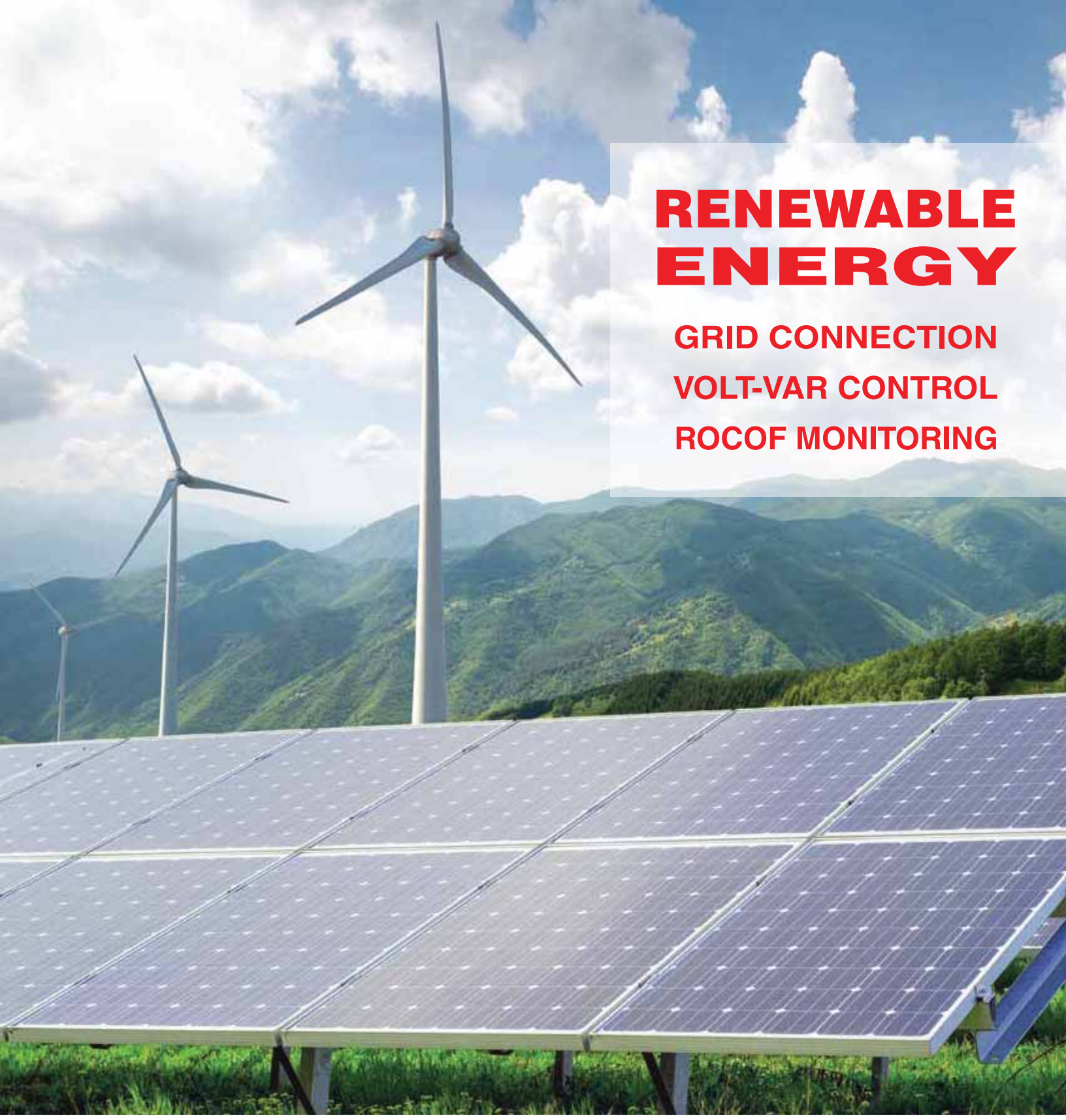


RENEWABLE ENERGY

GRID CONNECTION
VOLT-VAR CONTROL
ROCOF MONITORING

vizimax
ENERGY 3.0

POWER GRID
POWER GENERATION
INDUSTRY
HV-MV EQUIPMENT

SWITCH

Inrush Current Limiters for Power Transformers

For smooth and inrush-free connections of on-shore/off-shore Renewable Energy Sources to HV and MV power grids.

SynchroTeq™ calculates residual fluxes in HV-MV power transformers (in WTGs, wind farms, PV solar inverters, energy storage systems, substations, Statcom modules and more) and determines the optimal strategies for energizations, regardless of switchgear make.

SynchroTeq™ controls single-pole operated (independent poles) or three-pole operated (simultaneous poles/gang operated) switchgears for a significant reduction of inrush currents and voltage disturbances while energizing HV-MV transformers.

SynchroTeq™ installs in new and legacy power plants. A compact and simple addition to new and existing switchgears, it is a smart upgrade for power plants where meeting grid code compliancy remains an issue.

Advanced Fast-Switching for VAR Compensation

NEW : a patented solution for the ultra-fast switching of HV-MV capacitors in standalone configurations as well as in SVC or hybrid-STATCOM systems.

Allowing for close-open-close (COC) cycles in bursts within milliseconds, VIZIMAX's **SynchroTeq™** takes into account the trapped charge in partially discharged capacitors for a secure and transient-free switching at all times. No need to wait to fully discharge your capacitor banks.

SynchroTeq™ achieves the instantaneous restoration of voltage support or reactive capacities after a blackout, and improves VAR Compensation designs.

SynchroTeq™ is intended for mechanically switched HV-MV capacitors, shunt reactors, filters and cables. Avoid destructive current and voltage transients while keeping your assets healthy, increasing their lifecycles and improving power quality delivery to clients.

MEASURE

Volt/VAR/PF Control Frequency/ROCOF Monitoring

With a wide range of high-accuracy measurement devices, VIZIMAX brings power substation technologies into Renewable Energy sites.

Ultra-fast and stable ROCOF calculations, precise acquisitions of electrical values and synchrophasors sent using energy communication protocols help control and improve the behaviors of WTGs, wind farms, solar sites in regards to Volt/VAR control and secure connection to grids.

Key values from VIZIMAX's **PMU** and **AMU** can be shared with local IEDs and controllers as well as with grid operators' EMS/DMS through PDCs for advanced recording, monitoring and real-time control.

Their performance and high immunity in stressed power networks qualify VIZIMAX's **PMUs** for off-grid / microgrid projects, and the in-depth analysis and stability monitoring of wide area HV-MV power grids subject to an ever growing number of RES.

CONTROL

Secure Data Aggregator with mini SCADA interface

A secure integration of Distributed Energy Resources (DER) in MV power grids is made easier with the VIZIMAX **RightWON™** substation controller. It helps operators and DSOs monitor, lock and maneuver generation and substation assets remotely according to grid conditions and security requirements.

The **RightWON™** is intended for real-time control, acquisition and processing. It features a local and remote web-based interface with time-stamped event journals, data trending and graphic mini-SCADA visualization.

Protocol Manager and Gateway

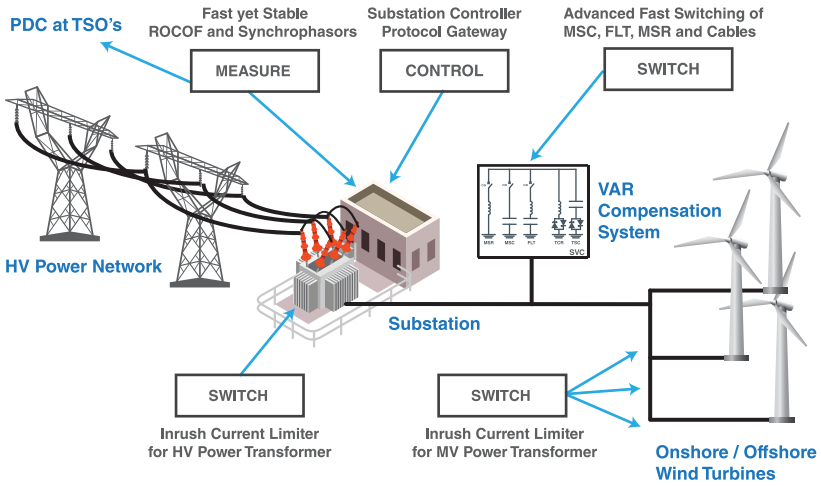
The introduction of new substation technology should not mean end of life of proven and reliable installed IEDs.

Leverage the outstanding communication features provided by the **RightWON™** platforms for smart substation upgrades and interoperable HV-MV substation designs.

The **RightWON™** is a powerful protocol converter, a data aggregator and a substation gateway to remote control centers.

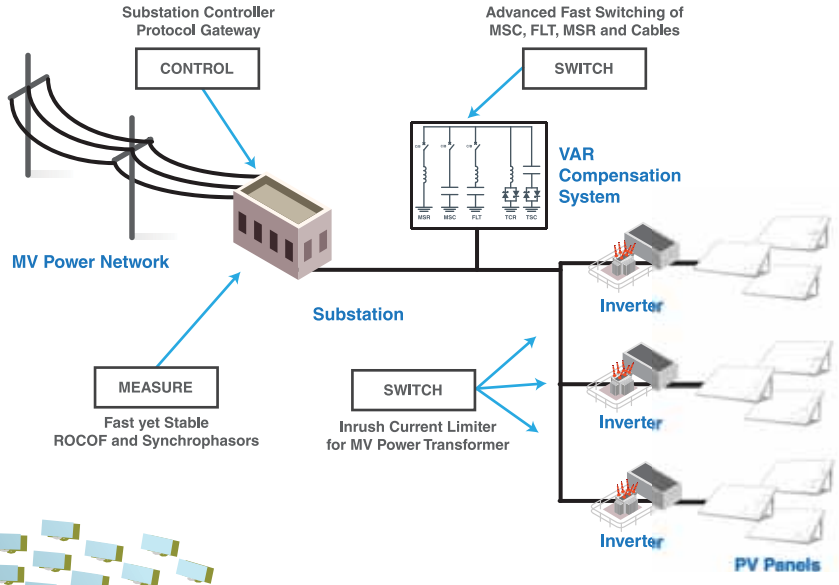
The **RightWON™** supports standard energy communication protocols including:

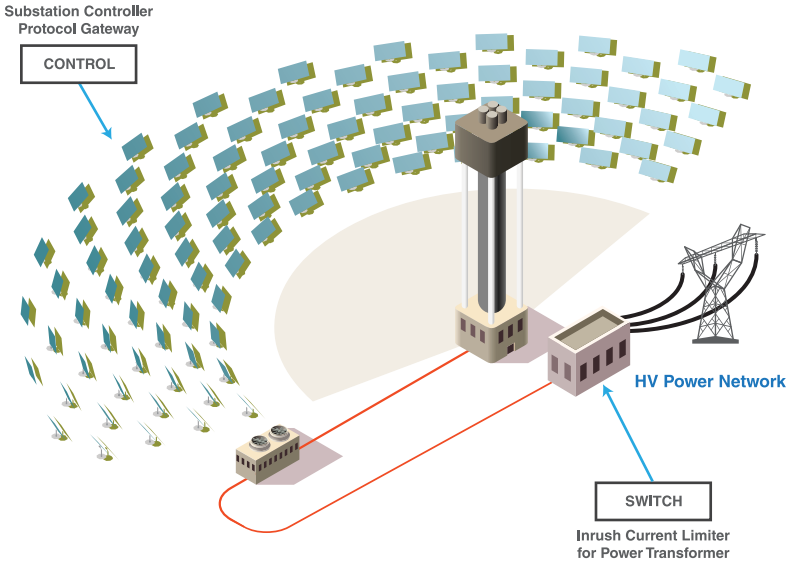
- ModBus serial/IP
- DNP3 serial/IP
- IEC60870-5-101/103/104
- IEC61850 MMS/GOOSE, Client/Server
- IEC61400-25-2
- OPC DA, DLMS and more



HV Grid Connection
Volt / VAR / PF Control
Fast & Stable ROCOF

MV Grid Connection
Off-Grid Network / Microgrid
Power Generation & Storage





Grid Connection
Substation Controllers
Protocol Gateways

VIZIMAX's **Phasor Measurement Unit (PMU)** provides the high accuracy, synchronous measurements of magnitudes, frequency and phasors sought after for advanced power system monitoring, protection and control.

MEASURE

• **Renewable Energy** and **Energy Storage**: achieve ultra-responsive protection schemes and improved control of WTGs / solar inverters / wind farms and more with VIZIMAX's **PMUs** ! Bundle VIZIMAX's **PMUs** and **RightWON**™ automation controllers for high performance Volt / VAR / PF control systems. Broadcast ultra-fast and stable ROCOF calculations, phasors and electric parameters over IEC61850, ModBus TCP, IEC60870-5-104 and GOOSE protocols.

• **TSOs** and **DSOs**: a key element of Wide Area Measurement Systems (WAMS), the VIZIMAX **PMU** offers a remote access to synchronous data for a largely improved situational awareness, smarter real-time control and very advanced remedial action schemes. Exceeding C37.118 requirements for M & P class accuracy, VIZIMAX's **PMU** combines advanced communication and time synchronization features (GOOSE, sync. via PPS, PTP1588 or optional internal GPS).

The VIZIMAX **Analog Merging Unit (AMU)** converts conventional measurements from CTs, PTs and CVTs into digital messages sent over Fiber Optic or copper Ethernet networks over IEC61850-9-2 and helps achieve today and tomorrow's digital substation designs.

CONTROL

The **RightWON**™ system consists of a modular, programmable and rugged substation automation design featuring a IEC61131-3 compliant PLC, a web-based operation interface with graphic HMI, extensive protocol conversion capabilities, numerous data acquisition, communication and telecommunication ports, all with comprehensive data trending, event / alarm recording and annunciation tools.

RightWON™ devices add intelligence and processing power to existing IEDs and controllers for an easy performance upgrade of legacy equipment to new industry standards with minimal impact on costs.

Fully field-upgradable and ready for upcoming energy standards, the **RightWON**™ is a highly modular, scalable control technology that accommodates a wide variety of solutions, ranging from a few I/Os processed at remote sites (mini-RTU) to unlimited data aggregators in power plants.

SWITCH

Control costs, limit your CAPEX, and get the most of your HV-MV assets. Applicable to virtually any load switching needs - power transformers, reactive loads / FACTS, power lines, cables - VIZIMAX's **SynchroTeq™** features advanced and patented controlled switching strategies for high-voltage and medium-voltage switchgears of any make.

Power Transformers:

Residual flux management, mitigation of inrush currents, voltage transients and stress for

- Grid Code compliance
- Enhanced penetration of RES with little to no impact on power grids
- Improved grid stability and Power Quality

Reactive Loads:

Fast switching of capacitors and filters, inrush-free switching of reactors & cables for

- Cost-effective VAR compensation designs
- High-performance Volt/VAR/PF control
- Immediate availability of voltage support capacities at the POC

Analyze the performance of your grid connections from your SCADA / DCS in substations and control centers. Events, alarms and waveform recordings are at your fingertips via network connected switchgears and OPC UA Servers. Monitor your switchgears and loads, prevent critical failures, improve your O&M practices and keep your entire fleet on track at all times !

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