高速光シリアル伝送技術適用 I/O インタフェースによる絶縁と省線化

最新 EDA (Electric Design Automation) 技術に対応した制御システム

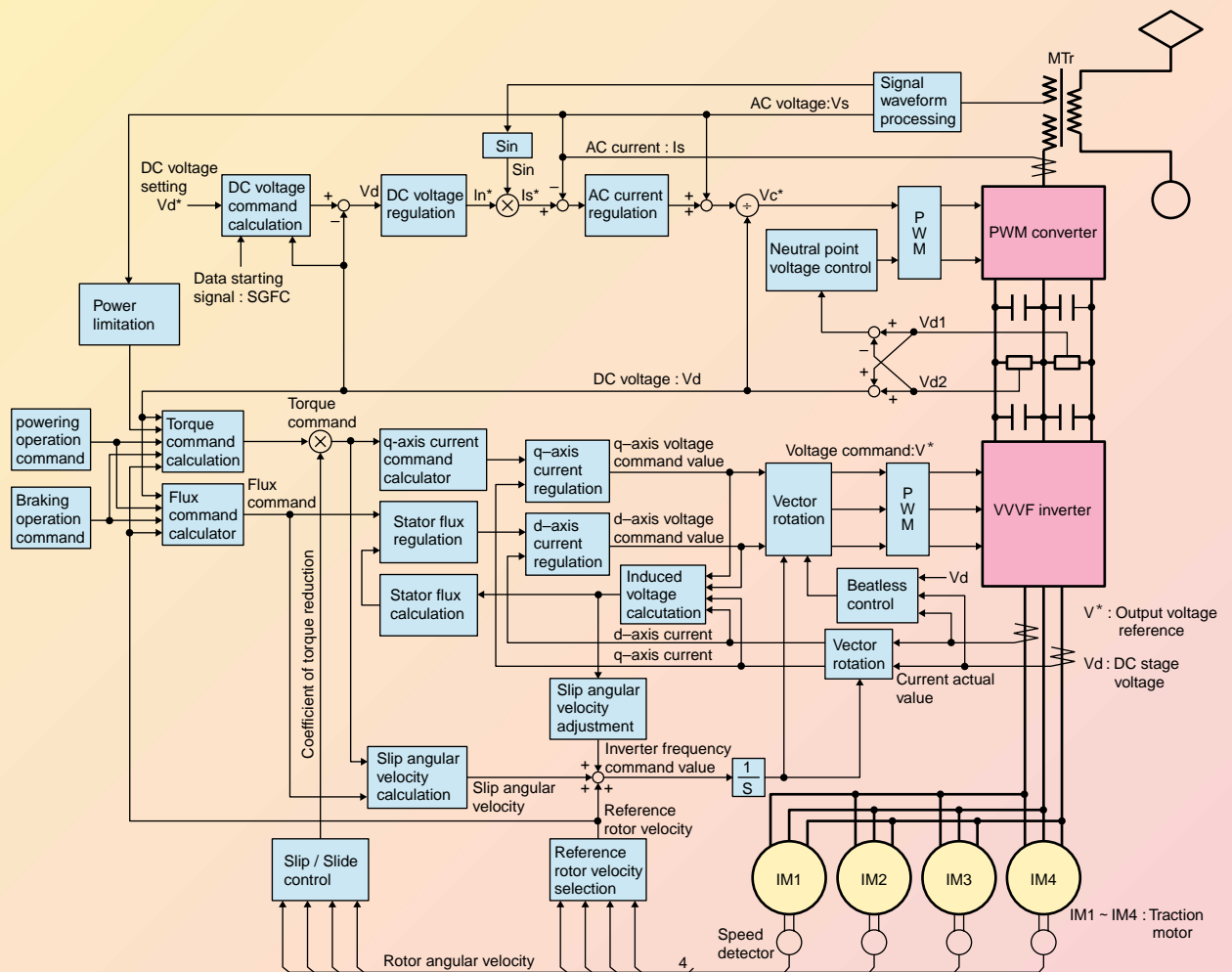
The Shinkansen train traction system is provided superior functions and performance by the following technologies:

Stator-flux-based vector control method

High-performance RISC (reduced instruction set computer) and DSP (digital signal processor) equipment

Insulation and wire saving by high-speed optical fiber serial I/O interface

Modern EDA (electric design automation) technology



Control block diagram of the Shinkansen train traction system

富士電機のリニアモータ技術は、駅ホームの安全性・快適性を実現します。

Safety fences based on linear motor technology of Fuji Electric assure safety and comfort of passengers on the station platforms.

リニアモータによる直接駆動

- 低騒音
- 高信頼性
- 高速応答
- 省メンテナンス

安全で快適なホーム環境

Direct drive system with a linear motor

Fuji Electric provides station platform equipment, which take safety and comfort of passengers on the platforms into account by means of features such as low-noise level, high-reliability, quick response and maintenance saving.



駆動用リニアモータ使用の新幹線ホーム可動柵
Liner motor driving system for safety fence of platform

日本交通機械殿へ納入
Supplied for Nippon Rolling Stock & Machinery Co.,Ltd.

鉄道車両用電機品(在来線)についてはカタログWC 31-12を参照ください。
For details of the Electrical Equipment for Rolling Stock, refer to the catalogue WC 31-12.

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