

# product specification

## softstarter: SAK31



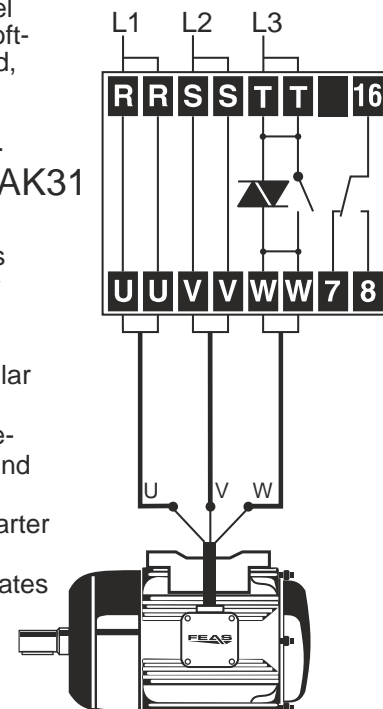
- No star delta run-up necessary
- Suitable for all winding configurations, as well for motors with polar changeover or seperated windings
- Reducing the starting current
- Motor power up to 3KW
- Adjustable run-up timer and starting torque
- Integrated relay with potential-free signal change-over
- Suitable for the tropics
- Operating status shown by LED
- Safety acc. to VDE, EN, UL, CSA

### Application

The FEAS-softstarter is an electronic starter for AC-motors of the squirrel cage winding with slip-ring rotor constructional type. The function of a softstarter is to allow AC-motors to accelerate smoothly up to nominal speed, whereby the ohmic resistance has been replaced by a low-loss, bi-directional power control semiconductor. The motor ist connected up so that the electronic resistor is in series with one of the three supply wires.

SAK31

### connection diagram



### Functional principle

When the motor starts up, the softstarter automatically switches the series resistor to a preselectable maximum value. In this way, one of the stator windings will receive a reduced voltage and therefor a reduced current while the other two receive the full voltage supply.

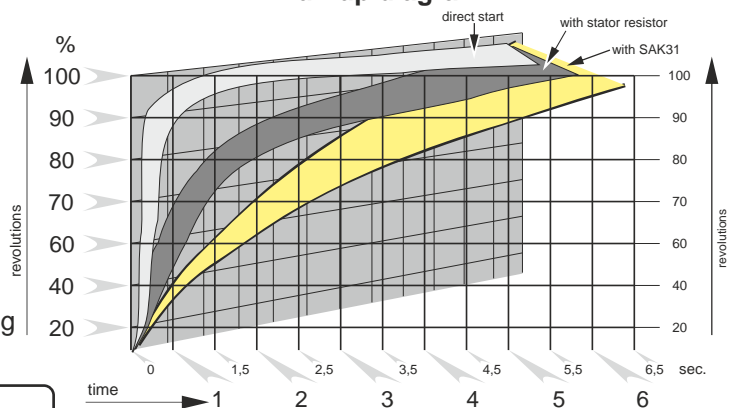
Through this manipulation, the otherwise constant and perfectly circular torque characteristics are changed to an ellipse. The motor will run up slowly from stationary up to its nominal speed. While the motor is accelerating, the electronic series resistance is continuously reduced in value, and when the nominal speed has been reached, the resistance is internally short-circuited using a relay. In this way, it is possible to leave the softstarter permanently in the main circuit with no additional power loss.

When the motor has reached its nominal speed, a green LED illuminates and the potential-free change over will be accutated. (con. 16, 7, 8) The values for starting torque and time to reach nominal speed can be set on the stepless 10-gang potentiometer. When the motor is switched off, the SAK31 returns to its initial state within 0.2 sec, also indicated by a yellow LED.

Attention should be paid to the fact, that the starting method described will result in additional heat developing in the motor as an asymmetrical rotating field is generated because of the single-phase control.

This reduces the maximum allowable switch-on frequency of the motor by about 10% whereby the main contributory factor is the run-up time that is applied.

### Run-up diagram



### Design

Completely embedded with resin in a plastics housing for mounting on a rail or wall mounting with screws.



Please read the data sheets and the user manual for further information.