CARLO GAVAZZI
Automation Components

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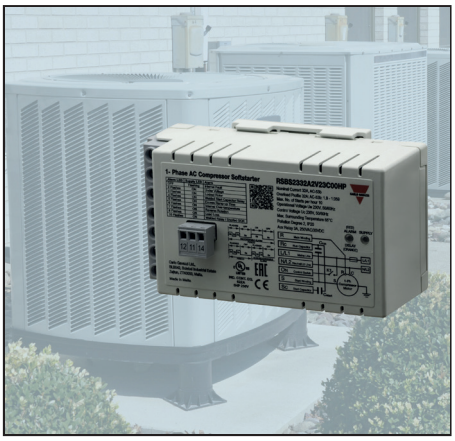
Application notes



Application Note : May 2020

Market involved : HVAC

Product : RSBS

Customer : OEMs

Subject : Reducing the compressor starting current in heat pumps

CUSTOMER ISSUE :

Scroll compressors are widely used in the HVAC Markets, particularly in heat pumps.

Scroll compressors must start within 800 msec to avoid excessive wear and tear on the orbiting scrolls.
With direct on-line start (DOL), the start current is 5 to 6 times the compressor rated current.

Single phase scroll compressors are very susceptible to unstable voltage grids.
It is a known fact that voltage interruptions and dips are a common occurrence on single phase lines.

Such events may cause scroll compressors to re-start rapidly, get into a locked rotor state or rotate in reverse, all of which can have adverse effects on electronic control equipment such as soft starters.

OUR SOLUTION :

The RSBS is a single phase soft starter suitable for scroll compressors up to 32 AAC.

The compressor starting current is limited to 45 AAC to minimise the disturbance to the voltage network.

The RSBS control algorithm is designed to start the compressor within 600 msec.

A special function, known as HP, automatically adjusts the RSBS parameters to ensure that the compressor starts even when pressures are not balanced.

The RSBS is also equipped with advanced diagnostic functions such as voltage dips and voltage interruption detection. This function avoids the possibility of compressor damage due to reverse rotation.

BENEFITS :

- Cost savings in utility contracts
- Eliminates light flickering
- Less heat pump downtime
- Lower maintenance costs