

AFE2000 Series

Active Front End (AFE) is a controllable rectifier with advantages such as providing bidirectional power exchange between AC and DC power and regenerating reusable power to the mains to reduce the cost of power. The AFE uses PWM modulation to greatly reduce distinctive peaks of current and form perfect sine wave current. The power factor is corrected up to 1—the ratio between load capacity and power capacity is 1:1. In addition, the AFE eliminates high order harmonics, provides very low harmonic current THD < 5% while improving the power factor, which allows you to save the cost of purchasing additional electrical equipment for better power quality. The AFE also offers stable power quality unaffected from mains power fluctuations and can be applied to a serial connection.



Incorporating years of experience in AC motor drive development, Delta introduces the innovative AFE2000. This unit is designed for a wide range of applications and it achieves outstanding energy saving results. The AFE2000 does not dissipate excess heat into the air but converts it into reusable power that can be supplied back to the mains. The AFE2000 is yet another Delta product that contributes to improving efficiency and productivity and that fulfills our mission "to provide innovative, clean and efficient energy solutions for a better tomorrow".

Product Introduction

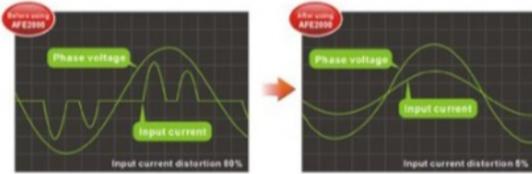
Applications

- Large-inertia load applications: roving machines, horizontal spiral centrifuges, drilling machines.
- 4-quadrant load applications: cranes, cargo elevators, passenger elevators, oil production machines.
- Quick brake applications: machine tools, high-speed spindles, bag making machines.
- Long-term feedback energy applications: wind power systems and water power systems.
- DC power supply applications: logistics and storage systems, wind power systems, LED lighting systems.
- Provides excellent power quality for the communication transmission systems of Power Line products.
- Overhead Traveling Crane
- Elevator

Product Specifications

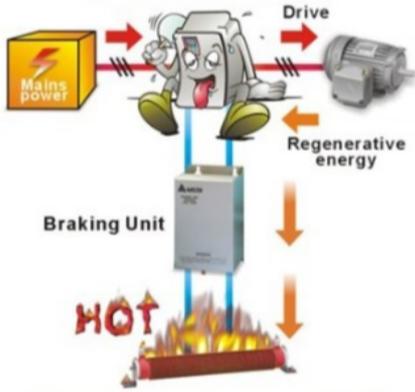


- Energy saving with AC/DC dual power flow control and corrects power factor up to 99%.
- Replaces traditional braking resistor for cost savings, space savings, and energy savings.
- PWM control substantially reduces peak of harmonic current wave and forms perfect sine wave current.
- IEEE STD.519-1992 standard for harmonic current distortion of less than 5%.
- Constant DC bus voltage that is not influenced by mains voltage fluctuation.
- Supports multiple DC bus installation:
- Outstanding Energy Saving Results



Traditional Brake Resistor

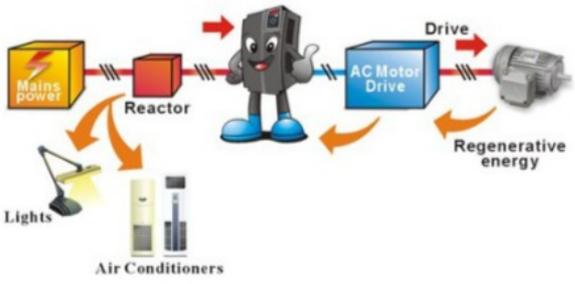
Dissipate the regenerative energy as heat



Regenerative energy = excess heat

AFE2000

Reduces Harmonics
Improves Power Factor
Power Regeneration



Regenerative energy = reusable electricity

- Controls harmonic distortion to less than 5% and corrects the power factor up to 99%.
- As a replacement for traditional brake resistors: A high-watts brake resistor is usually applied to a traditional AC motor drive to absorb the excess regenerative energy generated by motor spinning and frequent braking, and then dissipating the excess energy as heat (see Figure 1). Using brake resistors as an excess energy solution not only creates additional hardware but also occupies more space. The Delta AFE2000 series provides a new solution: instead of dissipating regenerative energy as heat, it converts regenerative energy into reusable electricity and sends it back to the mains, which reduces total energy consumption. The AFE2000 series is a cost saving and environmentally-friendly product (see Figure 2).