Critical Power Solutions for Oil & Gas and Petrochemical

Helping accelerate the energy transition

se.com/industrial-business-continuity

Life Is On | Schneider Electric

24/7 power quality and availability

The search for more hydrocarbon reserves stretches to nearly every corner of the globe — the Arctic, deserts, jungles, and hundreds of miles offshore. As a result, operating conditions are increasingly remote, logistically complex, and environmentally hostile. You depend on your power supply to keep your operations running smoothly despite extreme temperature ranges and humidity levels, seismic activity, and exposure to water, dust, gases, and other abrasive elements. Power failures can put the safety of your people and equipment at risk, stall your operations, halt your ability to send and receive data, and cost you in non-productive time — in some cases, up to $1.5 million per hour.

As the global specialist in energy management, Schneider Electric provides critical power solutions tailored to the unique needs of the Oil & Gas and Petrochemicals industry. For more than 40 years, major operators and engineering, procurement, and construction (EPC) companies have trusted us to ensure 24/7 power availability for their operations in the most demanding environments. We deliver an uninterrupted power supply (UPS) so your operations can continue seamlessly — with as few risks as possible — no matter what.

The bottom line:

To be profitable in today's operating conditions, your power has to be as reliable and sustainable as possible.

Commercial and industrial backup power solutions

Our solutions are supported by software and automation systems that keep your operations at peak efficiency, safety, and compliance. They support facilities and equipment across the upstream, midstream, and downstream phases including new energy projects:

- Onshore production
- Offshore production (platforms; floating production, storage, and offloading vessels; and floating liquefied natural gas vessels)
- Transportation and distribution (pipelines)
- Liquefied natural gas processing
- Refining and petrochemical processing
- Fuel supply chain

We offer scalable UPS solutions adapted to your needs, From design and installation to startup and personnel training, we can manage the entire implementation process for you.

Long-term peace of mind

We provide your critical power solution, and the service excellence required to maintain optimal performance. Proper care and regular maintenance will save you time and money, and prolong the life of your equipment. We offer warranties and service plans, preventive maintenance, continuous upgrades, and remote monitoring services. Should you require on-site assistance, our field technicians and service personnel are conveniently located worldwide to accommodate you, wherever you operate.

Schneider Electric's advantages

- End-to-end power solutions
- Full protection against disturbances in power availability and quality
- Long service life
- Adaptable or fully customizable solutions
- Compliance with all types of environments
- Streamlined project management
- Personnel training
- Ongoing support and maintenance
- Sustainability partner

10 Reasons to use a UPS

1. Mitigate the risk of power failures with high levels of power availability and quality
2. Avoid costly nonproductive time and remediation
3. Reduce energy costs — one of your largest operating expenses — by up to 30%
4. Keep critical processes and facilities online
5. Maintain data continuity
6. Maximize both operations and energy efficiency
7. Ensure regulatory compliance
8. Protect your crew and the environment
9. Enhance security
10. Help meet sustainability goals

Offshore applications and use cases

1 Control rooms

SCADA systems, measurement systems, pipeline monitoring

Well pumps, compressors, reactors, gas processing, desalters, HVAC control panel

- Single phase and three-phase UPS, DC rectifier; 1 – 1,000 kVA

2 Security, Data, Control rooms, Navigation

Emergency lighting, CCTV, firefighting, access control

SCADA systems, measurement systems, pipeline monitoring

Meteorological systems, Network

Edge computing, data processing, cybersecurity, energy management

Telecommunication and navigation systems, beacons, positioning systems

- Single phase and three-phase UPS, DC rectifier; 1 – 500 kVA
- Racks, Micro Data Center, Prefabricted Data Center

3 Process control

Instrumentation, metering systems, pipeline monitoring, DCS/PLC, RTU, substation automation, motor and gas turbine control

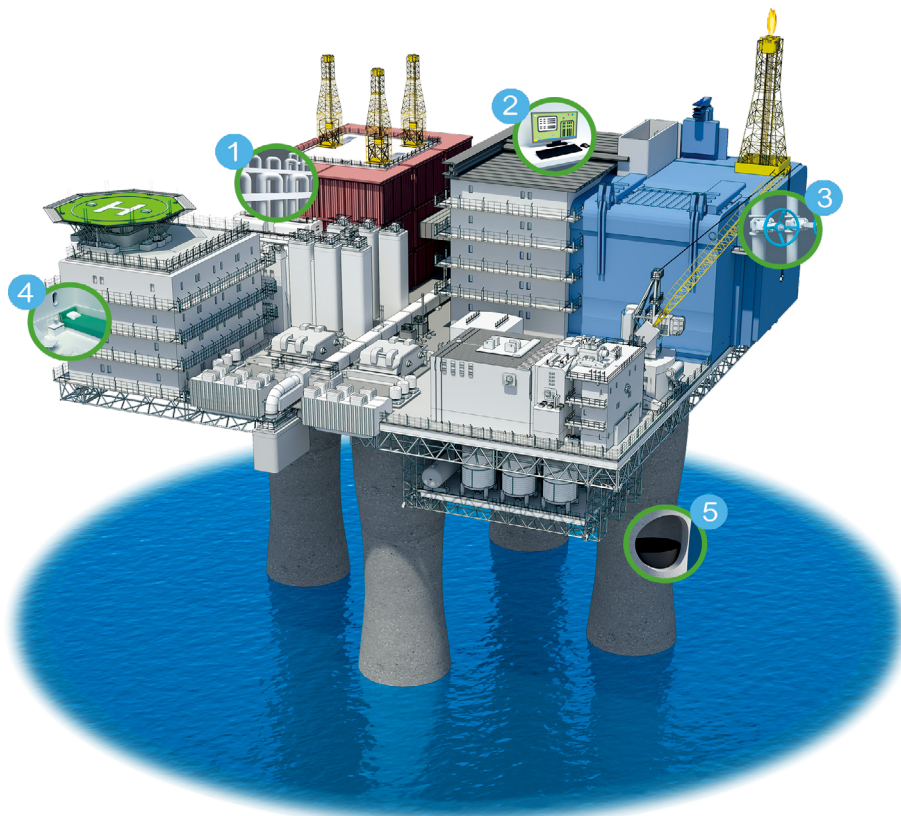- Single phase and three-phase UPS, DC rectifier; 1 – 1,000 kVA

4 Security

Emergency lighting, CCTV, firefighting, access control

- Single phase and three-phase UPS, DC rectifer; 1 – 500 kVA

5 Process systems

Well pumps, compressors, reactors, gas processing, desalters, HVAC control panel

- Single phase and three-phase UPS; 1 – 1,000 kVA

Onshore applications and use cases

1 Security

Emergency lighting, video surveillance, firefighting, access control

- Single phase and three-phase UPS, DC rectifier; 1 – 500 kVA

2 Process control

Instrumentation, metering systems, pipeline monitoring, DCS/PLC, RTU, substation automation, motor and gas turbine control

- Single phase and three-phase UPS, DC rectifier; 1 – 200 kVA

3 Control rooms

SCADA systems, measurement systems, pipeline monitoring

- Single phase and three-phase UPS, DC rectifier; 1 – 200 kVA

4 Navigation

Telecommunication and navigation systems, beacons, positioning systems

- Single phase and three-phase UPS, DC rectifier; 5 – 200 kVA

5 Process systems

Well pumps, compressors, reactors, gas processing, desalters, HVAC control panel

- Three-phase UPS; 10 – 1,000 kVA

6 Data

Edge computing, data processing, cybersecurity, energy management

- Single-phase and three-phase UPS; 10 – 500 kVA
- Racks, Micro Data center, Prefabricted Data Cente

7 Miscellaneous

Meteorological systems, Network

- Three-phase, industrial UPS; 1 –40 kVA

UPS offers
For semi-controlled environments.

Smart-UPS, Easy UPS and Galaxy UPS solutions are standard and adaptable solutions

Single-phase UPS: APC Smart UPS Online, Easy UPS BVS, DIN Rail UPS, Easy UPS SRVS

Smart-UPS
On-Line
(1-10kVA)

Smart-UPS
Modular Ultra

Easy UPS
(1-10kVA)

- Available from 0.5 to 20 kVA, 50 and 60 Hz (lower rating also available)
- Designed to be installed in racks or cabinets
- Hot-swappable, user-replaceable batteries
- Modbus communication enabled
- IEC and UL standard
- Elevation:1000m no-derating, above contact us
- Protection of critical hardware from damaging surges and power failures

1-Phase Online UPS: Galaxy V Series, Easy UPS 3-Phase

Easy UPS
3-Phase
Modular*

Galaxy VS**

Galaxy VL**

Easy UPS 3S

Easy UPS 3L

Easy UPS 3M

*Lithium-ion battery, Live Swap

**eConversion, Lithium-ion battery, Live Swap

- Double conversion on-line topology UPS for ultra-high efficiency and power protection with harmonic free input rectifier
- Comes parallel-ready, so you can pay as you grow and meet your future needs
- Flexible protection ratings IP20 by default; optional kits for ratings up to IP52
- Backup times up to two hours
- Fault-tolerant architecture and maintenance bypass in a compact footprint
- Full front access with a user-friendly interface
- Operating temperature: 0 to 40°C
- IEC and UL standard

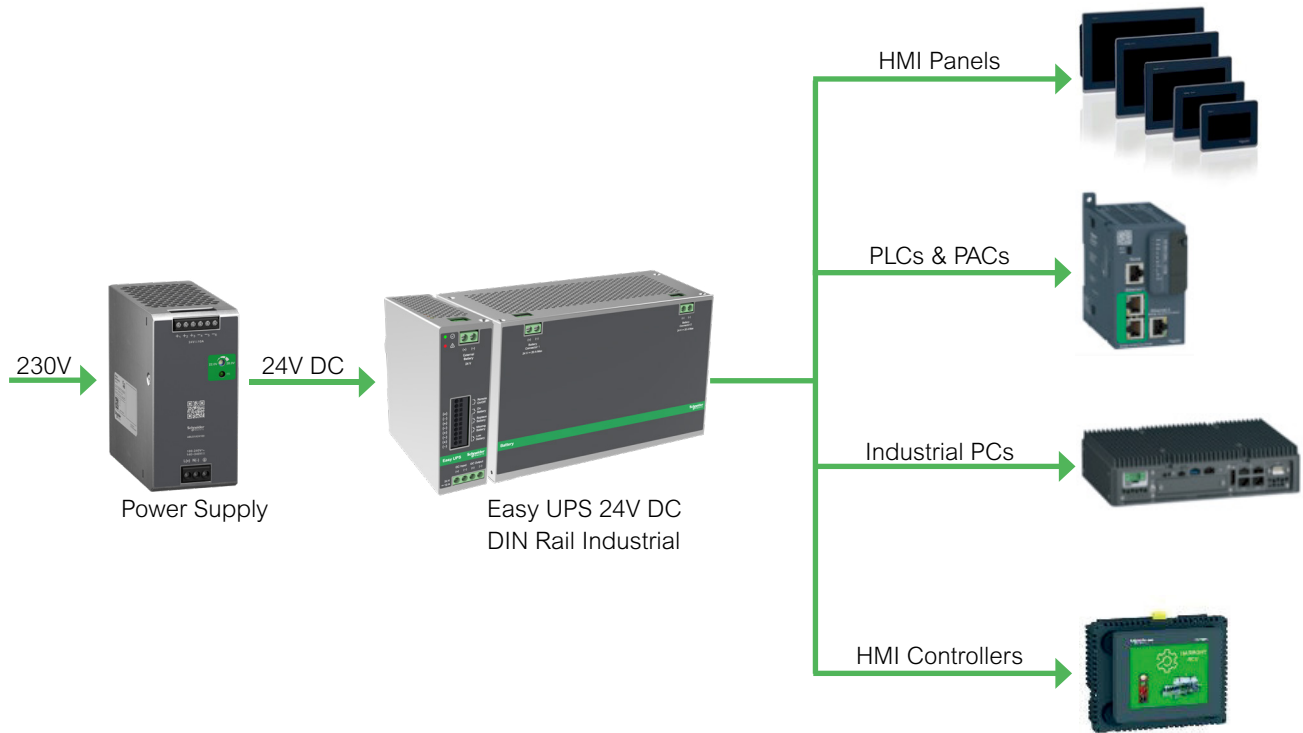## Three-phase static transfer switch

30 – 630 A, MGE Upsilon™ STS,

- Supplies power to a range of equipment from two independent and redundant sources
- Automatically transfers power to a stable alternate source in less than four milliseconds
- Detection and transfer times up to 10 times faster than many other switches

24V DC Din Rail UPS for Industrial Automation and Controls

Schneider Electric automation control solution example:

230V → Power Supply → 24V DC → Easy UPS 24V DC DIN Rail Industrial

HMI Panels

PLCs & PACs

Industrial PCs

HMI Controllers

Schneider Electric industrial controls porfolio

PLCs
Modicon M221, 241, 251, 262
Zelio Logic Smart Relay SR2/SR3

PACs & Dedicated Controllers
Modicon MC80, M340, 580, X80, M172

Industrial PCs
Harmony P6
Harmony iPC, Edgebox

Power Supply
Modicon ABLS
Modicon ABL8RP/WP

Basic HMI Panels
Harmony ST6, STO, STU, GTO
Magelis XBT N, R, RT

Advanced HMI Panels
Harmony GTU, GTUX, GK M
agelis XBT GH

HMI Controllers
Harmony SCU
Magelis XBT GC

Data center and edge solutions

- Simplify and speed up planning, designing and building your data center
- Roll out and implement software defined data centers
- Protect on-premise applications operating in tough environments
- Optimize costs and performance by balancing on-premise and cloud-based applications

- Secure critical process applications independent of developments in digitized processes and applications, as needed for the future
- Monitor, automate and control your entire data center physical infrastructure with integrated DCIM.

Prefabricated and modular data centers for all environments

Easy-to-deploy, pre-engineered IT infrastructure packaged within a secure, weather-proof, fire-rated shipping container for remote or special applications.

Prefab data center: Factory built Containers address the challenges of deploying data centers in remote sites for mining environments, where a dedicated building or space does not exist. They enable real-time processing and resolve latency and bandwidth issues by locating a datacenter closer to your operations. Benefit from the simplicity of an easy-to-deploy data center for a branch office or oil & gas operation.

Power

Power increments between 200kW-1.2MW

IT Space

IT solutions from 1 rack-200 racks

Cooling

Technologies: DX-chilled water-direct air-indirect air

Ready-to-deploy industrial edge solutions

Implementing effective industrial edge computing solutions requires several components all working in concert. Core hardware and software applications, physical and cyber security, and remote monitoring and maintenance solutions help come together to ensure everything stays up and running 24/7.

With over four decades of experience delivering solutions that meet IT/OT requirements, Schneider Electric provides complete, pre-integrated industrial edge computing solutions that can be quickly deployed and easily managed at customer sites. Working with our network of leading technology partners and AVEVA, we have ensured that our pre-integrated solutions are designed to run industry-standard software.

EcoStruxure™ Micro Data Center solutions

From low-profile, wall-mount to larger, floor-standing enclosures complete with cooling, EcoStruxure Micro Data Center solutions offer a fast, easy way to build and deploy edge computing infrastructure in any environment. Features include:

- Pre-assembled, pre-tested enclosed rack systems including IT equipment, physical infrastructure, and management software
- Standardized, pre-integrated designs enabling speedy, reliable deployments Security cameras, environmental sensors, and access controls to prevent malfunctions and provide visibility into potential security breaches

EcoStruxure IT monitoring and maintenance solutions

Managing edge computing sites is critical to ensuring business continuity, requiring around-the-clock monitoring and proactive maintenance to detect and correct issues before they occur.

EcoStruxure IT cloud-based management solutions enable users to mitigate and anticipate risk of failure of critical IT infrastructure while reducing operational expenses through an open, vendor-agnostic platform.

Schneider Electric's global footprint and domain expertise in IT infrastructure provide users visibility, insights, 24/7 expert remote monitoring, and on-site support.

EcoStruxure IT gives users peace of mind as they take advantage of everything that Industry 4.0 has to offer.

Pre-approved reference designs — reduce time to market

No one company can deliver all the components that comprise a fully functional edge computing solution. That's why Schneider Electric has cultivated relationships with the most respected global brands of IT compute, storage, and network equipment to develop a network of partners that can deliver reliable, long-term solutions.

We've also worked hard to pre-configure complete solutions that are ready to implement — so you can have peace of mind that all the components will work together as intended.

Our pre-configured reference designs can ...

✓ save up to 40%* in field engineering costs

✓ get systems to market 20%* faster

✓ reduce maintenance costs by 7%*

... meaning the customer gets a faster time to value.[1] Everybody wins.

* Based on previous data, 2019. This is not a guarantee of future performance or performance in your particular circumstances.

What are reference designs?

Reference designs are configurations of hardware, software, networking, and storage components approved by their respective manufacturers to work together. These can even be customized to a client's specific installation needs.

Schneider Electric worked with AVEVA, the market leader in industrial automation software, to understand the requirements for small, medium, and large installations. We then worked with our IT technology partners to define the best compute, network, and storage equipment to support each set of requirements.

Small installation
1 to 25,000 I/O[2]
per system

Medium installation
25,000 to 50,000 I/O
per system

Large installation
50,000 to 400,000 I/O
per system

The result? Comprehensive, approved reference designs that can be implemented in our EcoStruxure Micro Data Center enclosures, complete with supporting electrical and (if needed) cooling systems. The entire system can be monitored and managed by EcoStruxure IT, ensuring ongoing reliability and uptime.

Access the latest reference designs in the Industrial Edge Computing Forum on Exchange.

1 World Wide Technology — "Your Digital Transformation is Only as Good as Your Supply Chain," June 2019
2 Stands for "inputs/outputs"

Visibility and peace of mind

Galaxy, Easy and Smart UPS product lines offer adaptability and scalability

Schneider Electric's comprehensive Data Center Infrastructure Management (DCIM) solution, EcoStruxure IT, ensures business continuity by enabling secure monitoring, management, insights, planning, and modeling — whether from a single IT rack to hyper-scale IT — on-premises, in the cloud, and at the edge.
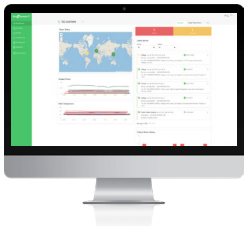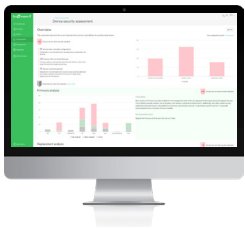
Resilient   **Secure**   **Sustainable**

Easy visibility

Monitoring and management software streamlines data center device management:
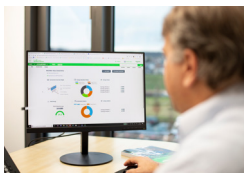
EcoStruxure IT Expert provides you a hands-on approach with **cloud-based** monitoring software that synthesizes and analyzes performance and alert data into proactive recommendations and enables wherever-you-go visibility from any device. Try it now: www.ecostruxureit.com/ecostruxure-it-expert/#trial

EcoStruxure Data Center Expert is a scalable end-to-end **on-premise** monitoring software that collects, organizes, and distributes critical device information, providing a comprehensive view of your company-wide, multi-vendor physical infrastructure.

24/7 peace of mind

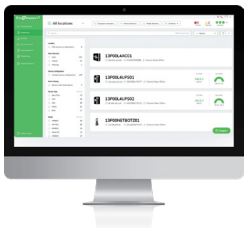Digital services proactively monitor your critical devices:

EcoStruxure Asset Advisor* for secure power and cooling provides you a hands-off approach with 24/7 remote monitoring service by the Schneider Electric Connected Services Hub experts.

We monitor and troubleshoot, you relax.

Operations, optimized

Planning and modeling software transforms data into performance insights:

EcoStruxure IT Advisor is a data center infrastructure planning and modeling solution that provides Data Center Managers in large enterprises and colocation data centers with full insights into their infrastructure to improve profitability, sustainability, and resiliency.

* Contact your local representative for availability.

Comprehensive on-site services

Start-up service: included with UPS

- Commission the installation in accordance with manufacturer's recommendations. Ensure optimal system performance from Day 1

Schneider Electric-certified installation services

- Expert configuration of your equipment for optimal performance and reliability

Maintenance services

- Ensure proper care of your mission-critical applications
- Preventive maintenance and response time upgrades, where available

Flexible service plans/ on-site extended warranty

- Hassle-free system maintenance
- Improve uptime at a predictable cost

Visibility everywhere

Schneider Electric provides complete service support for Oil & Gas and Petrochemicals operators to ensure efficient and uninterrupted power supply, enabling customers to focus on their core business.

With Oil & Gas and Petrochemicals operations often located in remote and harsh environments, it's essential to design, deliver and maintain critical power facilities at all times and in all places. This full-service offer includes:

Design, engineering and installation

Schneider Electric works with its customers to configure, custom-build and install the right solutions to ensure safety, reliability and optimal performance.

Maintenance Services

Schneider Electric offers a complete portfolio of preventive, routine and emergency maintenance services to make sure critical systems receive the care they need, including timely upgrades developed by our industry experts.

Remote monitoring and intervention Services

Schneider Electric provides 24/7 monitoring both locally and remotely through network connections built into the systems. Schneider Electric experts and service partners monitor the health status of power facilities to diagnose, notify and, if needed, intervene from a distance or by coming on site.

Service Plans

Schneider Electric offers customized service packages at predictable costs to maintain the highest performance levels and reduce downtime to a minimum.

Key figures

- A 170-year history of service culture
- 1,200 field service engineers
- 170 service centers in 100 countries
- 90 service-provider partners worldwide
- 6 regional service centers
- 49 rapid deployment centers
- Over 100 million man/hours of field experience

Become an EcoCare member and get exclusive access to our experts

EcoCare for single-phase UPS

Next generation services membership

Managing a fleet of single-phase uninterruptible power supplies (UPSs) and related accessories with your on-site team can be a challenge, not only when it comes to budget but also your team's time and bandwidth.

With EcoCare membership, Schneider Electric offers expertise combined with innovative digital capabilities across the single-phase UPS lifecycle.

As an EcoCare member, you have a trusted ally by your side, who has comprehensive knowledge of the unique edge architecture that powers your business, so you can minimize downtime, maximize operational efficiency and safety, and contribute to a smaller carbon footprint.
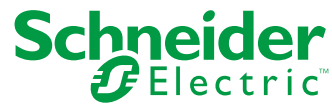
Unlock the full potential of your connectable single-phase UPS with 24/7 proactive monitoring and advice from our experts to support, maintain, and manage your equipment while empowering your team. EcoCare also gives you access to fast response times and on-site intervention with labor and spare parts included. You will also get preferred rates for our on-site data asset collection service to gain visibility into your inventory baseline for current and future distributed IT asset management.

With EcoCare, Schneider Electric's expertise helps you in your decarbonization journey to make the most of your energy and resources.

Why become an EcoCare member?

- **Exclusive access to experts,** both on-site and remote, allowing you to free up your personnel to focus on other priorities.

- **Optimize your maintenance costs** with replacement parts covered, including batteries.

- Help **reduce your OPEX** by relying on our services to manage your single-phase UPS fleet.

- Contribute to your **company's sustainability goals** with proper disposal and recycling of old equipment.

- **Get maintenance recommendations and insights** into your operations to help improve your business performance and efficiency.

- **Empower your team** and develop their skills with specialized training.

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To learn more about secure power solutions,
visit www.se.com

se.com/industrial-business-continuity