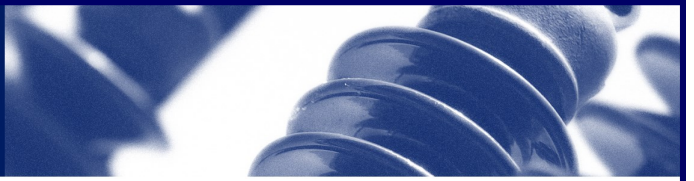


# ACTIVE VOLTAGE CONDITIONER

## AVC<sub>2</sub> 300kVA to 60 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 (AVC<sub>2</sub>) 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 AVC<sub>2</sub> 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 AVC<sub>2</sub> 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

## Electrical Specifications: $AVC_2$

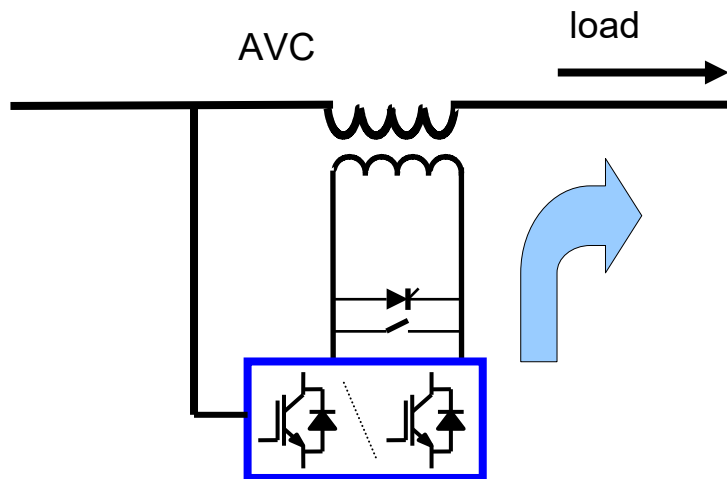
### Description

The " $AVC_2$ " 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.



$AVC_2$  Single line diagram

## Load Capacity

Capacity	300– 5000kVA LV to 60MVA 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,
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 $\phi$ Supply Voltage	80% without using storage

## Output Supply

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

3 $\phi$ voltage regulation range	+/- 10% continuous
-----------------------------------	--------------------

3 $\phi$ voltage regulation accuracy	+/- 1%
--------------------------------------	--------

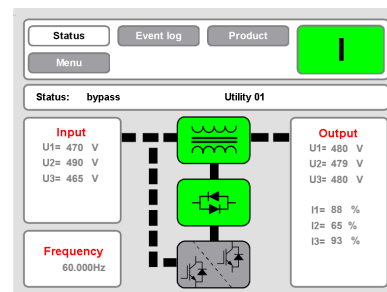
3 $\phi$ balanced sag correction ability, with regulation option	+15% /-10% min. 10s
--	---------------------

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

Correction response	
- Initial	< 250 $\mu$ s
- complete	< 0.25 cycle

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

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



Front Panel Display



Modular Design Max  
30 minute MTTR

## BYPASS

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

- 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

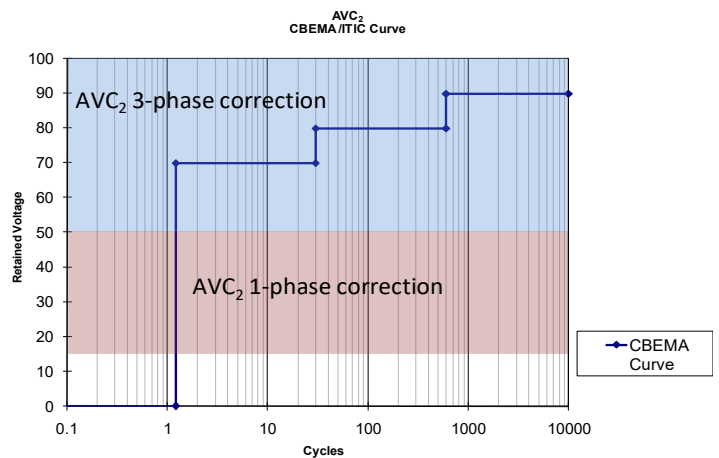
Enclosure environmental rating	NEMA 1, IP20
Pollution degree rating	2
Minimum operating temperature	0 °C
Maximum operating temperature	40°C
Temperature de-rating	above 40 °C de-rate at 2% per °C to a maximum of 50 °C
Capacity de-rating with elevation	-1.2% every 100m above 1000m
Cooling	- Inverter -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

## Standards

Designed to :

UL /CSA  
EN50178  
C-Tick  
CISPR22

All specifications are subject to change without notice.



3075, 14th Avenue Unit 13  
Markham, Ontario  
L3R 0G9 Canada  
Tel: 416-849-2299  
Tel US 440-290-4499  
Fax: 416-849-2298  
[www.omniverter.com](http://www.omniverter.com)