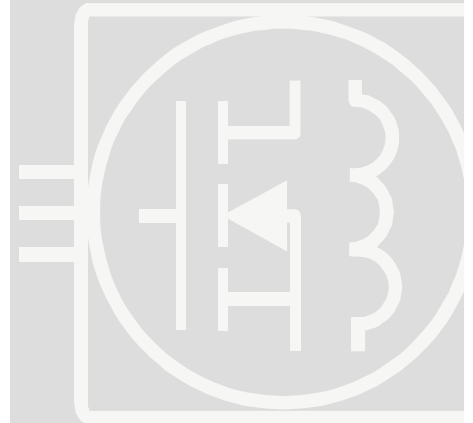
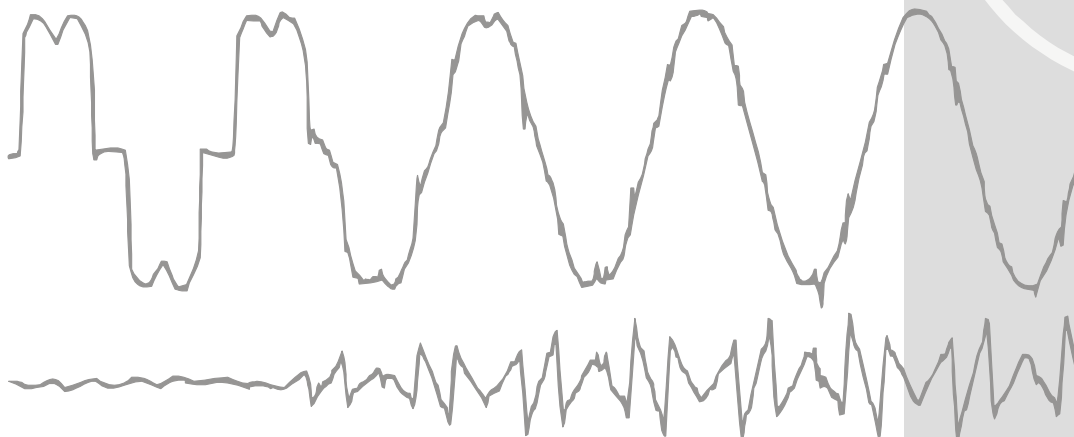
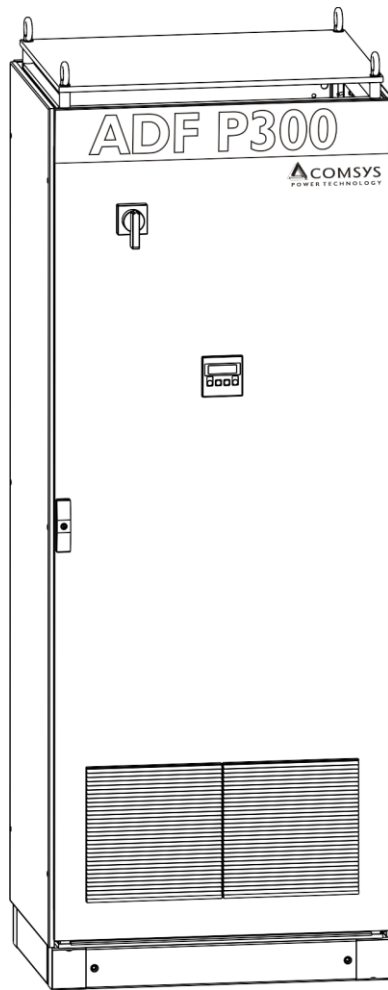




ADF P300 - 100...300 A

Energy Conditioner



ADF

- :: High Performance and Reliability
- :: Modular and Scalable Design 100 – 300 A
- :: Advanced Digital Control
- :: Easy Installation
- :: Insensitive to Network Conditions
- :: Harmonic Elimination
- :: Total Power Factor Correction
- :: Resonance Elimination
- :: Active Load Balancing
- :: Dynamic VAR compensation
- :: Non-overloadable
- :: Available in 208 – 480V and 480 – 690V versions



:: The ADF Technology

Comsys has developed a new generation of high performance energy saving products for industrial applications based on the unique ADF Active Dynamic Filter Technology which removes the losses and restores the natural wave shape of the current.

:: The Problem: Poor Power Quality

Transients, harmonics, voltage variations and unbalance puts the electrical network, machines, motors and computer equipment under considerable stress resulting in disturbances, production stops, waste of energy and decreased lifetime. These terms, among others, constitute power quality.

A large part of the equipment connected to the electrical network creates disturbances, voltage variations and undesired harmonics which pollute the network. This pollution generates losses and reduces lifetime of cabling, transformers and machines as a cause of the excess load.

This leads to decreased capacity in the electrical network, less effective consumption and energy losses which transforms into both technical and economical costs.

:: The Solution: Active Dynamic Filtering

Traditionally fixed, electro-mechanical and semiconductor controlled filters and/or compensators has been used to limit loss creating behaviours. They operate mainly on a fixed or stepped basis using passive elements. All these solutions suffers from the same drawbacks - they add losses, are installation specific and has no ability to adapt to or follow dynamic load changes.

Active conditioners as the Active Dynamic filter (ADF) eliminates loss creating behaviours such as harmonics, flicker, voltage variations and reactive energy using a highly dynamic, stepless digital controlled compensation and filtering approach.

This approach enables the current waveform to be restored instantaneously, the current consumption to be lowered and changes in load or installation conditions to be fully compensated at all times.

:: Advantages of ADF

- :: Low response time
- :: Stepless control
- :: Adapts to changes in load or installation
- :: Improves overall power factor
- :: Eliminates resonance problems
- :: Load balancing
- :: Increased system efficiency
- :: Increases equipment lifetime
- :: Lower operating costs

:: How ADF Works

An ADF is basically a very advanced computer controlled current generator with the ability to produce any shape or form of current with little or no delay.

A simplified diagram of the operating principle is shown in figure 1. The ADF is connected in parallel with the load compensation.

Currents delivered from the network are measured and analysed [3] to determine if loss creating behaviours such as e.g. reactive displacement and/or harmonics are present.

If found necessary, the ADF injects phase currents [2] which is the exact opposite of the e.g. harmonics and/or reactive displacement to cancel out the load behavior [1].

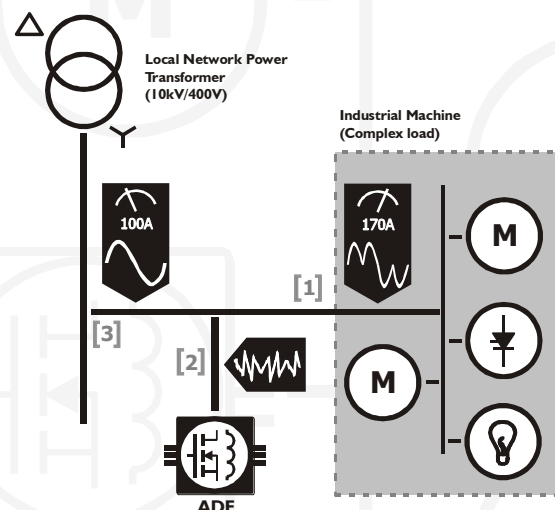


Figure 1- Basic Operating Principle

:: The Fully Modular Power Solution

Comsys ADF products are modular, efficient and compact. All units are upgradeable to the highest available power rating. Efficient design improves power savings. The digital control improves flexibility and reliability of the units.

:: Modular and Scalable Design

Comsys ADF are designed to meet the requirements of modern industry. The modular concept allows all units in the series to be fully upgraded to the maximum power in the series. Upgrades can also be made in increments of 100 A. Several cabinets added in order to upgrade a system fully populated by modules.

The modular design make upgrades quick and cost-efficient. Since the units are scaleable, every unit can grow with customer requirements.

:: High Performance and Reliability

The ADF products are designed and manufactured to the highest specifications using latest state-of-the-art technologies in IGBT power switching semiconductors and digital signal processing hardware to obtain high performance and accurate control.

The ADF have very low losses. Reducing losses means improving reliability and component life, as well as increasing power savings for the compensated load. Further, cooling requirements are reduced, which reduces the size and weight of the unit, positively affecting the total cost of ownership.

All models are delivered with built-in automatic overload protection and extensive software controlled monitoring functions which guarantees system safety and reliability under all operating conditions.

:: Advanced Digital Control

Comsys ADF Technology comprises proprietary state-of-the-art digital control implemented in software. This improves the flexibility of the product, allowing it to be tailored to special applications where for example transient behaviour may be more important than reducing reactive power and/or harmonics. The ADF units are preset to eliminate harmonics and suppress reactive power.

The dynamic properties of the software allows the network to be modified without further tuning of the ADF unit.

:: Easy Installation

Comsys ADF products are easy to install. Incoming power line is supplied via the floor of the cabinet. The ADF P300 requires no external breakers or fuses.

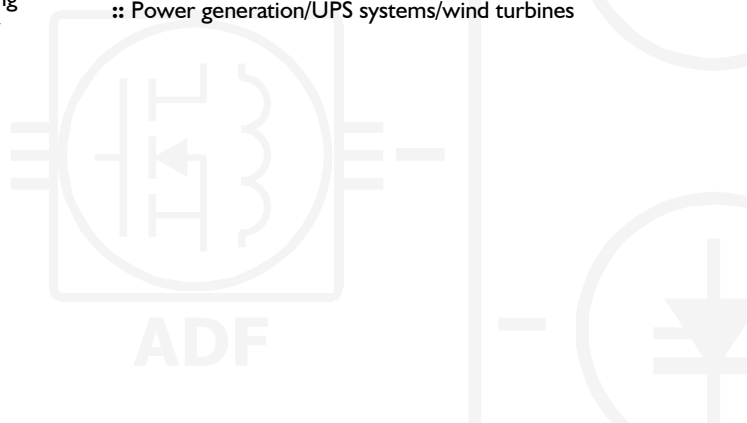
In most applications requiring harmonic elimination and/or suppression of reactive power, no specific network information is needed apart from reactive power and harmonic currents of the load.

:: Applications

The Comsys ADF technology is compatible with all three-phase applications, and can automatically reduce harmonics and reactive displacement in any application. Further, the product can be tailored to special applications requiring unusual optimizations.

:: Example Applications

- :: Harmonic/reactive power supression in 3-phase systems
- :: Industrial production machines (eg mills, presses)
- :: Electrical welding systems
- :: Plastic machinery (extruders, injection moulders)
- :: Power generation/UPS systems/wind turbines



:: Technical Specifications

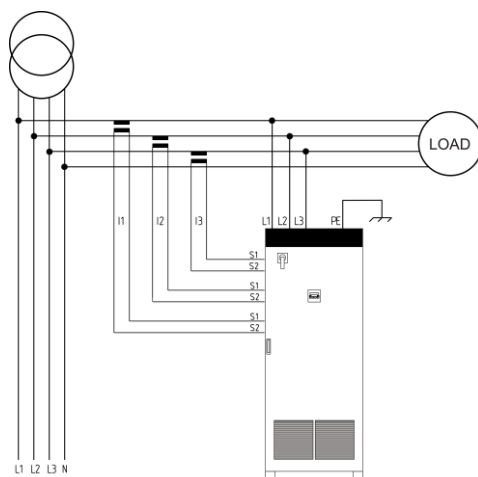
:: Technical Data

model	ADF P300-100	ADF P300-200	ADF P300-300
rated power *	70 kVA	140 kVA	210 kVA
compensation current capacity	100 Arms	200 Arms	300 Arms
system voltage **	480 V (208 - 480V), 690 V (480-690V)		
nominal frequency **	50/60 Hz \pm 2%		
number of phases	3 wire type		
connection type	3 phase without neutral (TN, TT, IT)		
harmonic current compensated	global compensation up to 50 th order		
rate of harmonic reduction	better than 98%		
current compensation of cos φ	up to 1.0		
expandability	up to 8 ADF units in parallel		
response time	< 1 ms		
power dissipation	< 1900 W	< 3800 W	< 5700 W
maximum air flow requirement	600 m ³ /h	1200 m ³ /h	1800 m ³ /h
noise level	< 60 dB		
environment	0 to 95% RH non-condensing, max altitude 1000 m		
operating temperature	0 to 40°C continuous, <25°C recommended		
dimensions	800 x 2200 x 610 mm (W x H x D)		
weight	290 kg	380 kg	470 kg
cabinet color	cabinet RAL 7035 (gray), base RAL 7022 (dark gray)		
protection class	IP 20 according to IEC 529		
environmental conditions	chemical 3C3, mechanical 3S3		
electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4		
certificates	CE		
art no 208 - 480V (480 - 690V)	400 043 (400 048)	400 044 (400 049)	400 045 (400 050)

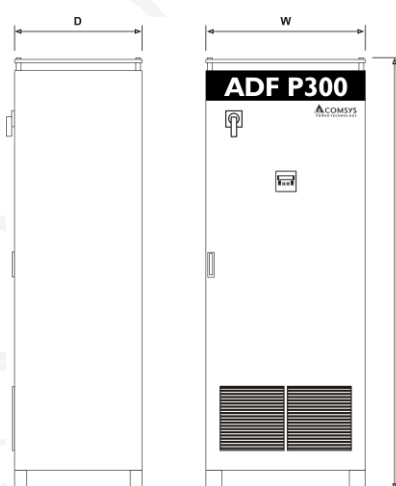
* compensation power at 400V nominal voltage

** please state your system voltage and line frequency when ordering

:: Connection Diagram



:: Dimensions



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