General

CoMoCo-1.0-ED-4 is an intelligent controller for electromotors.
At the heart of the controller is the Texas Instruments C2000 Piccolo microcontroller. The controller measures the electromagnetic field in the electromotor without using mechanical sensors. The built-in software accurately estimates where the magnetic field will be in the next microsecond.
It calculates the minimum and the type of energy required to realise this field and then precisely supplies it, using the data obtained. The result is enormous energy savings in partial load.

Depending on the type of electromotor and the required capacity, up to 90% more energy can be saved in respect to a controller based on Triac. The highest percentage of energy saving occurs when the rotational speed is low. The required rotational speed is controlled by a 0-10Volt or 10-0Volt signal. The rotational speed is guaranteed by the controller, irrespective of external influences.
The controller also ensures that the required rotational speed can be maintained with the absolute minimum of energy. The controller supplies this energy in an optimal form in regard to voltage, current and frequency.

PFC

CoMoCo-1.0-ED-4 fully complies with the CE guidelines. Extra EMC filters are not necessary when installing.
A built-in PFC (Power Factor Control) ensures that the energy is taken evenly from the public grid and is available when required. The controller performs far above the standard set by the energy companies.
In addition the PFC is dynamic. In other words it switches off when the load is low to save even more energy.

Input, output and power

The input voltage is between 85 and 265Volt (50-60Hz), single phase.
The output signal is suitable for a three phase 230 – 380V induction motor which is delta connected.

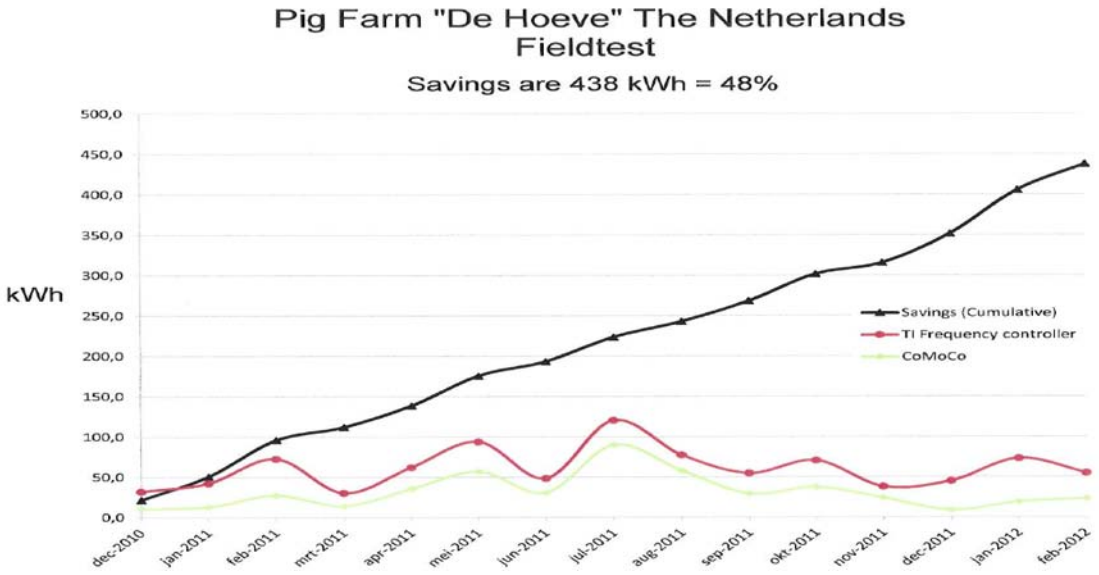
The controller can supply 1,000VA of power with static cooling and when the controller is placed in an air flow up to 1,150VA. The abovementioned applies for a supply voltage of 230VAC.
The controller will operate at a lower voltage, but will automatically reduce the maximum power that can be supplied. The controller will supply a maximum of 500VA at 110VAC.

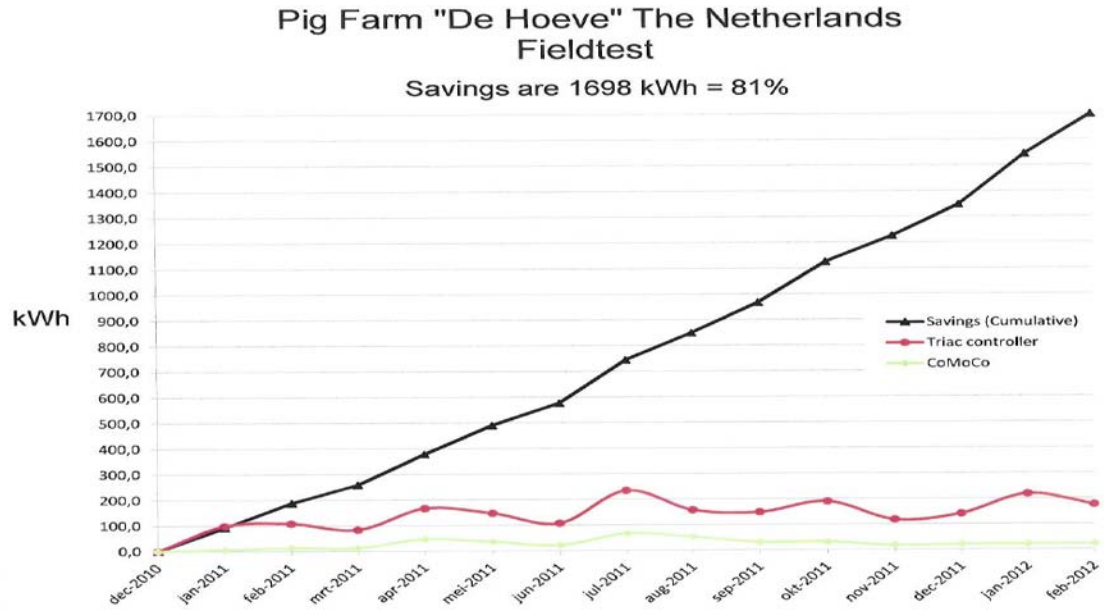
Extra Intelligence

When overloaded the controller will remain working by reducing the supplied power. The controller can run the electromotor at a much lower rotational speed than is usual possible with the current available controllers. Moreover up to 150% of the maximum torque is available at these low rotational speeds and at idle without damaging the motor. In the event of an overload or the temperature is too high or other malfunctions the controller will continue to operate but will also produce an alarm signal via a potential-free contact. The cause of the alarm can be read from a flashing LED signal underneath the controller.
The housing is extremely robust and completely enclosed so that the controller can also be placed in aggressive surroundings.

Practice tested

The CoMoCo is tested more than 2 years. In identical arranged pig stables the CoMoCo is compared with several other controllers for Fans. The result is that the energy bill for a whole year was reduced with 48% compared with a stable with a standard ferquency controller and 81% compared with a Triac based controller.





Installation

For proper functioning and to conform to the CE rules, the controller must be installed no further than 2.5 metres from the electromotor. The electronics are enclosed in an aluminium housing with a special coating suitable for aggressive surroundings. The housing conforms to the IP67 standard. The required cables have been pre-installed to guarantee IP67 and CE. Opening the controller is therefore unnecessary. Opening will be detected and the guarantee will be void.

It is imperative for optimal working that the motor is recognised and the controller calibrated when connected. This is easy to start up by briefly connecting two of the wires in the control cable to each other.
The procedure will then run fully automatically. The electromotor must be able to move freely. After a short while the controller and motor will be tuned to each other.