

Assemble by

engineer



Power Quality Solutions

PQS



Active Voltage Conditioner

- Ideal solution for voltage sag
- Maintain your uptime as every second counts

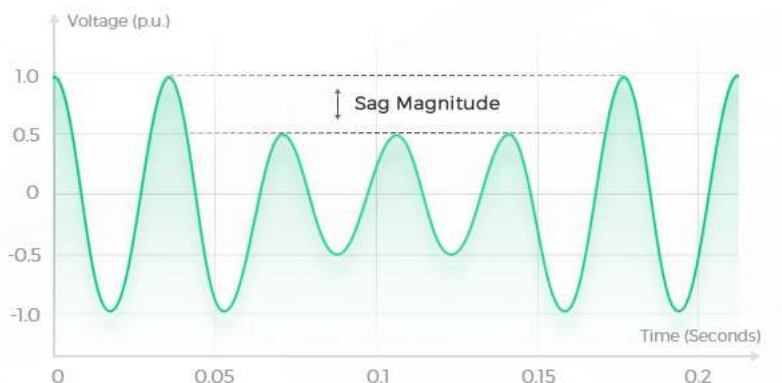
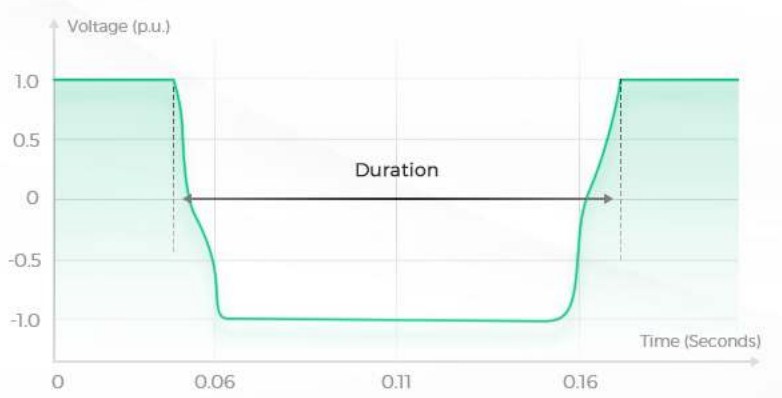


WHAT IS VOLTAGE SAG?

According to IEEE standard 1159-1995, a voltage sag is defined as a decrease in RMS voltage down to 90% to 10% of nominal voltage for a time greater than 0.5 cycles of the power frequency but less than or equal to one minute.

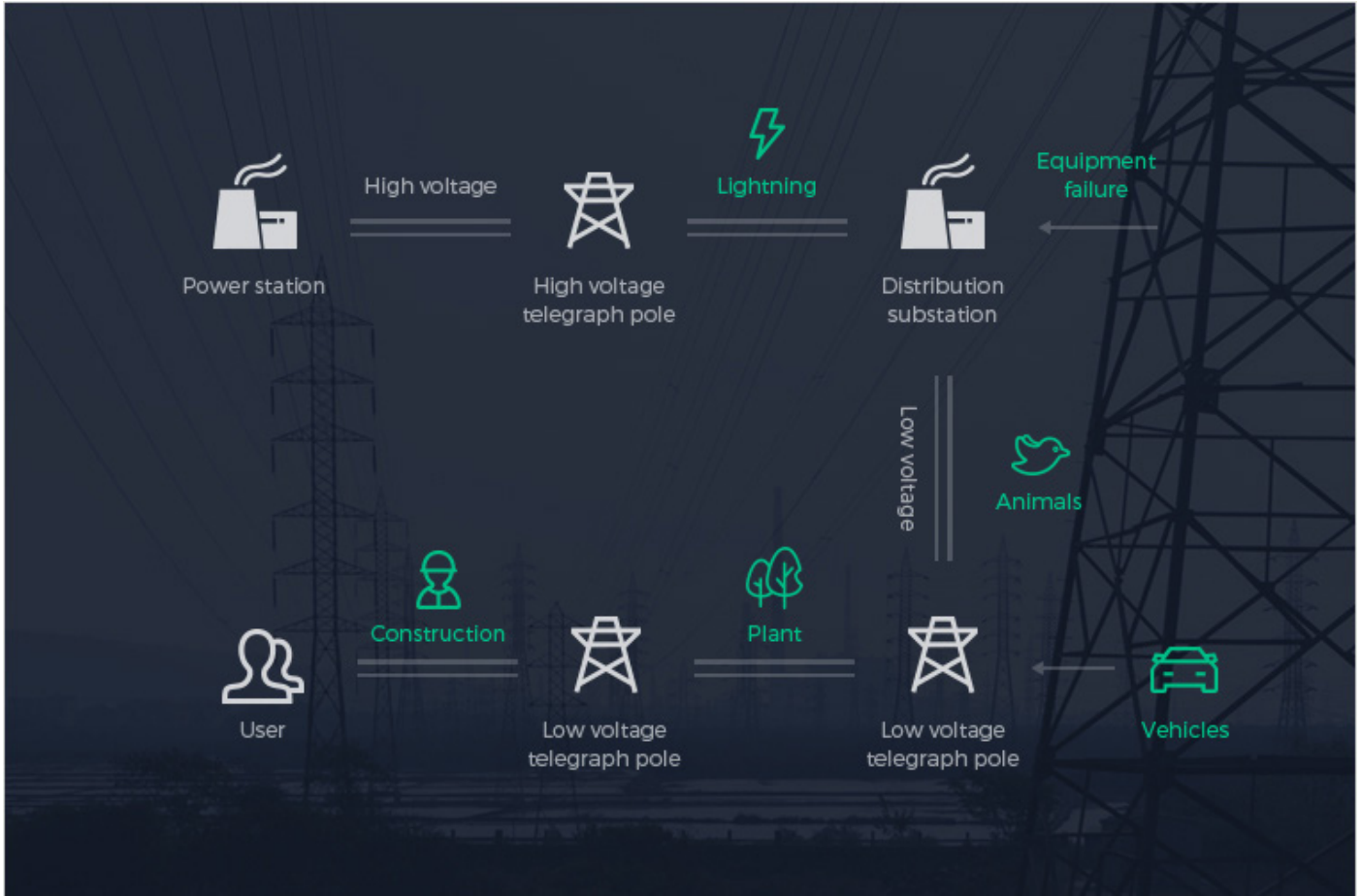
Characteristic of voltage sags:

- High frequency of occurrence
- The time of sag is unpredictable
- Short duration and deep depth



COMMON CAUSE OF VOLTAGE SAGS

Voltage sag is generally caused by the failure of power grid, substation facilities or sudden large changes in load. In the process of long-distance transmission, there are many unpredictable situations, such as power system fault, lightning strike, large motor starts, capacitor switching and other events in the transmission and distribution system.



Natural cause

Extreme weather like lightning strikes, typhoon, hurricanes and storms cause a short circuit to the ground in the transmission line, activated the protective action, causing voltage sag around the fault point.

Power system cause

Starting of heavy machine and short circuit fault, etc.

Unpredictable accident

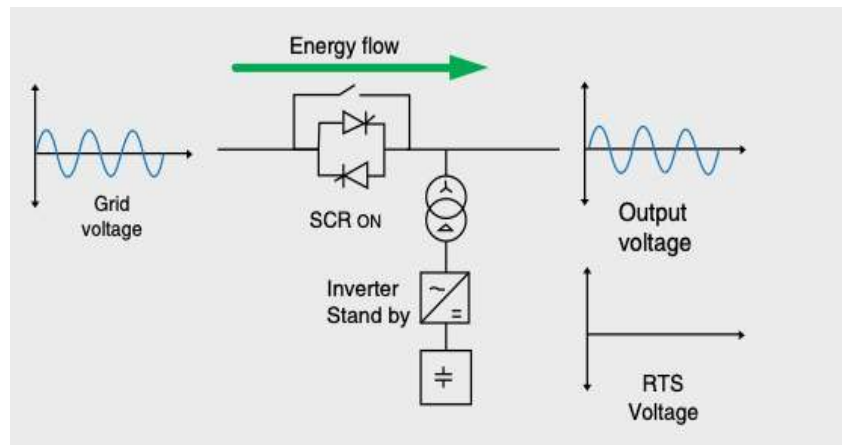
Traffic accident may damage the electric pole; Construction accidents like hoist machine contact the overhead line and excavation construction can destroy the underground electric cable; Animals' invasion to the transmission line. All of these sudden and inevitable accidents may cause short circuit which lead to voltage sag.

WORKING PRINCIPLE

AVC-RTS is installed between the load and power supply, in the event of an outage, voltage drops or swells, AVC-RTS will transfer the load to the backup energy storage system, powered by the super capacitors to ensure the sensitive loads are well protected.

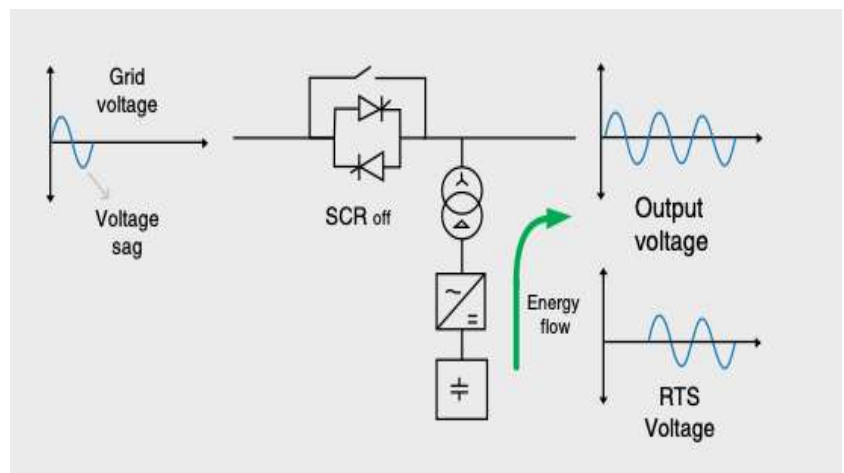
1. Utility voltage within normal range

Thyristor is on, power to the load is supplied from the utility.



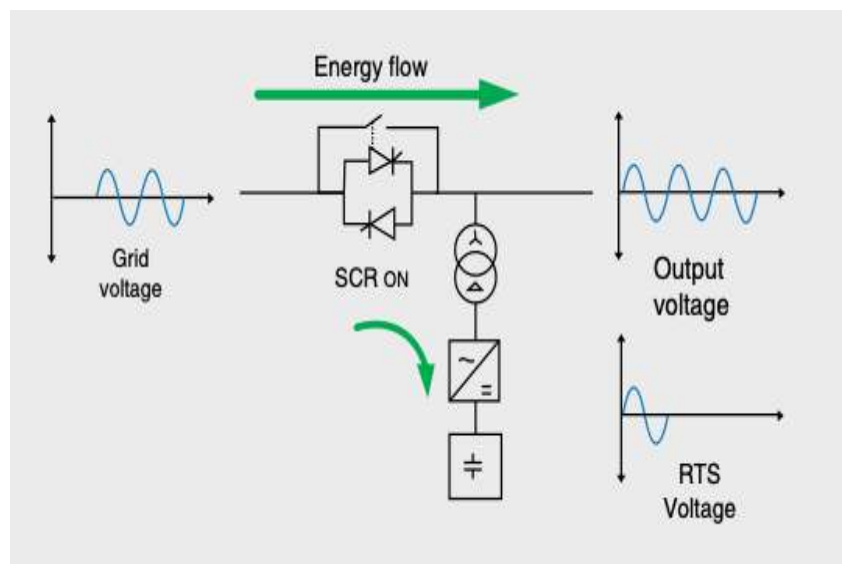
2. Voltage sag/voltage swell occurs

Thyristor is off, isolated the grid voltage from the load, power to the load is switched to super capacitors within 1/4 cycle.



3. Utility back to normal

Thyristor is on, power to the load is switched back to the utility, the super capacitors start to charging in preparation for the next voltage event.



TECHNOLOGY OVERVIEW

AVC System parameters	
Rated input voltage range	208V/220V/380V/400V/480V/600V/690V
Input voltage range	-20%~+20%
Frequency	50/60Hz / 45Hz~65Hz
Efficiency	>99%
Network structure	3P3L/3P4L
Topology design	3-level
Performance index	
System capacity	50/60/100/150/300/450/600/750/900/1200/1500/1800/2100/2400 kVA
Function	Voltage sag compensation, Voltage swell compensation
Compensation capability	Compensate 0~130% residual voltage to 100% voltage lasting for 3s to 30s as standard module can support 3s. Other requirement can be customized.
Switch voltage value	Continuously adjustable gradient 0.1V
Quick response time	<100μs
Whole response time	<5ms, normally 2ms
Breakdown bypass	enable
Maintain bypass	Can be selected
Noise level	<65db
Communication capability	
The cooling way	Fan cooling
Screen	7-inch full color touch screen
Parameter setting and data display	Status information, Operation information, Events recording, etc.
The event log and data records	Comply
Wave record and display function	Optional
Interface	RS485/Ethernet
Communication protocol	Modbus, TCP/IP
Dry contact	Working status and breakdown points
Protection function	Inverter short-circuit protection / Inverter bridge reverse protection / Over-voltage/under-voltage protection (DC bus) / Over-loaded protection / Cooling system protection / Leakage current protection / Lightning strike protection / Control system fault protection / Over-temperature protection / Thyristor failure protection / Bypass fault protection, etc.
Mechanical properties	
Ambient temperature	-10~+40C
Relative humidity	5%~95%, non-condensing
Protection class	IP20, can be customized
Standards	DL/T12292013, Q/GDW681—2011, EN50178, CISPR11, C-Tick, CE, Semi F47

AVC-RTS

Capacity:

50/60KVA

Voltage: 208/380/480/600V

Dimension: 1200W800D1800H (mm)

standard maintenance bypass

Capacity: 100KVA

Voltage: 208/380V

Dimension: 800W1000D2200H (mm)

standard maintenance bypass

Frequency: 50/60Hz

Voltage range: -20%~+20%

Wiring method: 3P3W/3P4W

Voltage compensate range: 0~130%

Standard back up time: 3 seconds,
can be customized

Capacity:

150/200/250/300KVA

(208/380V/480/600V)

450KVA (208/380/480/600V)

600/900/1200KVA (208/380/480/600V)

1500/1800/2400KVA (380/480/600V)

Frequency: 50/60Hz

Voltage range: -20%~+20%

Wiring method: 3P3W/3P4W

Voltage compensate range: 0~130%

Standard back up time: 3 seconds,
can be customized

Optional maintenance bypass

≤1200KVA, N+1 inverter redundancy design





www.engineer.lt

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Savanorių Ave. 178A, Vilnius, Lithuania +370 5 213 54 65 info@engineer.lt