

FUJI ELECTRIC REVIEW vol.64 no.2 2018 Detailed Contents

Preface	50
Through our Pursuit of Innovation in Energy and Environment Technology, We Contribute to the Creation of Responsible and Sustainable Society That Places Equal Emphasis on Economy and Environment	
Special Conversation	52
—Aiming to Achieve One-Trillion-Yen Mark Before Fuji Electric Centennial in 2023— Leveraging Open Innovation to Create Customer Value in Product Planning and R&D	
Achievements and Future Outlook	57
Solutions That Create Customer Value Through Competitive Components, Systems and Use of IoT	
Highlights	63
<ul style="list-style-type: none"> ○ Reusable Storage Battery System for Consumers Compatible with Virtual Power Plants ○ “WX Series” Large-Capacity UPS, Employing Module Control Function ○ New Push-In Type Products That Contribute to Reducing Wiring Hours for Panels ○ “FRENIC-eFIT” Environmentally Resistant Inverter ○ Replacement of Large-Scale Monitoring and Control System of Steel Plants by Using “MICREX-View XX” ○ “MICREX-View XX” Functional Enhancement ○ 7th-Generation “X Series” RC-IGBT Module for Industrial Applications “Dual XT” ○ Series Expansion of Modules Equipped with SiC Trench MOSFETs ○ Start of Commercial Operation of Yamagawa Binary Power Station of Kyuden Mirai Energy Company, Incorporated ○ Multi-PCS for Storage Batteries and Photovoltaic Power Generation ○ Fresh-Brew Drip Coffee Machine for Overseas Markets ○ Fuji Electric’s Common Infrastructure IoT Platform 	
Energy Solutions in Power Electronics Systems	69
Energy Management	70
<ul style="list-style-type: none"> ① Motor and Synchronous Generator for Hateruma Power Plant of the Okinawa Electric Power Company, Incorporated ② Simulated Smart Grid and Power Generation System ③ Smart Inverters 	
Power Supply and Facility Systems	71
① Large-Capacity UPS Using Lithium-Ion Batteries (LiBs)	
Electric Distribution, Switching and Control Devices	72
<ul style="list-style-type: none"> ① “F-MPC60G Series” Multifunctional Digital Relay ② “F-MPC ZEBLA” 	
Industry Solutions in Power Electronics Systems	73
Factory Automation	74
<ul style="list-style-type: none"> ① Brake Motors Compliant with Overseas Efficiency Regulations ② “FIP Series” DC Backup Power Supply for Industrial Equipment ③ Acquisition of Explosion Proof Certification for “FST” Spool Piece Ultrasonic Flowmeters 	

④ High-Temperature Heat Pump Technology Capable of Generating 150°C Steam Using Low GWP Refrigerant	
⑤ Energy Use Efficiency Diagnosis Compliant with ISO 50006	
Process Automation	76
<ul style="list-style-type: none"> ① Steel Plant Standard System Package for Fuji Gemco Private Limited ② Delivery of Electrical Equipment for Continuous Galvanizing Lines ③ Electrical Equipment of Continuous Unloader for Thermal Power Plants ④ “LEONIC-M700” DC Motor Control Units for Industrial Plants: Expanding Capacity Line-Up of Thyristor Stacks ⑤ Monitoring and Control System Package for Cement Plants ⑥ Monitoring and Control System for Industry-Owned Thermal Power Plant ⑦ Monitoring and Control System for Biomass Power Plants ⑧ Replacing Monitoring and Control System of Food Factory ⑨ Simulation Based Induction Heating Equipment 	
Social Solutions—Transportation and Radiation Monitoring	79
<ul style="list-style-type: none"> ① Bulk Delivery of Electronic Products for C151B Trains Operated by Singapore’s Land Transport Authority (LTA) ② “NRF51” New Electronic Personal Dosimeter 	
Electronic Devices	80
Semiconductors	81
<ul style="list-style-type: none"> ① 650-V/50-A, 75-A Small-IPM ② 6.5th-Generation Automotive Pressure Sensor ③ “FA7A00Y Series” Light Control IC for Power Supply of LED Lighting ④ “Super J MOS S2 Series” and “Super J MOS S2FD Series” for DFN 8 × 8 Packages ⑤ Improved Printing Durability Property of Positive Charging Organic Photoconductor ⑥ “M660” High-Power, Direct Liquid Cooling IGBT Module for Automotive Applications ⑦ Digital Power Supply IC Technology Using 0.18-μm Design Rule 	
Disk Media	83
① Magnetic Recording Media with Large Capacity and High Reliability for Data Centers	
Power Generation	84
Power Plants	85
<ul style="list-style-type: none"> ① Start of Commercial Operation of Power Generation Facility No. 1 at Ishinomaki Hibarino Power Plant of Nippon Paper Ishinomaki Energy Center Ltd. ② Start of Commercial Operation of Peistareykir Geothermal Power Plant in Republic of Iceland ③ Start of Commercial Operation of 2nd Nagoya Power Plant of Nakayama Nagoya Kyodo Hatsuden Co., Ltd. ④ Low-Pressure Turbine Replacement for Existing Power Generation Facility at Noshiro Thermal Power Station of Tohoku Electric Power Co., Inc. ⑤ Replacement of Generator Air Cooler Made by Another Company for Saline Water Conversion Corporation of Saudi Arabia ⑥ Production of Superconducting Power Supply Facility (Coil Terminal Boxes) for JT-60SA 	

FUJI ELECTRIC REVIEW vol.64 no.2 2018 Detailed Contents

New Energy 87

- ① “PVI1000BT-3P/1000-F” PCS for Photovoltaic Power Generation , Completing Product Registration with Provincial Electricity Authority (PEA) of Thailand
- ② Phosphoric Acid Fuel Cell for Youil Industry Co., Ltd. in South Korea

Food Distribution 88

Vending Machines 89

- ① “FAT30L6RT8IK” Subfreezing Beverage Vending Machine

Store Distribution 89

- ① Line-Up Expansion of Non-Leak Integrated Showcase

Field Services 90

Field Services 90

- ① Online Partial Discharge Measurement Device
- ② VCB Collective Monitoring System
- ③ Functionality Expansion of “FWOSP” Wearable Remote Operation Support Package

Fundamental and Advanced Technologies 92

Fundamental Technology 93

- ① Optimization of Surface Insulation Design of Semiconductor Chip Based on Discharge Theory
- ② Deep Learning Technology That Allows Automatic Learning and Inference Basis Explanation
- ③ Approach of Computer Aided Engineering in Product Designing (Multi-Purpose Optimization)
- ④ Data Analysis Platform Technology
- ⑤ Device Authentication Mechanism for IoT System

Advanced Technology 95

- ① Active Gate Driving Technology for SiC-MOSFET
- ② Solid Oxide Fuel Cell for Commercial Use
- ③ Robust Design of Anti-Sway Control System for Cranes
- ④ Breath Measurement Technology Using MEMS Gas Sensors
- ⑤ Laser Display Technology with High Visibility
- ⑥ Diagnostic Visualization Technology and Non-Linear Diagnosis Technology
- ⑦ Corrosion Simulation Technology



* All brand names and product names in this journal might be trademarks or registered trademarks of their respective companies.