

HOW THREE PHASE DIGITEK WORKS?

Energy Saving

- DIGITEK detects the zero crossings of the voltage and the current to find the angle that the voltage lags behind the current. Cosine of this angle is what is called power factor. Power factor is a good reference parameter for the load of the motor.
- When the current crosses zero, the SCR gate is closed and no electricity goes out to the motor.
- Depending on the load, the micro controller decides when to fire upon the SCR to open the gate and let the electricity go out to the motor.
- The time for the gate closed is longer for lower load and therefore the energy saved in percentage is more.
- DIGITEK continuously detects the load and continuously controls the outlet of electricity to the motor.
- DIGITEK is just like a water dam. When water is needed more, the gate opens more.
- DIGITEK saves more energy in percentage at lower load and saves less energy in percentage at high load.
- DIGITEK changes the energy saving as the load is changed.
- DIGITEK does not stall the motor due to rapid increase on the load.
- DIGITEK can react to the complicated load change of a motor smoothly.

Soft Start

The inrush current of a motor at start with full voltage can be as high as 6 to 9 times of its rated current. DIGITEK can limit the current at start below twice of the rated current. DIGITEK can control the starting current in the best way such that the current at start gradually increases to a constant plateau and maintains at the plateau until the soft start is completed.

Kick Start

For a motor with high inertial at start, soft start might not provide enough torque to start the motor. A relatively higher voltage at the start can provide enough initial torque to start the motor. It then enters quickly to the soft start mode to complete the start under limited low current.

Soft Stop

For some applications, the soft stop is needed to avoid the impact due to sudden stop of the motor.

Phase Loss Protection

When phase loss occurs, DIGITEK stops the output and stop the motor. By doing so the motor will not be further damaged.

Over current protection

In case of over load, DIGITEK stops the output to stop the motor. The motor and the DIGITEK are then protected from over current.

High voltage protection

When the power supply voltage is too high, DIGITEK stops the output to stop the motor. The motor and the DIGITEK are then protected from over high voltage.

Low voltage protection

When the power supply voltage is too low, DIGITEK automatically switches to no saving mode to avoid too low voltage for the motor.

External bypass

An external bypass system can be added to DIGITEK so that the system can bypass DIGITEK when it is needed.

Special application on air compressor

DIGITEK-IIIAC is specially designed for air compressor application. For a large air compressor, the motor is not stopped during the unloaded period in order to avoid the large inrush starting current. DIGITEK-IIIAC can automatically stop the motor when the air compressor is unloaded and automatically restart the motor with soft start for pumping air again. It can save 100% energy when the air compressor is unloaded.

Special application on air compressor

DIGITEK-IIIWP is specially designed for irrigation water pump. In addition to starting the motor with soft start and stopping the motor with soft stop, it allows the motor to start with soft start again after the motor is stopped due to over high voltage or over low voltage when the voltage is returned to normal range.