

Electrical Equipment for Railcars



Electrical Equipment for Railcars

Fuji Electric's Electrical Equipment contributes to the Safety and Stable Transportation.

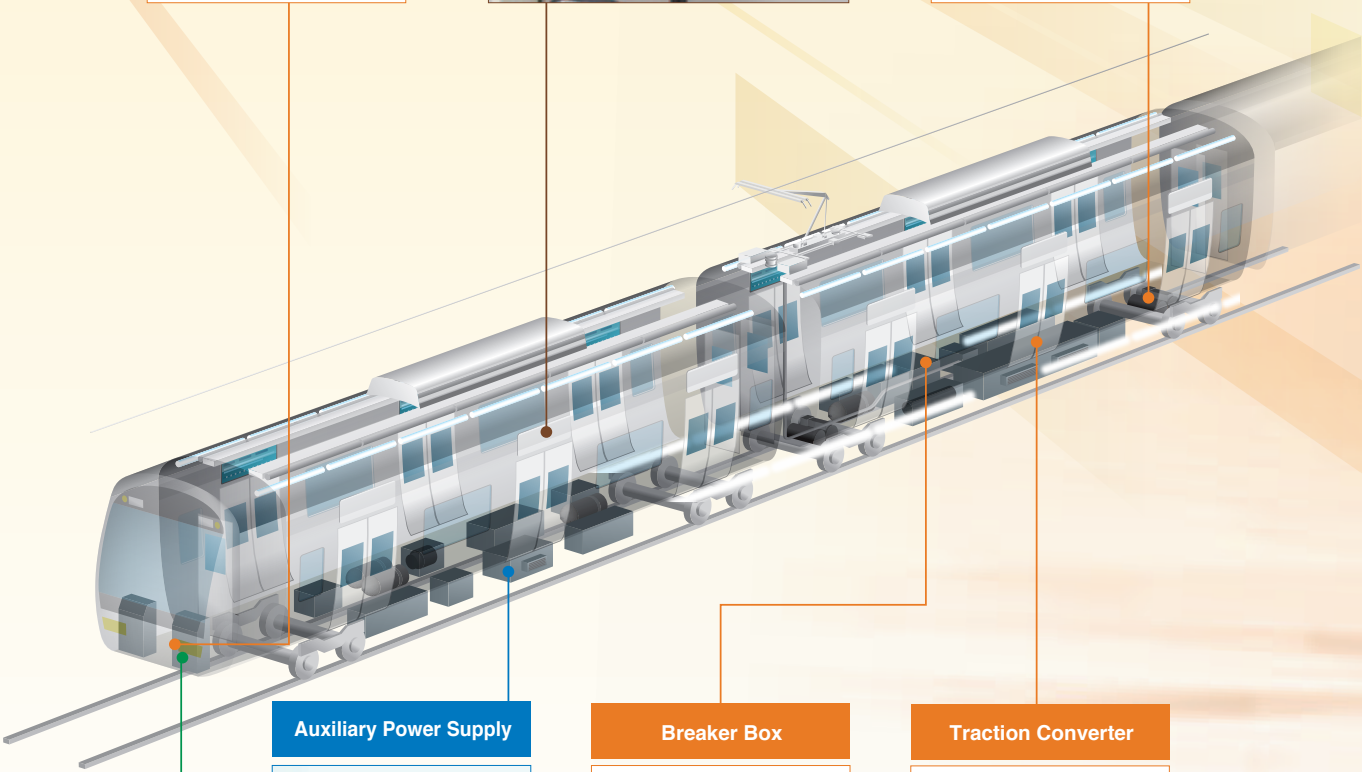
Master Controller

A green handheld device with a control knob and several indicator lights.

Door System

A mechanical assembly for a train door, showing the internal components and the door frame.

Traction Motor

A large, black, cylindrical motor with cooling fins and electrical connections.

Auxiliary Power Supply

A large, grey, rectangular power supply unit with multiple compartments.

Breaker Box

A black electrical control box with a transparent window showing internal components.

Traction Converter

A black electrical control box with a transparent window showing internal components.

Train Control and Monitoring System

A control room interior with a large monitor displaying train status and various control panels.

Main transformer for high speed rail

A large, grey, cylindrical transformer with cooling fins and electrical connections.

Traction converter for high speed rail

A large, grey, rectangular power supply unit with multiple compartments.

Propulsion System

Fuji Electric's Propulsion Systems have been in service over the years under diverse environment (including high temperature and high humidity).

Features

- Smooth acceleration/deceleration by stator-flux-based vector control for greater passenger comfort.
- Minimal maintenance work.
- Superior functions at low-cost.

Master Controller



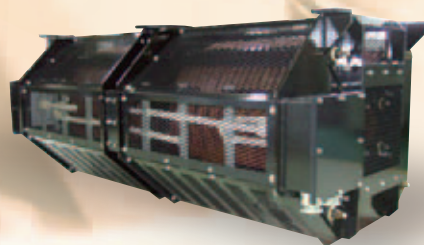
Surge Arrester



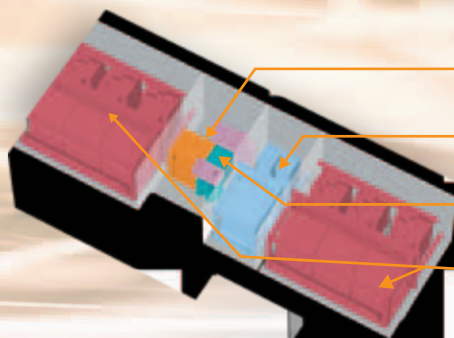
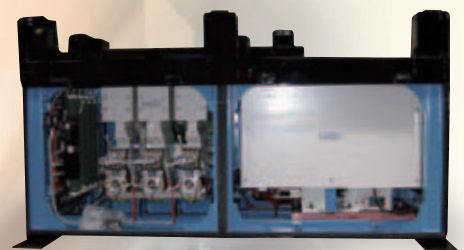
Traction Motor



Filter Reactor



Line Breaker Box



Control unit

Brake chopper unit

Relay unit

Inverter unit

Traction converter



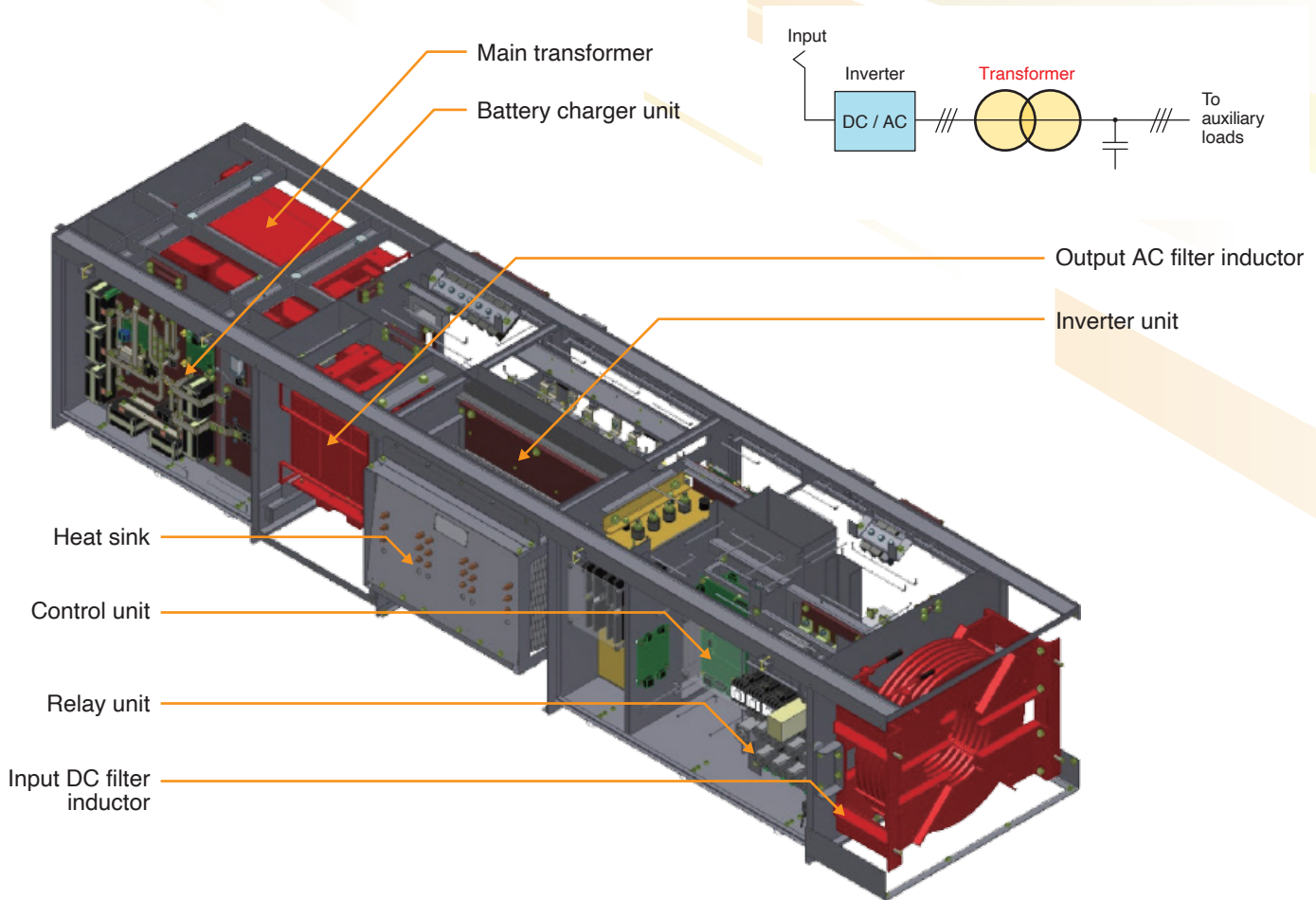
Singapore Mass Rapid Transit



Auxiliary Power Supply System (APS)

Fuji Electric provides the best solution for every customer's operating service requirements.

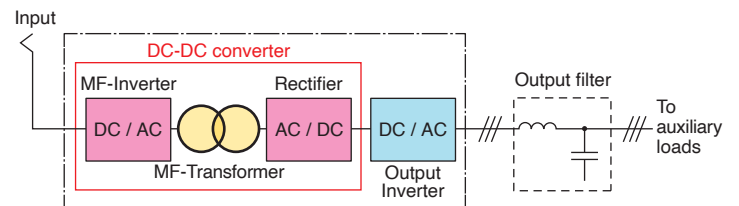
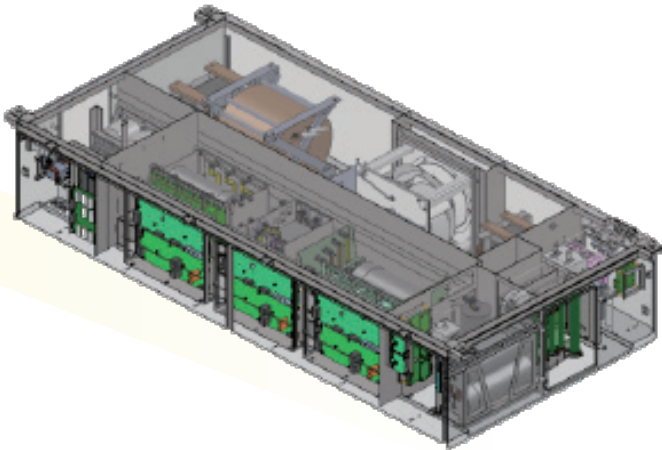
Utility frequency (50/60Hz) isolation system



Features

- **High Efficiency:** High efficiency is achieved without output filter inductor by using 3-level inverter with low loss power semiconductors.
- **High Reliability:** High reliability is attained by a small number of components and a simple control.
- **Saving Maintenance:** Almost no maintenance is required.

Medium frequency isolation system



Features

By increasing the inverter frequency, the size and weight of the inductors and transformer become about one-tenth, and has achieved a reduction in the box size and weight.

Auxiliary power supplies of Fuji Electric have been used in various environments in the world.

Examples of supply areas

Cold regions: Kyiv Metro, Ukraine Hokkaido Railway Company
Tropical zone: Singapore Mass Rapid Transit

Americas: Washington D.C. Metro
Europe : Kyiv Metro, Ukraine
Asia : East Japan Railway Company
African Continent: South Africa
Australian Continent: New South Wales

(Roof Mount)



Washington Metropolitan Area Transit Authority

Examples of specification

Car type (Supplied equipment)	Input		Output	Maximum capacity
Electric car (Auxiliary inverter)	DC1500V		AC440V, 3φ	260kVA
	DC750V		AC380V, 3φ	130kVA
	AC20/25kV		AC440V, 3φ	180kVA
Diesel train (Engine generator)	Engine generator for propulsion	Variable speed generator	DC24V	8kW ^{*1}
		Constant speed generator	AC440V, 3φ	25kVA ^{*2}
Passenger coach (Engine generator)	Engine for generator		AC440V, 3φ	440kVA ^{*3}

*1 Belt coupling

*2 Hydraulic coupling

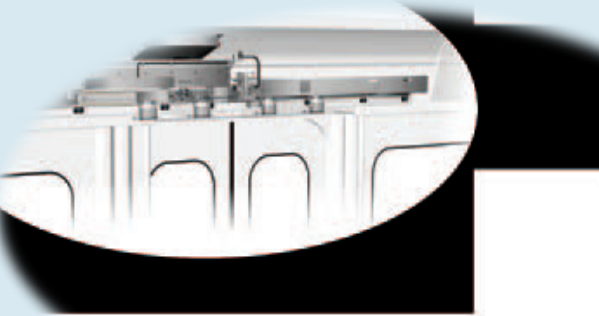
*3 Direct coupling

Electric Driven Door System

Fuji Electric contributes to the safety and comfort of the transportation system by supplying the electrical drive door system for railcars with state-of the art power electronics technologies.

Features

- Advanced power electronics and software technology to integrate safety design.
- Accurate and intelligent performance in obstruction detection.
- Small and light equipment with flat motor to simplifies the refurbishment from a pneumatic system.
- Simplified installation and easy maintenance and inspection provided by eliminating pneumatic pipings.
- Direct drive mechanism to provide high reliability than ball screw mechanism.

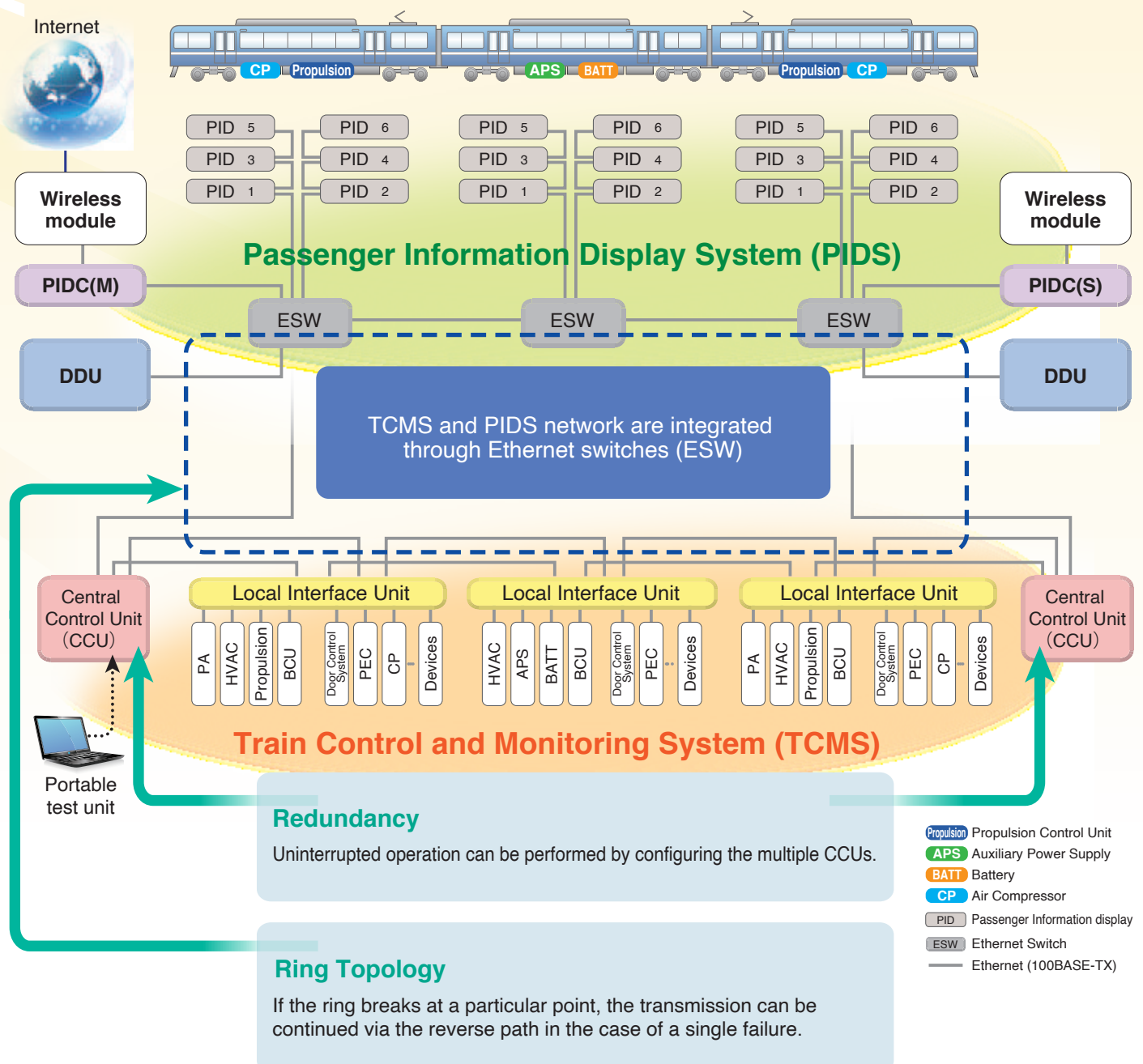
Drive mechanism	Exterior	Major product application
Flat Cup Permanent magnet Motor drive	Flat cup permanent magnet motor driven type Small and light-weight equipment to save the installation space 	Transportation Bureau of Tokyo Metropolitan Government Series 330 Yurikamome Series 7300 New York City Transit R160B Qualification Test (2010~2012)  
Linear motor direct drive	Linear motor driven type Direct drive mechanism to establish super high reliability 	East Japan Railway Series E231 Series E233 Series E531 New York City Transit R160B Washington Metropolitan Area Transit Authority  

Request us (download) catalog No.23A1-W-0014 for door system details.

Railcar Information Network System

Features

- Ring, tree or star topology can be selected based on types of devices being implemented to minimize the wiring and to realize the system redundancy.
- Ethernet can be used to link and integrate the TCMS with the passenger information display system and other systems.





Fuji Electric Corp. of America
50 Northfield Ave. Edison, NJ 08837
Phone: (732) 560-9410
www.fujielectric.com

Information in this catalog is subject to change without notice.