

ACTIVE VOLTAGE CONDITIONER

AVC₂ 150kVA to 50 MVA



Active Voltage Conditioning including for applications up to 36kV



Key Features

- Up to 30 seconds of voltage sag ride through
- 99% efficient (typical)
- Does not lower fault capacity
- Continuous voltage regulation
- Voltage harmonic reduction
- Voltage balance correction
- Extensive diagnostics
- Voltage event log
- Separate coupling transformer

Description

The Active Voltage Conditioner (AVC₂) is an inverter based system that protects sensitive industrial and commercial loads from voltage disturbances. It provides fast, accurate voltage sag correction plus continuous voltage regulation and load voltage compensation.

The AVC₂ is a flexible device that can be used in multiple applications.

It has an operating efficiency exceeding 98% and provides extremely fast response to three-phase sags down to 50%, and single-phase sags down to 25% on the ac supply network.

Standard models are optimized for sag correction, voltage balance and flicker reduction.

The Medium Voltage AVC₂ is an ideal solution for complete facility protection. Its standard outdoor enclosure saves valuable indoor floor space. While the low voltage units can be applied to a process line or a specific critical load.

All AVC models also provide continuous regulation +/- 10% of nominal utility voltage.

Benefits AVC topology

- Industrial design, rugged
- Small foot print
- Continuous smooth compensation
- Sub-cyclic response
- Fast & easily controlled voltage contribution
- Select or ignore specific harmonics

Applications

- High Value production
- High Speed manufacturing
- Continuous processes



tame your power—keep your profits

Specifications: AVC₂

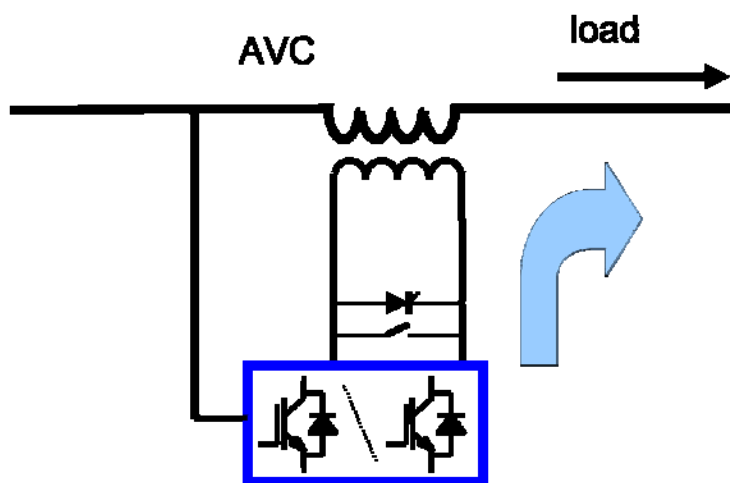
Description

The "AVC₂" is an enhanced version of the Active Voltage Conditioner (AVC) products that do not utilize any form of energy storage to allow the system to ride through voltage sags (BLIPS) of up to 30 seconds duration.

The system connects on the utility side of the load when the regulation option is required. During normal operation the output power is conditioned by the AVC. Should the utility supply voltage drop, the AVC will boost the output voltage by injecting voltage vectors to compensate for the lost voltage.

The operation of the system is specifically designed to meet the demanding requirements of industrial load protection where the following features are particularly important:

- Extremely high electrical efficiency meaning much lower ongoing cost of ownership than traditional UPS solutions and much less heat needs to be removed from the room in which the AVC is located.
- High reliability due to the three levels of redundancy offered in the AVC design.
- High levels of fault clearing capacity (typically 20 times short term current) to allow for the discrimination of protection systems.
- Ability to cope with industrial loads such as motor drives which are high in harmonic draw, large starting inrush and also loads that may regenerate power.



AVC₂ Single line diagram

Load Capacity

Capacity	150 – 5000kVA; to 50MVA as custom design (MV)
Displacement Power Factor of connected load	0.1 lagging to 0.9 leading
Crest Factor for rated kVA	2 at 100% of rated load
Overload capability (>90% supply voltage)	150%, 30 seconds, once per 300s

Input Supply

Nominal Supply Voltage (according to model)	480V, 600V 50/60Hz 400V 50 Hz (380/400/415V) 208V 50/60Hz Voltages up to 36kV available as custom applications
---	---

Power system type	3 phase, centre ground referenced
Supply voltage category	Level III transient voltage capability
Fault capacity	refer model tables

Required Transformer Supply Bus-Bar size rating	< 80°C operating temperature at rated load
---	--

Operating voltage range for regulation and sag correction

Maximum Supply Voltage	110% of nominal supply voltage
Minimum 3 ϕ Supply Voltage	80% without using storage

Output Supply

Nominal output Voltage (V)	set to match nominal supply voltage
----------------------------	-------------------------------------

3 ϕ voltage regulation range	+/- 10% continuous
-----------------------------------	--------------------

3 ϕ voltage regulation accuracy	+/- 1%
--------------------------------------	--------

3 ϕ balanced sag correction ability, with regulation option	+15% /-10% min. 10s
--	---------------------

Sag correction accuracy (within specified range)	+/- 2%
--	--------

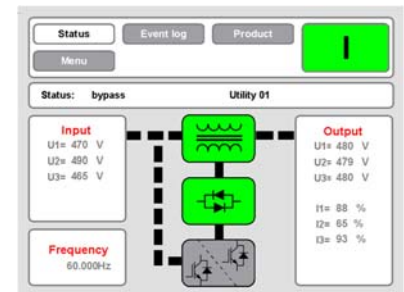
Correction response	
- Initial	< 250 μ s
- complete	< 0.25 cycle

Equivalent series impedance (operating)	< 4% typical
---	--------------

Efficiency of system	99% (refer model tables)
----------------------	--------------------------

BYPASS

Capacity	100% model rating (kVA)
Maximum overload capacity (in bypass): - 10 minutes	125%



Front Panel Display



Modular Design Max
30 minute MTTR

- 1 minute 150%
- 1s 500%
- 200 milliseconds 2000%

Transfer time - Inverter to bypass < 0.5 msec

Equivalent series impedance (bypass) < 2.5% typical with Regulation option, <1% with standard AVC Store)

INTERFACE

Access protocol Ethernet connectivity; ModBus TCP and RTU, dry contacts

ENVIRONMENTAL

Enclosure environmental rating NEMA 1, IP20
 Pollution degree rating 2
 Minimum operating temperature 0 °C
 Maximum operating temperature 40°C
 Temperature de-rating above 40 °C de-rate at 2% per °C to a maximum of 50 °C
 Capacity de-rating with elevation -1.2% every 100m above 1000m
 Cooling - Inverter forced ventilation
 - transformer fan assisted ventilation
 Humidity < 95%, non-condensing
 EMC emissions CISPR 22 level G
 Noise 65dBA

Standards

Designed to :

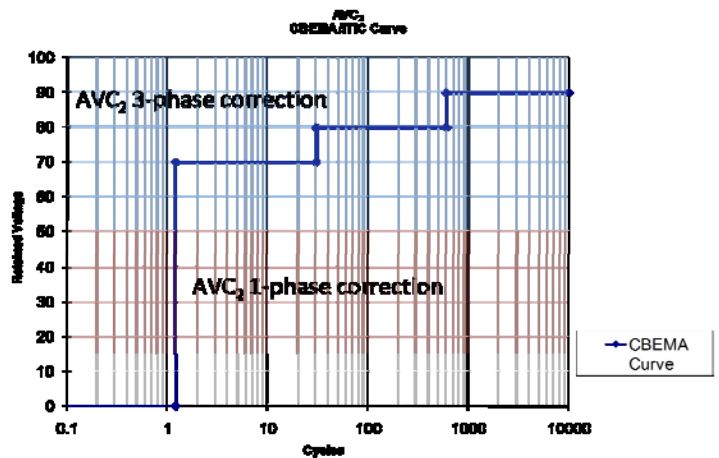
- UL /CSA
- EN50178
- C-Tick
- CISPR22

All specifications are subject to change without notice.



tame your power—keep your profits

3075, 14th Avenue Unit13
 Markham, Ontario
 L3R 0G9 Canada
 Tel: 416-849-2299
 Tel US 440-290-4499
 Fax: 416-849-2298
www.omniverter.com



*output voltage of AVC₂ Depends on level of protection selected