



# Comprehensive and Reliable Power Quality Solutions for Harsh Environments



**SolaHD™ Oil and Gas Brochure**  
Power Quality Solutions for Oil and Gas applications.



**EMERSON**<sup>TM</sup>

# Power quality solutions for your facility.



Power quality problems can vary widely. To solve these broad range of problems, you need a broad range of products. SolaHD's proven technologies come together to form a cohesive solution that will keep your facility and operation running 24/7.

SolaHD is serious about your system performance. When it comes to power conversion and power quality SolaHD has been a trusted name for over 90 years. We will provide innovative and reliable products with proven technologies to help control your equipment and facility's efficiency, productivity, and longevity.

SolaHD delivers total power quality solutions for many applications in the Oil and Gas, Refining, Chemical and Petroleum processing industries. Power is a dynamic aspect in production and automation. We understand your challenges to run a profitable operation, improve overall efficiency and maintain safety. That is why SolaHD proven technologies will assure system reliability and high productivity.

# Optimizing production efficiencies.



## Constant Voltage Transformers

- 120 kVA up to 15 kVA single phase.
- Solve 95% of all power quality problems.
- Plug & play, hardwired for direct installation.
- Maintenance free; no fans or batteries.
- MCR Series provide +/- 3% output voltage.
- Highly efficient >90% switching capability.



## Solatron™ Power Conditioner

- 20 kVA up to 200 kVA three phase.
- Able to handle the majority of power quality problems.
- Built-in all modes surge suppression to protect against voltage transients.
- Rugged design suited for industrial applications.
- Lack of fans or batteries ensures long life and minimal maintenance.



## Power Supplies

- DIN Rail power supplies from 15 to 960 Watts, rated from -40 °C to +70 °C.
- Stand-alone IP67 rated power supplies up to 100 to 240 Watts, conveniently mounted without an enclosure.
- Global hazardous and off-shore certifications: Class I, Division 2, ATEX, IECEx, ABS and DNV-GL.
- Redundancy modules for increased reliability in critical applications.
- Utilize existing industrial networks to provide extensive diagnostics to a computer, PLC, DCS or HMI.



## Industrial Control, Automation and Distribution Transformers

- 50 kVA-500 kVA, 50/60 Hz for worldwide use.
- Available in open core and coil, encapsulated, ventilated and non-ventilated designs.
- Available with painted steel and stainless steel enclosures.
- Hazardous location transformers and custom built transformers.

# Types of power disturbances.



## Harmonics

Non-linear loads such as personal computers, office equipment, variable-frequency drives and solid-state electronics use switchmode power supplies to generate DC voltage, sometimes causing currents that are out of phase with voltage. These harmonics distort voltage waveforms, and can cause overheating, nuisance tripping, and the loosening of electrical connectors.



## Voltage Transients or Spikes (Impulses)

Sudden massive increases in voltage, such as those caused by lightning striking a power line or the nearby ground, can cause a damaging voltage pulse to enter electronic equipment and destroy sensitive solid-state circuitry. Lasting only a few milliseconds, storm-induced voltage transient spikes are responsible for huge losses every year.



## Electrical Noise

Random electrical disturbances can be caused by distant lightning, switching power supplies, electronic circuits, poor brush contacts on motors, utility switching and many other sources. These random noise signals are superimposed on voltage waveforms, and can cause computer bugs, glitches, and other problems that are difficult to diagnose.



## Voltage Surges and Swells

A line swell, also called a voltage surge, is a temporary rise in the voltage level lasting at least one half cycle. Voltage swells can be caused by high-power electric motors, switching off, and the normal cycling of HVAC systems.



## Voltage Sags

A line sag, sometimes called a voltage dip, is a temporary decrease in the voltage level lasting at least one half cycle. Sags are usually caused by sudden nearby increases in the electrical load and can degrade equipment performance for several seconds at a time.

# Eliminating power interruptions, transients and noise.

## SPD50K Series



- Type 1: U 50 kA per phase surge current rating.
- Type 1: UL 1449, CSA 22.2 No. 269.1.
- 200 kA SCCR.
- Complies with UL 96A 12th Edition master label requirements for lighting protection systems.
- Voltage specific design.
- Tri-mount installation possible via standard 0.75 in. nipple, DIN-Rail mount (rail not included) or bracket mount for flat surfaces.
- Visual diagnostics.
- Dry contact connection leads exit through nipple via #18 AWG (3 feet) at 24 Vdc @ 2 Amps.



## STV100K Series

- 100,000 Amp peak current rating provides all mode protection against severe transients.
- UL 1449, Type 2, 20 kA I-nominal approved device.
- Low clamping levels for more effective protection.
- 100 kAIC fault current fusing level provides safety and NEC conformance.
- LED status, audible alarms and form C dry contacts.
- Compact, rugged metal.

## SPD200K/SPD300K Series



- Modular design allows for flexibility.
- Surge current capacity of 200 to 300 kA per phase.
- UL 1449 approved device.
- Industry's highest surge current repeatability.
- Internal/External monitoring, including neutral to ground.
- EMI/RFI Filtering
  - NEMA 12 Enclosure
- Compact, modular design includes internal rotary disconnect and event counter standard

## STV25K DIN Rail Series



- Compact and narrow design maximizes panel space.
- Low clamping levels for more effective protection.
- Easy access terminal screws for quick mounting and installation.
- 25,000 Amps of surge protection per phase.
- Sine wave tracking and all-mode protection provide consistent and reliable protection on all electrical paths.
- Thermal fusing prevents MOV overheating caused by excessive current levels.

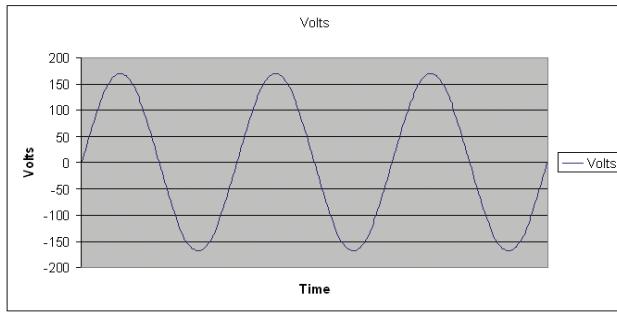
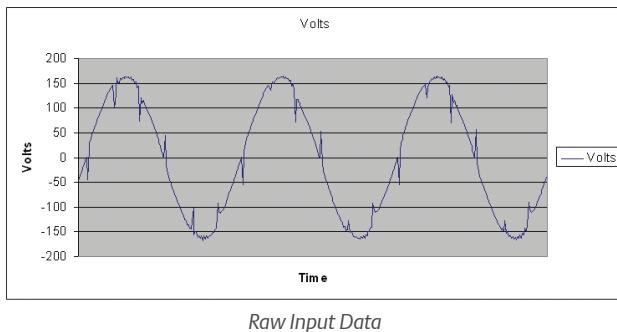
## STFE Elite Series



- Series connected DIN rail mounted filter.
- Durable metal mount clip.
- UL Listed surge current capacity – 45,000 Amps.
- Single phase applications up to 20 Amps.
- Screw terminal connections.
- LED status indication.
- Form C contact for remote monitoring.

# Actual waveforms from a drilling operation.

Real world events are not always a single type of power disturbance. In this waveform, there is a combination of harmonic distortion, electrical noise and transients. The operation of a large SCR motor drive running from a three-phase diesel generator is the common cause in this example. An on-line UPS, such as the S4K Series, converts AC power to DC then inverts the DC back to AC. This recreates a near perfect AC waveform to feed the sensitive load. The output wave shape is completely independent of the input and free from the power disturbances present in this difficult application.



Sola S5KC UPS

An on-line UPS provides true on-line performance accomplished through double conversion technology. Output power is regulated and conditioned to provide the critical load with a clean, pure sine wave power source as well as a battery back-up.

# Reliable and effective protection.



## SDU Series, Direct Current Uninterruptible Power Supply (DC UPS)

- Modular, rugged industrial-grade design.
- Microprocessor based controls.
- Automatic self-test feature for UPS function and battery management check.
- Flexible batteries back-up expansion capabilities.
- IP20 rated input and output screw terminals.
- No internal fan, no extra cooling required.



## SDU Series, DIN Rail AC UPS

- Lightweight, compact industrial design.
- Wide operating temperature range (0-50 °C).
- Cold start capability.
- Software and cable included for easy installation.
- Simulated sinewave output.
- USB communication port.
- Optional communication port for active and passive card.



## S4K2U-C and S4K2U-5C Industrial On-Line Series

- Hardwire capability allows for permanent installation in rugged industrial environments.
- Flexible mounting; includes rack or tower mounting accessories standard with each unit.
- Easy-to-connect add on batteries for extended runtimes.
- Integral dynamic bypass reduces shutdowns.
- Compatible with most standby generators.



## S5KC Modular Series

- Rugged, industrial design.
- High overload capability.
- 0.9 power factor.
- Independently controlled maintenance bypass.
- True on-line double conversion with a large input voltage range.

# SolaHD solves your power quality problems demanding environments.



SolaHD is our premium line of power-conversion and power quality solutions products under Appleton Group, a business unit of Emerson.

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