

The Active Front End allows sinusoidal mains current

The Active Front End is used when drives should contain mains harmonics particularly low. State-of-the-art components, a new control concept as well as a top-quality filter module reduce the total current distortion factor THD(i) to a value less than 4 %.



Special features

In combination with the well-proven frequency inverters Altivar 61 & 71 the Active Front End represents a "Low Harmonic Drive" for almost all applications.

Mains interferences / mains conditions

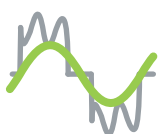
- THD(i) less than 4 %
- No converter transformer required
- Integrated radio frequency interference filter according to EN 61800-3 category C3
- Power factor $\cos \Phi$ 1 independent of the load situation
- Mains voltage drops up to 40 % without interruption of operation
- Wide mains frequency range permitted
- Operation at a diesel generator possible
- Mains short circuit power up to 100 kA permitted

Simple planning and installation

- Line contactor already integrated
- No external control voltage supply necessary
- Operation independent of the phase sequence
- Optimised administration of spare parts due to equal components in the Active Infeed Converter and the Altivar inverter

Energy-saving operation

- Improved efficiency due to innovative control system
- No damping resistors with heavy losses required and thus it is especially robust in respect of heavily distorted mains voltages
- Reduction of transformer losses, wiring and switching devices



Typical applications

Pumps
Fans
Conveyor belts
Compressors

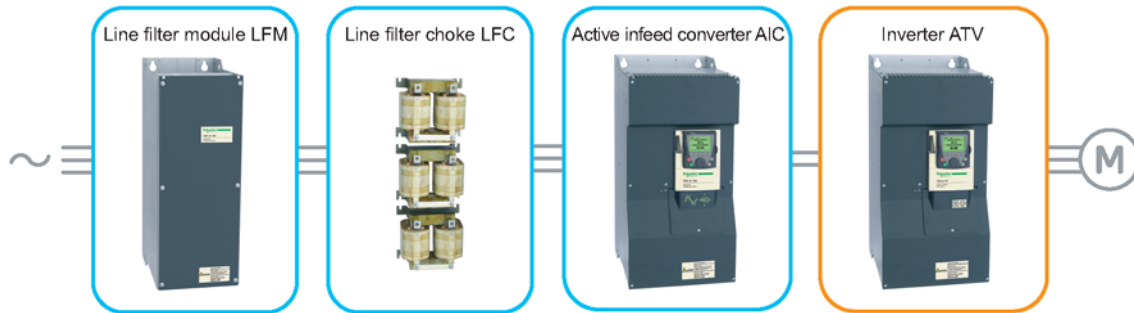
Schneider
Electric

Applications / capabilities / design

The Active Front End with quite simple construction is quickly set up. All control connections are pre-assembled and clearly marked. Usually it is sufficient to adjust the existing mains voltage for parameterization of the whole Active Front End.

The Active Front End is connected upstream to the standard frequency inverter and consists of three components:

- Active Infeed Converter
- Line Filter Module (EMC filter, line contactor and charging circuit)
- Line Filter Choke (3 parts)



General technical data	
Voltage / frequency	380...400 V / 440 V / 480 V ±10 %: 50/60 Hz ±5 % (30...70 Hz for short periods) 500...525 V ±10 %: 50 Hz ±5 % 575...600 V / 690 V ±10 %: 50/60 Hz ±5 % (30...70 Hz for short periods)
Power range	120...860 kW
Overload	+20 % for 60 seconds per 10 minutes
Operating temperature	-10...+45 °C (+60 °C with derating)
Protection degree	IP00
Control concept	Controllable via terminals, CANopen bus or Modbus built-in, other field busses via option cards
Standards	Devices are designed, built and tested on the basis of EN 61800-5-1
Approvals	CE, UL, in preparation: CSA

Inverter	
Altivar 71	Altivar 61
up to ATV71HD90N4D	up to ATV61HC11N4D
ATV71HC11N4D	ATV61HC13N4D
ATV71HC13N4D	ATV61HC16N4D
ATV71HC16N4D	ATV61HC22N4D
ATV71HC20N4D	ATV61HC25N4D
ATV71HC25N4D	ATV61HC31N4D
ATV71HC28N4D...C31N4D	ATV61HC40N4D
ATV71HC40N4D	ATV61HC50N4D
ATV71HC50N4D	ATV61HC63N4D
up to ATV71HD90N4D	up to ATV61HC11N4D
ATV71HC11N4D	ATV61HC13N4D
ATV71HC13N4D	-
ATV71HC16N4D	ATV61HC16N4D...C22N4D
ATV71HC20N4D	ATV61HC25N4D
ATV71HC25N4D	ATV61HC31N4D
ATV71HC28N4D...C31N4D	ATV61HC40N4D
ATV71HC40N4D	ATV61HC50N4D
ATV71HC50N4D	ATV61HC63N4D
ATV71HC11Y ¹⁾	ATV61HC11Y ... HC13Y ¹⁾
ATV71HC13Y ¹⁾	ATV61HC16Y ¹⁾
ATV71HC16Y ¹⁾	ATV61HC20Y ¹⁾
ATV71HC20Y ¹⁾	ATV61HC25Y ¹⁾
ATV71HC25Y ¹⁾	ATV61HC31Y ¹⁾
ATV71HC31Y ¹⁾	ATV61HC40Y ¹⁾
ATV71HC40Y ²⁾	ATV61HC50Y ²⁾
ATV71HC50Y ²⁾	ATV61HC63Y ²⁾
ATV71HC63Y ²⁾	ATV61HC80Y ²⁾

Active Front End			
Type	AIC	LFM	LFC
400V 120kW	VW3A7250	VW3A7260	VW3A7265
400V 145kW	VW3A7251	VW3A7261	VW3A7266
400V 175kW	VW3A7252	VW3A7261	VW3A7266
400V 240kW	VW3A7253	VW3A7262	VW3A7267
400V 275kW	VW3A7254	VW3A7262	VW3A7267
400V 340kW	VW3A7255	VW3A7262	VW3A7267
400V 430kW	VW3A7256	2xVW3A7262	2xVW3A7267
400V 540kW	VW3A7257	2xVW3A7262	2xVW3A7267
400V 675kW	VW3A7258	2xVW3A7262	2xVW3A7267
480V 120kW	VW3A7250	VW3A7260	VW3A7265
480V 145kW	VW3A7251	VW3A7261	VW3A7266
480V 175kW	VW3A7252	VW3A7261	VW3A7266
480V 240kW	VW3A7283	VW3A7262	VW3A7267
480V 275kW	VW3A7254	VW3A7262	VW3A7267
480V 340kW	VW3A7255	VW3A7262	VW3A7267
480V 430kW	VW3A7286	2xVW3A7262	2xVW3A7267
480V 540kW	VW3A7287	2xVW3A7262	2xVW3A7267
480V 675kW	VW3A7258	2xVW3A7262	2xVW3A7267
690V 145kW	VW3A7270	VW3A7263	VW3A7268
690V 175kW	VW3A7271	VW3A7263	VW3A7268
690V 220kW	VW3A7272	VW3A7263	VW3A7268
690V 275kW	VW3A7273	VW3A7264	VW3A7269
690V 340kW	VW3A7274	VW3A7264	VW3A7269
690V 430kW	VW3A7275	VW3A7264	VW3A7269
690V 540kW	VW3A7276	2xVW3A7264	2xVW3A7269
690V 675kW	VW3A7277	2xVW3A7264	2xVW3A7269
690V 860kW	VW3A7278	2xVW3A7264	2xVW3A7269

1) ... additional 1x the option Fan Wiring 6V (VW3 A7 280) is needed
2) ... additional 2x the option Fan Wiring 6V (VW3 A7 280) is needed