Technical Paper Program

See the list of Accepted Paper based on synopses and Full Papers final review.
Authors have been duly notified about acceptance or non-acceptance.
The selection process is now over.

B5-PROTECTION AND AUTOMATION

- Interoperability experience feedback including interfacing of virtualised functions
- Interoperability of engineering tools, test tools and settings
- Standardisation and unification of PACS including User Profiles, Product Standards and Basic Applications Profiles

Special Reporter PS1: Maud MERLEY

- Reliability of PACS and its components - Design and experience feedback
- Redundancy and lifetime expectations in digital Protection Automation and Control Systems
- Flexibility and updating of components during PACS lifetime

Special Reporter PS2: Kazuhiro ENOMOTO

- Settings and functional principles that could be updated or upgraded thanks to the increased performance and flexibility of moderns IEDs
- Improvement in maintenance policies and maintenance procedures
- Benefits resulting from increased functional integration capabilities

Special Reporter PS3: Mikko HOLMGREN

B5-PROTECTION AND AUTOMATION

PS1 - IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS

The order of the poster session is as follows:

- **First session（ID:odd）　14:00～15:30**
- **Second session（ID:even）　16:00～17:30**

ID: 1100: **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1：IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IEC 61850, Interchangeability, System engineering, System specification, Validation, Verification

An Innovative Off-site Engineering and Validation Framework Leveraging IEC 61850 for Protection, Automation, and Control Systems

André Felipe Silva Melo[1], Uire Ribeiro[2], Alessandro Granadino[3], Adilson Silva[4], Veronica Rossero-Morillo[5], Francisco GONZALEZ-LONGATT[6]
[1]Schneider Electric; [2]Schneider Electric; [3]Schneider Electric; [4]Schneider Electric; [5]National University of San Juan; [6]Loughborough University;

ID: 1110: **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1：IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IED interoperability, IEC 61850-9 LE, IEC 61869, Full-digital substations, Process-bus

Itaipu experience in the evaluation of performance and interoperability of protection based on process bus

Jonas Pesente[1], Esteban Vargas[1], Leonardo Nizer[2], Leandro Valoto[2]
[1]Itaipu Binacional, Brazil; [2]Itaipu Parquetec;

ID: 1113: **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1：IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IEC 61850, functional interoperability, BAP, substitution, PACS system integration

Interoperability Aspects from Rte's R#SPACE Project related to the Application of IEC 61850 Requirements

Volker Leitloff, Maud Merley, Dominique Dubar, Christophe Ghafari, Martial Bedourian, David Fontenay, Romain Malosse
Rte, France;

ID: 1114: **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1：IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Interoperability, Engineering, IEC 61850, Protection and control systems

Standards based engineering and its impact on interoperability of IEC 61850 based protection and control systems

Alexander Apostolov
OMICRON electronics, United States of America;

ID: 1117 : First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Digital Substation - IEC 61850 - Gateway

Development of Gateway for IEC 61850 Digital Substation

Shintaro NISHI, Daichi JOZEN, Atsushi OKAHISA, Yosuke TAKESHITA
Kansai Transmission and Distribution, Inc., Japan;

ID: 1120 : Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Secondary circuit modeling, Operation and maintenance of protection, Automatic testing, Online monitoring, Automatic configuration of the applications

Research on the improvement of operation and maintenance efficiency of relay protection based on digital design technology

Hang LV, Xiao GONG, Jie DING, Li LI
NR Electric Co., Ltd, People's Republic of China;

ID: 1121 : First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Interoperability, Monitoring, IEC 61850, Digital Substation

Experiences in Interoperability Testing of IEDs Focusing on Time Synchronization Behavior

Paulo Sergio Pereira Junior, Rodolfo Cabral Bernardino, Gustavo Silva Salge, Cristiano Moreira Martins, Gustavo Espinha Lourenço, Paulo Sergio Pereira
CONPROVE, Brazil;

ID: 1128 : Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Substation, Interoperability, Process bus, Multivendor

Multivendor Interoperability Tests for Process Bus in Japan based on International Standards

Kota KAWASAKI[1], Masayuki DEGUCHI[1], Makoto OKAI[2], Takeshi ASAI[2], Keigo SHIMOFUJI[3], Shotaro SHIROI[3], Yasutaka KATAYANAGI[4], Akifumi IWAMARU[4], Keiichi NAGATA[5], Yuta ISHIGAMI[5]
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ID: 1129 : First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Digital substation, IEC 61850, Multi-vendor, Fault recorder, Station bus, Process bus, MMS, GOOSE

Development of IEC 61850 compliant multi-functional fault recorder

Reiya SUZUKI[1], Masayuki ISHIKAWA[1], Masafumi SHINOZAKI[1], Junichi UEDA[2], Yoshiharu INOMATA[2], Tetsuya KATAOKA[2], Harumi YAMAMOTO[2], Hiroyuki ONISHI[2]
[1]TEPCO Power Grid, Inc., Japan; [2]Kinkei System Corporation;

ID: 1130 : Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IEC 61850, Interoperability, Intelligent Substation, Remote operation and maintenance

Interoperability issues of IEDs and a remote operation and maintenance method

Laifeng Luo, Weiguo Yu, Jin Li, Xiaoquan Gao
CYG SUNRI, China, People's Republic of China;

ID: 1138 : Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: PAC system, Testing, IEC 61869-9, IEC 68150-9-2LE, Merging Unit

Interoperability Tests in a Multivendor Platform of Bus Bar Protection using IEC 61850 Process Bus applied by CIGRE Working Group B5.74

DENYS LELLYS[1], Pablo FLORES[2], Andre Melo[3], Rainer Goblirsch[4], Iñigo Ferrero[5], Cesar Redondo[6], Hamdy Faramawy[7], Alex Dierks[8], Rafael Toledo[9], sindhuja vijayaraghavan[10], Carlos aguilar[11]
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ID: 1142 : Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Intent-Based Networking, IEC 61850, Ethernet Networks, SCL Data Model

Enhanced PACS Network with Intent-Based Networking and IEC 61850

Guilhermme Lisboa, Davy Haegdorens, Stephan Kehrer
Belden, Brazil;

ID: 1143 : First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IEC 61850, SCL Data Model, Network Switches, SNMP, Interoperability

Developing a Comprehensive IEC 61850 Data Model for Network Switches

Guilhermme Lisboa[1], Guilherme Normanton[1], Arnau Vasquez[1], João Jorge[2]
[1]Belden; [2]Omicron;

ID: 1146 : Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Top-down Engineering, Digital Substations, IEC 61850, Process Bus, PACS

Top-Down Engineering Process Application on Digital Substation Protection, Automation and Control System Deployment

Mateus Alexandrino[1], Ana Gabriela da Silva de Azevedo[1], Mateus Cruz Lunardi[1], Silvia Sawada Simões Costa Higashi[1], Vitalcir Pietta[1], Adriano de Oliveira Ferreira[2], Bruno Alexandre Oleskowicz[2], Carlos de Souza Moraes Neto[2], Rafael Bonet Scheffer[2]
[1]Eletrobras, Brazil; [2]WEG, Brazil;

ID: 1149 : First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IEC 61850, Interoperability, Engineering Tools, Test tools, IEC 61869

Best practices for IEC 61850 tools to achieve interoperability and efficiency

Cédric Harispuru, Jose Sanchez
Siemens AG, Germany;

ID: 1157 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: IEC 61850, Artificial Intelligence, Large Language Model

Simplifying the configuration process for IEC61850-based systems through generative AI technology

Gabriel Fernandes, Adriano Pires, Héctor León, Heverton Lemos
GE Vernova, Brazil;

ID: 1159 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS1 : IEC 61850 based Interoperability of IEDs of different manufacturers and technologies integrated in one PACS
Keywords: Process Bus, GOOSE, Sampled Values, Standardisation, Identification

A proposal for a standard practice of GOOSE and Sampled Values messages configuration

Rodrigo Kenzo Kuniyoshi Pacheco, Romulo Augusto Hernandes
TSEA Energia, Brazil;

PS2 - PACS Life Cycle Performance and Longevity

The order of the poster session is as follows:

- **First session（ID:odd）　14:00～15:30**
- **Second session（ID:even）　16:00～17:30**

ID: 1111: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2：PACS Life Cycle Performance and Longevity
Keywords: Power System, Stability Control, Voltage Control, Frequency Control, Tohoku Area

Development of Integrated System Emergency Preventive Controller for 500kV Systems

Masami Sato[1], Shu Ito[1], Yoshikazu Oeda[1], Genki Yano[1], Takuya Endo[1], Naoya Inuzuka[2], Takumi Ishii[2], Tomohide Yamazaki[2], Saori Yoshimoto[2], Fumio Yamada[2]
[1]Tohoku Electric Power Network Co., Inc, Japan; [2]Toshiba Energy Systems & Solutions Corporation;

ID: 1125: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2：PACS Life Cycle Performance and Longevity
Keywords: measurement system, relay panel, retrofitting, equipment update, main circuit shutdown

Application of updating Total Measurement System using intermediate distribution frame retrofit modification

Katsuyuki Tado
NISSIN ELECTRIC Co.,Ltd., Japan;

ID: 1126: Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2：PACS Life Cycle Performance and Longevity
Keywords: Frequency stability control, Dynamic stability control, Load shedding, System Integrity Protection Scheme (SIPS)

Evolution of the System Stabilization Technology Supporting the Stable Operation of the Kansai Grid

Tomohiro KURUSHIMA[1], Takuo ARAMAKI[1], Yosuke TAKESHITA[2], Daichi JOZEN[2], Tsubasa TAMURA[2]
[1]MitsubishiElectric Corp., Japan; [2]Kansai Transmission & Distribution, Inc.,Japan;

ID: 1127: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2：PACS Life Cycle Performance and Longevity
Keywords: Maintenance, Component replacement, Retrofit, Securing Part, Declining birthrate

Status and future direction of digital relay operation and maintenance in Japan

Keita Deguchi[1], Yoshinobu Ueda[1], Kenji Okamura[2], Ryohei Sato[3], Takashi Miyagi[4], Ken Ichinose[5], Yoshifumi Fukuya[6]
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ID: 1131: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2：PACS Life Cycle Performance and Longevity
Keywords: Unit-replacement, Shortening the replacement duration

Unit-replacement method of Protection Relay

KEIGO SHIMOFUJI, YOSHITAKA TAKEMOTO, KENTARO NISHIMURA, KAZUYUKI HYODO
Hitachi, Ltd;

ID: 1139 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2 : PACS Life Cycle Performance and Longevity
Keywords: IEC 61850, IED, Distribution substation, Digitalization, Digital substation

Digitalization Progress and Approach for Full Digitalization of Distribution Substations in the Kansai Region of Japan

Ren Kato[1], Haruka Kitamura[1], Saki Uemura[1], Masahiro Ito[1], Ryosuke Itotani[2], Yuuma Yamamoto[2], Akinori Sugawara[2], Katsuya Taniizumi[2]
[1]Enegate Co.,Ltd.; [2]Kansai Transmission and Distribution, Inc.;

ID: 1144 : **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2 : PACS Life Cycle Performance and Longevity
Keywords: PACS, Carrier Relay, 54 Kbps Optical, IEEE C37.94, IEC61850, GOOSE, SV, MPLS-TP

Line Differential Protection over MPLS-TP: Guaranteed Reliability, Flexibility, and Longevity in PACS

Davy Haegdorens[1], Hideaki Sugiura[2], Guilhermme Lisboa[1]
[1]Belden, Belgium; [2]Toshiba, Japan;

ID: 1155 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2 : PACS Life Cycle Performance and Longevity
Keywords: Protection and Control System, Drilling Vessel, Life Cycle Management, Optimized Settings.

Life Cycle Management Overview of Protection, Automation, and Control Systems for Drilling Vessel Projects

Carlos Aviz[1], Rafael Fernandes[2], Ricardo Dutra[3], Angelo Hafner[4], Carlos Tavares[5]
[1]Aviz Consulting; [2]Equans; [3]Consulting; [4]DAX-Energy; [5]Petrobras;

ID: 1165 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS2 : PACS Life Cycle Performance and Longevity
Keywords: Line differential protection, IEC 61850, C37.94, IP/MPLS, redundancy

Enhancing existing line differential relay operation reliability with hitless IP/MPLS multipath redundancy

Hansen Chan, Dominique Verhulst
Nokia, Canada;

PS3 - Sharing of best practices on revised principles enabled by modern protection IEDs

The order of the poster session is as follows:

- **First session（ID:odd）　14:00～15:30**
- **Second session（ID:even）　16:00～17:30**

ID: 1107: **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3：Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Microgrid, Short circuit detection, IBR, Inter-harmonic current

A Norvel Short-circuit Detection Scheme for IBR-based Medium Voltage Microgrids

Satoshi Uda, Yoshinori Kawasaki, Sadayuki Ishikura
Sumitomo Electric Industries, Ltd., Japan;

ID: 1109: **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3：Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Merging unit, Process bus, IEC 61850, IEC 61869, Time synchronization, Over sampling

Prototype and evaluation of a new Sampling Rate Interchange-MU compliant with IEC 61850/61869

Ryuichi KAWAZOE[1], Kazuhiro KOJIMA[1], Akifumi IWAMARU[2], Tetsuro SHIMIZU[3], Tomoo OMORI[4], Tetsuo OTANI[5], Mutsumi AOKI[5]
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ID: 1112: **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3：Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Active component of zero-sequence current, Single-phase ground fault, High resistance grounding

Method of single phase-to-ground fault protection for low resistance grounding system

Yuqi Li, Haobin Zhu, Guangfu Xu
NR Electric Co., Ltd., People's Republic of China;

ID: 1115: **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3：Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Cross-differential protection, Double circuit transmission lines, IEC 61850

Cross differential protection applications in IEC 61850 based digital substations

Alexander Apostolov
OMICRON electronics, United States of America;

ID: 1116: **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3：Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Intelligent Electronic Device – Protection Equipment - Merging Unit

Development of a 275kV Line Differential Protection IED with Distributed and Integrated Functionality

Tsubasa TAMURA[1], Daichi JOZEN[1], Atsushi OKAHISA[1], Yosuke TAKESHITA[1], Yotaro NOSE[2], Takahiro MORI[2]
[1]Kansai Transmission and Distribution, Inc., Japan; [2]Toshiba Energy Systems & Solutions Corporation,Japan;

ID: 1119: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Blackout, Remedial action scheme, stability control, Load shedding, Generator trip

Implementing Integrated Remedial Action Scheme in Hokkaido's Power Grid to Prevent Blackout

Naruhito Yabuno[1], Kenta Nitta[1], Tomohiro Adachi[2], Kenichiro Kusaba[2]
[1]Hokkaido Electric Power Network Corporation, Japan; [2]Mitsubishi Electric Corporation, Japan;

ID: 1122: Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Cybersecurity, Microgrid, Vulnerability, Cyberattack, Risk, Incident Response

Cybersecurity Risks and Operational Impacts on Microgrids

Ubiratan Carmo
IATI, Brazil;

ID: 1123: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Renewable energy, reverse power flow, work adjustment, work efficiency, transfer trip

Development of a portable transfer trip device

NATSUMI HIRAOKA, YASUYUKI TSUJI
Hokuriku Electric Power Transmission & Distribution Company, Japan;

ID: 1124: Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Main Relay, Fail-Safe Relay, Operation Time

Considerations for Using IEDs as Protection Relay Devices in Japan

Satoshi MIZUHARA[1], Daichi JOZEN[2], Yosuke TAKESHITA[2]
[1]Electric Power Development Co.,Ltd., Japan; [2]Kansai Transmission and Distribution, Inc.;

ID: 1134: Second session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Low-Power Instrument Transformers, Rogowski Coils, Voltage, Dividers, IEC 61869 Series, Gas- Insulated Switchgear, Short Circuit Tests, Differential Protection, Distance Protection, Saturation

Impact of LPITs on Protection Algorithms

Lars Schulz[1], Cezary Dzienis[2]
[1]Siemens AG, Germany; [2]Hochschule Zittau/Görlitz – University of Applied Sciences, Germany;

ID: 1135: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Generator shedding, Single equipment failure, IP transmission, Renewable energy, Protection relay

Development of N-1 inter-trip scheme using IP transmission

SHINJI TANIGAWA[1], YASUYUKI NAKATA[1], HIROKI SAYAMA[1], TOMOHIRO KURUSHIMA[2]
[1]Chugoku Electric Power Transmission & Distribution Co.,Inc., Japan; [2]Mitsubishi Electric Corp;

ID: 1137: First session
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3: Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Merging unit, Protection relay, PAC, Trip circuit, Automatic supervision, Process bus

Automatic Supervision for Trip Circuit in Process Bus System

Makoto Okai[1], Yasutaka Sonobe[1], Tetsuya Miyoshi[1], Cheng Lizhou[1], Kazuhiro Kojima[2]
[1]Toshiba Energy Systems & Solutions Corporation; [2]Chubu Electric Power Grid Co.,Inc.;

ID: 1141 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: System Integrity Protection Scheme - System integration - Ring-type communication - Adaptive control

Development of Integrated Stability Control system

Yuki TAKAMATSU[1], Ryo YAMAGUCHI[2], Tomohiro HOSHINO[3], Kenichiro KUSABA[4]
[1]Chubu Electric Power Grid Co.,Inc.,; [2]Hitachi, Ltd.; [3]Toshiba Energy Systems & Solutions Corporation; [4]Mitsubishi Electric Corporation;

ID: 1145 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Fault Location, Travelling Wave, Time Synchronization, Accuracy

Double ended travelling wave fault location using unsynchronized data

Joerg Blumschein
SIEMENS, Germany;

ID: 1147 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Transformer protection, Turn-to-turn faults, Incremental negative-sequence differential current protection

Sensitive Turn-to-turn Fault Protection for Power Transformers Using Incremental Negative-Sequence Differential and Advanced Stabilising Criteria

Frank Mieske[1], Sebastian Schneider[1], Waldemar Rebizant[2], Krzysztof Solak[2]
[1]Siemens, Germany; [2]Wroclaw University of Science and Technology;

ID: 1148 : **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: IEDs, Electric Power Systems (EPS), IEC 61850, Settings, Electrical Protection

Best Practices for Optimizing Settings and Configuration Management of IEDs: Challenges and Application Experiences

Fabio Hernandez[1], Christian Guerrero[2], Laura Gonzalez[2], Juan M Caicedo[3], Gerardo Guerra[3], Alejandro Gil[4], Juan P. Agudelo[5]
[1]HART ENERGY CONTROL CONSULTING SAS, Colombia; [2]CELSIA; [3]ENLAZA; [4]UNIVERSIDAD NACIONAL DE COLOMBIA; [5]XM;

ID: 1151 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Passive sensing, Differential protection, Auto-reclose, Mixed circuits

Line Differential Protection for Long-Distance Remote Assets using Passive Optical Sensing

Iain Mckeeman, Elliot Hale, Fraser Cadger, Neil Gordon, Steven Blair
Synaptec, United Kingdom;

ID: 1152 : **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: shunt reactor, turn-to-turn faults, directional-ground fault protection, dry-type air-core reactors

Application of the directional ground-fault protection to detect turn-to-turn faults in an optimum protection scheme for high-voltage shunt reactors

Sebastian Schneider[1], Frank Mieske[1], Gustav Steynberg[1], Jorge Damasceno[2], Krzysztof Solak[3]
[1]Siemens AG, Germany; [2]Siemens AG, Brazil; [3]Wroclaw University of Science and Technology Poland;

ID: 1154 : **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Digitalization, Remote Access, Inspection and Test Plan, Cybersecurity, Modern IEDs.

Best maintenance practices adopted by Brazilian TSO considering modern IEDs

Rafael Fernandes[1], Ricardo Dutra[2], Juliana Muratore[3], Carlos Aviz[4]
[1]Equans; [2]Consultant; [3]State Grid Brazil; [4]Consultant;

ID: 1161 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Line protection, series-compensation capacitor, RTDS

Evaluation of a line protection system with a series-compensation capacitor

Rodrigo Kenzo Kuniyoshi Pacheco, Felipe Fernandes Pinheiro
TSEA Energia, Brazil;

ID: 1163 : **First session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Digital substation – Protection system – Communication network- Monitoring system

Monitoring System for the Communication Network of Protection Systems in Digital Substations

Denise Borges de Oliveira[1], Tatiana Maria T. de S. Alves[1], Iony Patriota de Siqueira[2]
[1]ONS- Brazilian National System Operator; [2]Tecnix Engenharia e Arquitetura LTDA;

ID: 1164 : **Second session**
B5 PROTECTION AND AUTOMATION - Full Papers
Topics: PS3 : Sharing of best practices on revised principles enabled by modern protection IEDs
Keywords: Asset-Management, Automation, Auditing, Case-Study, PCMS, Systems-Integration

Case Study of a Protection Configuration Management System in a Real-World Power Network

Tarik Mehmet Hussein
Endeavour Energy, Australia;

ACKNOWLEDGMENTS

Osaka Colloquium would like to particularly thank Study Committee Chair and Secretary for their valuable contribution in reviewing and assessing 2025 Synopses and Session Papers.

STUDY COMMITTEES

B5 –Protection and automation
Chair: Volker Leitloff
Secretary: Peter Bishop

Osaka Colloquium would like to thank also the Experts for their valuable contribution in reviewing and assessing 2025 Synopses and Session Papers.

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