ENERGY AUTOMATION

Your reliable partner
Global partner with local presence

GLOCAL STRATEGY

- Headquarters located in Grassobbio, close to Milan.
- "Glocal" growth strategy: we are global, but at the same time we have a local presence in the most strategic areas of the world, in order to meet the market's needs in the best way.

9 Production plants
6 in Italy, 1 in USA, 1 in France

+990 people

+70 years of experience

75% Export

+135 Countries worldwide choose Tesmec
4 Business units

- Overhead power lines construction & maintenance
- Advanced methodologies for powerlines improvement
- Zero emissions underground cable laying

- Telecommunications solutions for HV Grids
- Grid Management: protection and metering solutions
- Advanced sensors for fault passage indication, protection and monitoring

- Catenary lines construction & maintenance
- Diagnostics systems
- Big Data integrated solutions for safe infrastructure

- Telecom networks, FTTH & long distance, power cable installation
- Oil & Gas, Water pipelines
- Bulk excavation, Quarries & Surfaces mining

PLATFORMS FOR DIAGNOSTIC & DATA MANAGEMENT
Tesmec Automation S.r.l. is an Italian company operating in the sector of the technologies of power grids and offering the portfolio of solutions for different voltage classes. These solutions aim to face the new technological challenges related to renewable energy sources and distributed generation.

The combination of excellence in the development of sensors and of electronic devices expands Tesmec range of integrated systems in order to manage, in an efficient and sustainable way, the needs of a market characterized by the increase of energy consumption.
Tesmec Energy Automation: integrated solutions provider

PROTECTION & MONITORING
Protection, control and measurement solutions
- PROTECTION AND MEASUREMENT RELAYS
- FPI INDOOR AND OUTDOOR
- SMART METERING SYSTEM

SERVICE TELECOMMUNICATIONS
Remote management, backup communication, protection
- TELEPROTECTION
- POWER LINE CARRIER
- LINE TRAP

REMOTE CONTROL
Remote monitoring and control
- PRIMARY SUBSTATION
- SECONDARY SUBSTATION
- SMART METERING SYSTEM

NON-CONVENTIONAL SENSORS
Measurement smart sensors
- INDOOR
- OUTDOOR
- AIR
- GAS

INTEGRATED SOLUTIONS PROVIDER
Tesmec Energy Automation: solutions for smart distribution grid

SCADA/DMS

NETWORK
FR/ATM

ACCESS NETWORK
SERVICE PROVIDER
WLAN/HSDPA/LTE/OPTICAL FIBER

PRIMARY
SUBSTATION

TRANSFORMER DIFFERENTIAL PROTECTION RELAY
MULTIFUNCTIONAL PROTECTION RELAY
MULTIFUNCTIONAL PROTECTION RELAY

SMART
SECONDARY
SUBSTATION

REMOTE TERMINAL UNIT
POWER SUPPLY/BATTERY CHARGER
HI-GROUND/Non-CONVENTIONAL CT/TV MESS

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USER

MV ACTIVE/PASSIVE USER
REMOTE TERMINAL UNIT (RTU) integrates different communication protocols in a highly flexible and cost-effective solution

**MAIN FEATURES**
- Redundancy of critical components and interoperability with third-party devices
- Full support of the latest and legacy communication standards:
  - IEC 60870-5-101/104 (communication to control center)
  - IEC 61850 (communication to IEDs)
- Programmable Logic Controller (PLC) tool compliant with IEC 61131-3
- Ready for cyber security (IEC 62351)

**MAIN BENEFITS**
- Remotization of control & monitoring operations
- High level performance for plant management and improvement of efficiency and reliability

**REFERENCES**
- Various Italian DSO (Edyna, ACEA Group AGSM, Elettromeccanica S.r.l, Alperia Greenpower)
Remote Control for Secondary Substation

REMOTE TERMINAL UNIT and DEVICES for integrated MV and LV asset management and control

MAIN FEATURES

- Full support of the latest communication & cybersecurity standards
- Modular and programmable architecture.
- High availability of I/O unit for different signal acquisition (analog/digital)
- Integration of IoT protocol (i.e. MQTT) for light and fast communication.
- Asset and environmental monitoring.

MAIN BENEFITS

- Integrated solution for full SS monitoring.
- Flexible and adaptive structure to meet specific customers’ needs or plant dimensions.

REFERENCES

- Enel Group 3.000 installation
- Italian DSO: Iren Group
STRATEGIC COMPONENTS of the smart grid control, PROTECTION & MONITORING devices can detect, locate & isolate faults while ensuring service continuity

MAIN FEATURES

- Multifunctional and configurable protection and monitoring devices for primary and secondary substations
- Modular hardware and software architecture
- Compliance with all the latest communication standards (i.e. IEC61850)
- Cybersecurity ready as per IEC62351 guidelines

MAIN BENEFITS

- All-in-one solution for different applications
- Advanced management functionalities for higher reliability, efficiency and stability of MV grids.
- Reduced outage time

REFERENCES

- Enel Group (Italy/Romania) : more than 10.000 installation
- Main Italian DSO: Acea Group, Hera Group, Alperia Group, Dolomiti Energia Group, Ime Group, Tozzi Green Group
- Switchgear producers: more than 1.000 installation
Smart Grid Applications – Fault Detection

Different kinds of MV FAULT PASSAGE INDICATORS (FPI) for monitoring of line status, voltage presence and fault detection on power lines

MAIN FEATURES
- Real-time monitoring and fault detection for remote controlled MV/LV substations
- Fast and accurate fault position detection
- Phase-phase and phase-ground fault detection without any solid connection with MV power line
- Fixed or portable version
- Local and remote connection

MAIN BENEFITS
- Precise fault location for network reconfiguration (RGDAT)
- Easy to use and to configure
- Suitable for diagnostic operation directly on field
- Fast and safe use/installation (portable/pole discoverer)

REFERENCES
- Enel Group (Italy/Spain/Romania/LATAM): more than 60,000 FPI INDOOR installation
- Enel Group (Italy/Romania/LATAM): more than 19,000 FPI OUTDOOR installation
- Portable & Pole Discoverer for maintenance teams
  Long-time collaboration with ENEL
POWER LINE COMMUNICATION (PLC), TELEPROTECTION AND LINE TRAPS: a reliable solution for data, voice and teleprotection transmission over high voltage power lines

MAIN FEATURES
- Modular architecture for high customization
- Digital and/or analog communication
- All types of interfaces available (V.11, G.703, E1, SFP optical fibers, IEEE C37.94, 2/4-wire, PLC)
- Single-circuit and double-circuit lines
- Stand alone 6 embedded teleprotection
- IEC 61850 support

MAIN BENEFITS
- Fast and reliable communication between HV substations ensuring full protection of OHL
- One brand solution for the whole system ensuring full interoperability

REFERENCES
- Terna (Italian TSO)
- Enel Group (Italy)
- Sonelgaz (Algerian TSO)
- Dedicom (Malaysian TSO)
- ESO (Bulgarian TSO)
- IPTO (Greek TSO)
Non-conventional Instrument Transformers

MONITORING, POWER QUALITY, ENERGY BILLING

**MAIN FEATURES**
- Higher measurement accuracy: Class 0.5/5P for CT, Class 1/3P for VT
- Suitable for measurement and protection functions in both active and passive
- Available in active and passive configurations

**MAIN BENEFITS**
- Integrated CT/VT solution for a compact design (no need of measurement section in MV cubicles).
- Improved sensor immunity and response in adverse environmental and installation conditions
- Compatible with different type of IEDs (i.e. RGDM, Relays,..)

**REFERENCES**
- More than 70,000 sensors installed in Enel
- Rosseti (Russian TSO): Smart metering systems more than 2,500 installations
Substation Automation Systems

PROTECTION, MANAGEMENT, CONTROL and MONITORING system for HV substation (SAS)
AUTOMATION system for HV substation (ASAT)

MAIN FEATURES

- Full supervision for the electrical substation
- Integrated solutions for monitoring, protection and control
- Automation logic control developed in compliance with IEC 61131
- Redundant configuration
- Standard communication protocol compliant with IEC 61850

MAIN BENEFITS

- Real-time diagnostic for the full substation
- Predictive maintenance
- Fault detection
- Quick resume to the running state for the substation

REFERENCES

- Italian TSO: Terna
Partnership with General Electric International Inc.

Tesmec can boast a skilled and experienced team specialized in tools for preventive maintenance of transformers and other critical components of power networks

MAIN FEATURES

- Extend service life of critical assets, with clear benefit in terms of saving and optimization
- Support operation & maintenance procedures and empowering HR
- Real time assets' health index to drive maintenance actions and the procurement planning
- Protocols integration for comprehensive monitoring solutions
- Many years of experience in measurement and diagnostic
- Transformers, HV switches and protections under a same real-time software

REFERENCES

More than 2,000 DGA systems installed
- Tamini
- Getra Power
- EGP
- IREN

Long-time collaboration with Terna and ENEL
Our References

- **750** PLC and Teleprotections
- **1,000** RTU Systems
- **2,500** Smart Metering Systems
- **13,000** Protection and Monitoring relay
- **19,000** Outdoor FPI
- **60,000** Indoor FPI