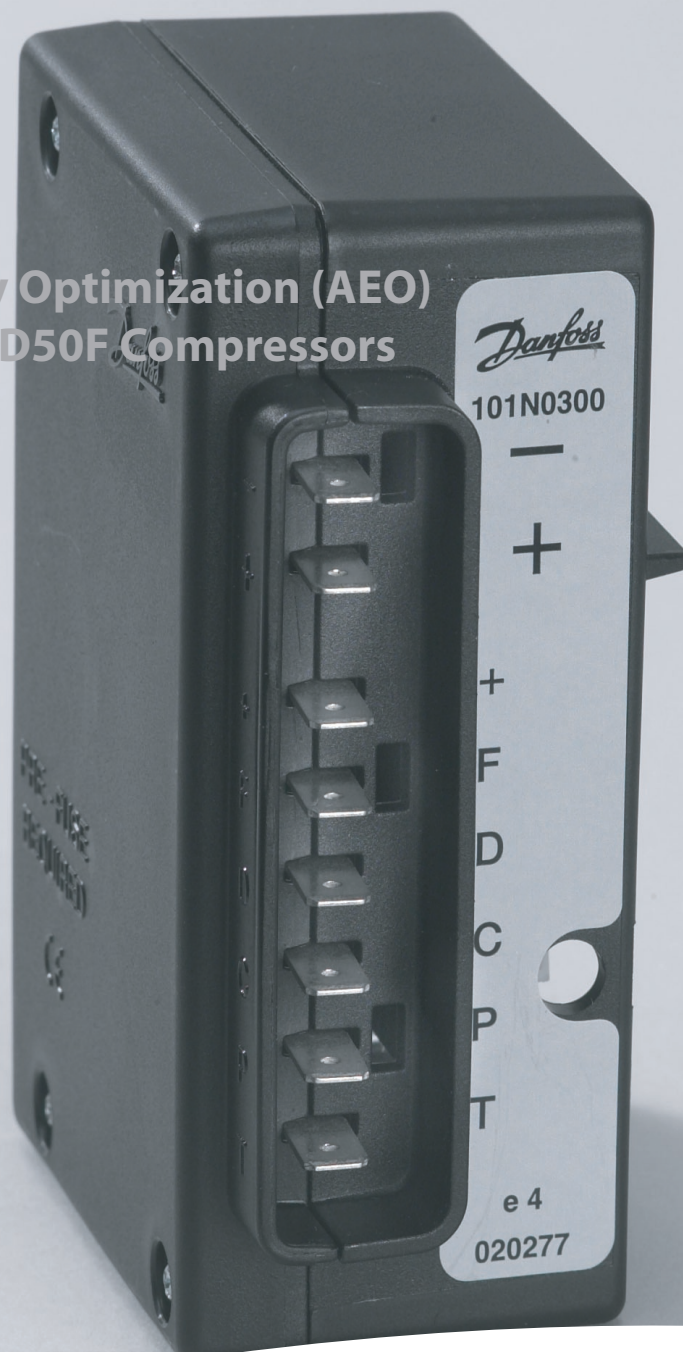


Adaptive Energy Optimization (AEO) for BD35F and BD50F Compressors



Introduction

We are pleased to introduce a new electronic unit for the BD 35F & 50F compressors. The unit contains a new feature called Adaptive Energy Optimization (AEO). It is very suitable for tropical applications, systems with huge load variations and applications where energy is an important issue.

Function

Start up conditions

Every start up of the compressor takes place at low speed (soft start). The start up speed is equal to: the speed at thermostat cut out minus 400 rpm. After start up the speed of the compressor will be ramped up and adapted to the load. The ramp up speed is 12.5 rpm/min.

Adaptation of the capacity. The software algorithm adapts the capacity of the compressor to the actual load of the system. The unit regulates the capacity so that the compressor runtime is approximately 30 minutes. If the compressor does not reach cut out temperature within 60 min the speed is set to 3500 rpm.

Example how to determine the speed

Start up speed: 2600 rpm
 Runtime: 15 minutes
 Speed at cut out: $2600 + (12.5 \times 15) \sim 2790$ rpm
 Start up speed: $2790 - 400 = 2390$ rpm
 Runtime: 20 minutes
 Speed at cut out: $2390 + (12.5 \times 20) \sim 2640$ rpm
 Start up speed: $2640 - 400 = 2240$ rpm
 Runtime: 30 minutes
 Speed at cut out: $2240 + (12.5 \times 30) \sim 2615$ rpm

Curves

The graphs below show the relation between cabinet temperature and speed. After a power cut out the start speed will always be set to 2600 rpm.

After a thermostat cut out the start up speed is calculated as speed at stop minus 400.

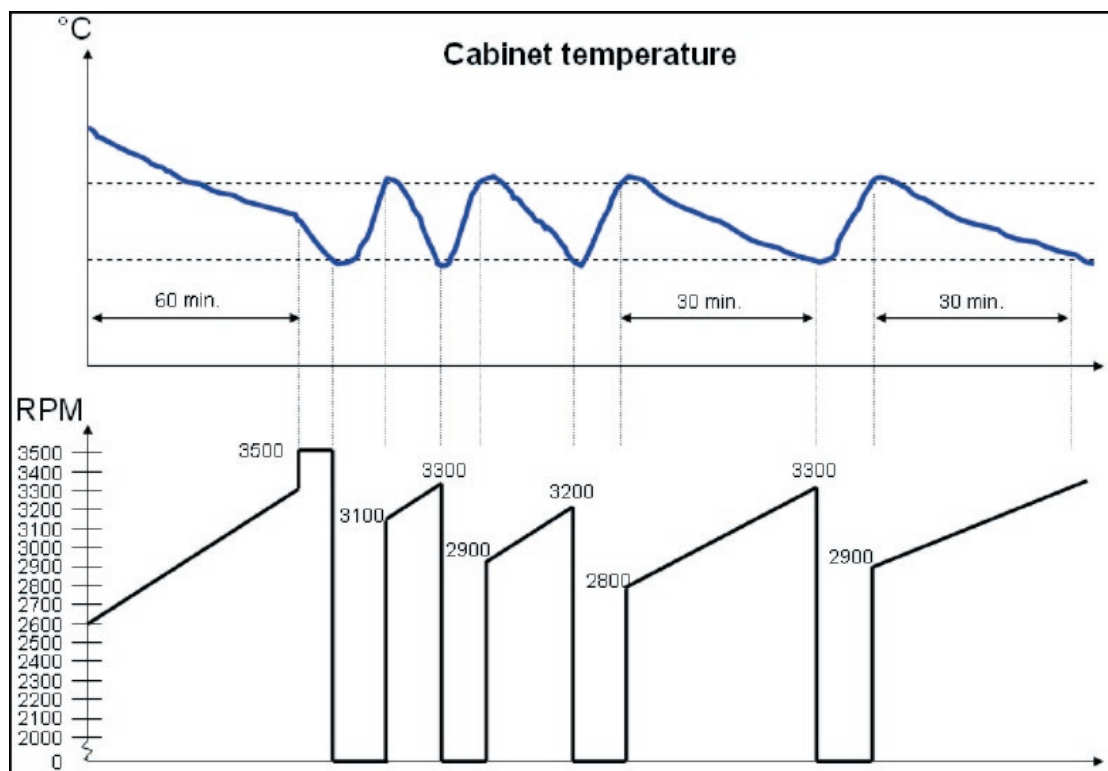
The speed will be adapted automatically so that the thermostat runtime will be approximately 30 minutes.

Benefits

- * Independent of load variations
- * Energy savings
- * Reduced number of compressor starts
- * Prevents short cycling of the compressor
- * Battery protection
- * Soft start in tropical conditions

Code nos.

Single pack 101N0300
 Industrial pack 101N0301 (30pcs)



Danfoss Compressors GmbH

Mads-Clausen-Strasse
 D-24939 Flensburg
 Phone: +49 (0461) 4941-0
www.danfoss.com/compressors