Sensors   **Switches**   **Controls**

Application notes

Application Note : January 2020	
Market involved : HVAC	
Product : HDMS	
Customer : OEMs	
Subject : Reducing failures in heat pumps	

CUSTOMER ISSUE :

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

In particular, start capacitors may be damaged when the mains voltage is not stable.

OUR SOLUTION :

Thanks to the HDMS, a scroll compressor can be started with <1.5 times its rated current (in balanced pressure conditions).

This result is achieved without any start capacitor, eliminating the weakest component from the installation.

The HDMS is also equipped with advanced diagnostic alarms, designed to protect the compressor as well as the HDMS circuitry.

The alarms are designed to self-recover, so minimising the downtime of the heat pump.

The terminals on the HDMS do not require any tooling for wiring.

Cables terminate with ferrules, so they can be simply pushed into the terminal, resulting in considerable time savings.

BENEFITS :

- Cost savings in utility contracts

- Fewer issues with utility companies since the start current is generally lower than that required by utility norms

- Eliminates light flickering

- Less heat pump downtime

- Lower maintenance costs

- Higher level of reliability in unstable grids

- Higher production output

- Less room for error during wiring