



EmersonClimate.com

Understanding Compressor Electronics

The key to better system performance, increased profitability and more satisfied customers.



Chapter 1: Introduction to Compressor Electronics

CLICK A SECTION BELOW

[EXECUTIVE SUMMARY](#) | [HVACR ELECTRONICS](#) | [WHY COMPRESSOR ELECTRONICS](#) | [CONCLUSION](#)

Introduction to Compressor Electronics

Executive Summary

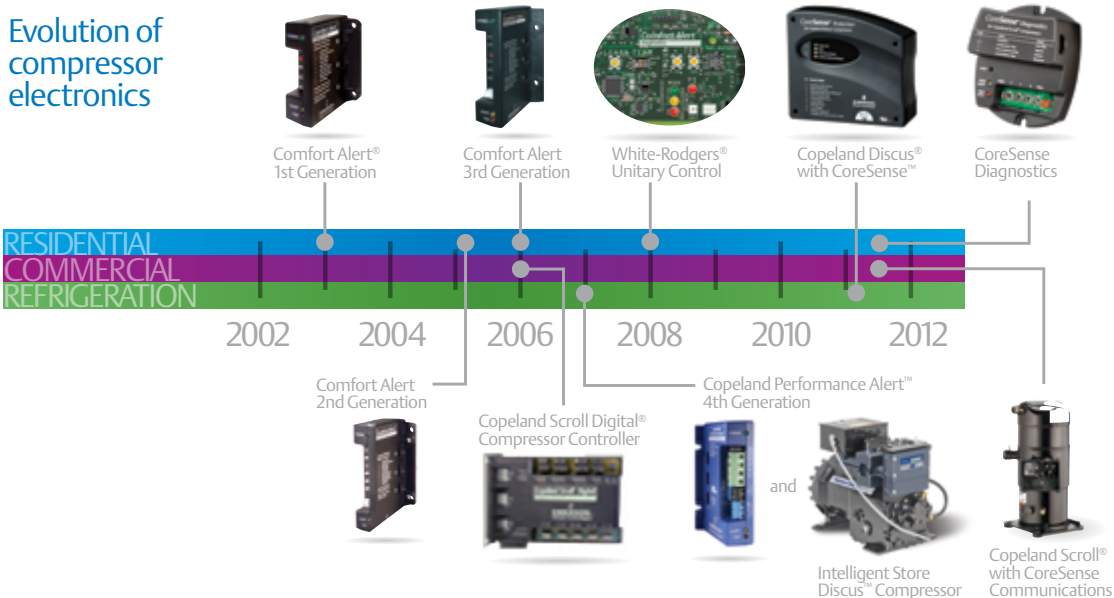
As a worldwide provider of heating, air conditioning and refrigeration solutions for residential, industrial and commercial applications, Emerson Climate Technologies is leading the industry in the development of compressor electronics. As the technology continues to present new possibilities and capabilities, it is important HVACR contractors and professionals understand how compressor electronics work and how they can be employed to provide better system performance, increased profitability and more satisfied customers.

This e-book is designed to help educate contractors and end-users of the value of compressor electronics and its impact on their overall business. The eBook series will contain a total of four chapters with this first chapter providing a general overview on electronics in the HVACR industry. The second chapter will explain why compressor electronics are needed by addressing some of the key issues our industry is facing. The third and fourth chapters will then cover other key items including, how compressor electronics work and the key benefits they deliver. The eBook will also provide examples of this technology and its success in the field today with real-life scenarios.

Introduction to Compressor Electronics

- Executive Summary
- HVACR Electronics
- Why Compressor Electronics
- Conclusion

Evolution of compressor electronics



Emerson Climate Technologies first introduced compressor electronics to the HVACR industry in 2003 with the launch of its Comfort Alert® diagnostics module. Today, the technology has evolved into commercial and refrigeration applications and is now referred to as CoreSense™ technology.

Introduction to Compressor Electronics

HVACR Electronics

We are constantly surrounded by data. Many of the appliances and equipment we encounter in our personal and professional life now contain some level of electronics and diagnostic technology that gathers usage and operational data.

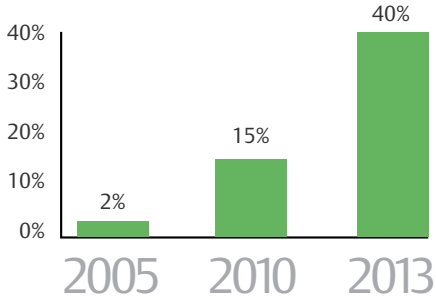
From cell phones and UPS systems to forklifts and coffee makers, products across markets and industries are becoming smarter. Within the last few years, we've seen an increase in the technology available that enables us to better manage and analyze that data, transforming it into actionable information that we can effectively use to improve performance, increase reliability and cut costs.

For example, through embedded electronics, sensors and diagnostic technology, we can find out exactly how our car is performing, pinpoint a faulty part and identify proven preventive maintenance steps that can be taken to prevent future issues. The HVACR industry is no exception. For a number of years, electronics have been integrated into commercial and residential furnaces that perform self-diagnostics through an [integrated circuit board](#), which continuously monitors the furnace's operational performance. Furthermore, electronic supervisory controllers in commercial refrigeration have managed systems to optimize performance while preserving food quality.

As technology and diagnostic capabilities continue to evolve, it is a natural migration that electronics are now being introduced in air conditioning and refrigeration systems. According to a recent article from [HVACR Distribution Business](#), the number of air conditioning systems with embedded electronics is significantly increasing. The article points out that the outdoor unit electronics market has expanded exponentially in the last five years. From less than two percent of the market in 2005, it has grown to more than 15 percent in 2010 and is projected by many to be as high as 40 percent by 2013.

With electronics becoming more common in air conditioning and refrigeration systems, they are now being integrated into the heart of these systems – the compressor.

Continue...



By 2013, outdoor units with compressor electronics is expected to grow to nearly 40% of the market.

Introduction to Compressor Electronics

- Executive Summary
- [HVACR Electronics](#)
- Why Compressor Electronics
- Conclusion

Introduction to Compressor Electronics

Why Compressor Electronics?

In today's economy and competitive landscape, solid, reliable performance is key, whether for HVACR systems and components, or service technicians. There is a need in the HVACR industry for equipment that can diagnose and protect itself from costly failure until a qualified contractor arrives for service. This smarter equipment would help lower maintenance costs and system downtime, and save contractors valuable time by enabling faster, more accurate diagnoses and ultimately reducing callbacks.

Electronics for HVACR systems have been around in control boards for many years, but a number of significant developments in compressor technology through the years has paved the way and laid the groundwork for a smarter compressor enhanced with compressor electronics.

At its core, compressor electronics enhances compressor and system performance by sensing, monitoring and interpreting electrical and mechanical information within the compressor to provide advanced capabilities, such as system diagnostics, protection, verification and communication. We will discuss these advanced capabilities in more detail in Chapter 4 of this eBook series.

Continue...



Introduction to Compressor Electronics

Executive Summary
HVACR Electronics
[Why Compressor Electronics](#)
Conclusion

Introduction to Compressor Electronics

Conclusion

While compressor electronics is a fairly new category, many of the appliances and equipment we encounter in our personal and professional lives contain some level of electronics and diagnostic technology. And, in the case of HVACR, compressor electronics can address key issues that will help minimize downtime and increase productivity.

Stay tuned for the next chapter in our eBook series “Understanding Compressor Electronics”. In Chapter 2, Emerson Climate Technologies outlines some of the key issues facing the HVACR industry, including the inefficiencies of replacing “No Fault Found” compressors, the gap between the number of trained technicians retiring and those joining the industry, and the pressures facing facility managers to reduce costs and downtime, along with efficiency and profitability challenges facing manufacturers and contractors.



“With compressor electronics, I now have a way to draw more information from the compressor, helping me achieve the reliability and costs savings I need, which is good for my business.”

– HVAC contractor



Click to watch an overview of compressor electronics

Introduction to Compressor Electronics

Executive Summary
HVACR Electronics
Why Compressor Electronics
[Conclusion](#)