

# Digital compression boosts outdoor condensing unit performance

*Variable-capacity modulation maximizes energy savings, refrigeration reliability and installation flexibility*

By Julie Havenar, Product Manager, Condensing Units, Copeland

Precise temperature control and significant energy savings are now available with the Copeland scroll digital outdoor refrigeration unit, X-Line series. Building on the field-proven Copeland scroll and X-Line outdoor condensing unit platforms, the digital X-Line series delivers superior cooling and energy efficiency in small-format supermarkets, convenience stores and food service establishments—helping owners and operators to manage their refrigeration and food safety needs.

Digital modulation enables owners to maintain much more precise setting and tight control of case temperatures.

This helps operators minimize temperature deviations in refrigeration fixtures so that food is kept safe and at maximum quality. The digital X-Line series combines compression technology with variable-speed fan motor control, large-capacity condenser coils, and smart protection and diagnostics to meet today's challenging refrigeration requirements.

Ideal for walk-in coolers and display cases, the digital X-Line delivers more precise, reliable refrigeration, longer-lasting equipment, and lower energy bills in medium-temperature applications.



**Maximized energy efficiencies  
and temperature precision**

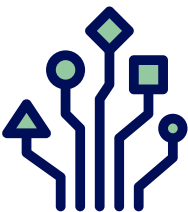
Digital Copeland scroll compression technologies enable continuous capacity modulation from 20 to 100 percent to deliver significant reductions in energy consumption and refrigeration improvements. Variable-capacity modulation allows the digital X-Line series to deliver:

Energy efficiency advantages	Refrigeration reliability improvements
<ul style="list-style-type: none"><li>• Substantial annual energy-efficiency improvements</li><li>• Reduced compressor cycling</li><li>• Longer equipment life</li><li>• Decreased electrical load at start-up</li></ul>	<ul style="list-style-type: none"><li>• Precise setting and tight control over case temperatures</li><li>• Load matching from 20 to 100 percent</li><li>• Improved product integrity, which helps operators maximize food quality and safety</li></ul>



Simply put, the digital X-Line is engineered for operators seeking to lower energy bills and help operators manage food quality and safety.

**Superior reliability and protection  
through advanced diagnostics**

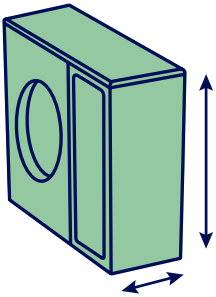


Built-in CoreSense diagnostics and protection allow operators to take action to minimize product loss from equipment downtime. Errors can be quickly communicated to service technicians, and the system can make changes to protect against faults that

might otherwise cause a compressor failure. Operators can expect improved reliability, an extended compressor lifespan and greatly reduced lifecycle costs.

**Installation flexibility from slim chassis**

The digital X-Line series' slim profile, lightweight design and wall-mount option give operators the flexibility to install the units, even in locations with significant space constraints. In fact, digital X-Line series units are so unobtrusive they're often mistaken for an AC split unit. This helps operators lower installation costs and avoid expensive system design workarounds and/or relocation issues. The digital X-line series can even be applied to systems featuring multiple evaporators.



**Ultra-quiet operation from strategic  
noise abatement design**



Operators located near residential areas or noise-restricted zones benefit from using the quietest standard unit available. Under most expected operating conditions, the units produce less sound than a normal conversation. In most applications, noise from the digital

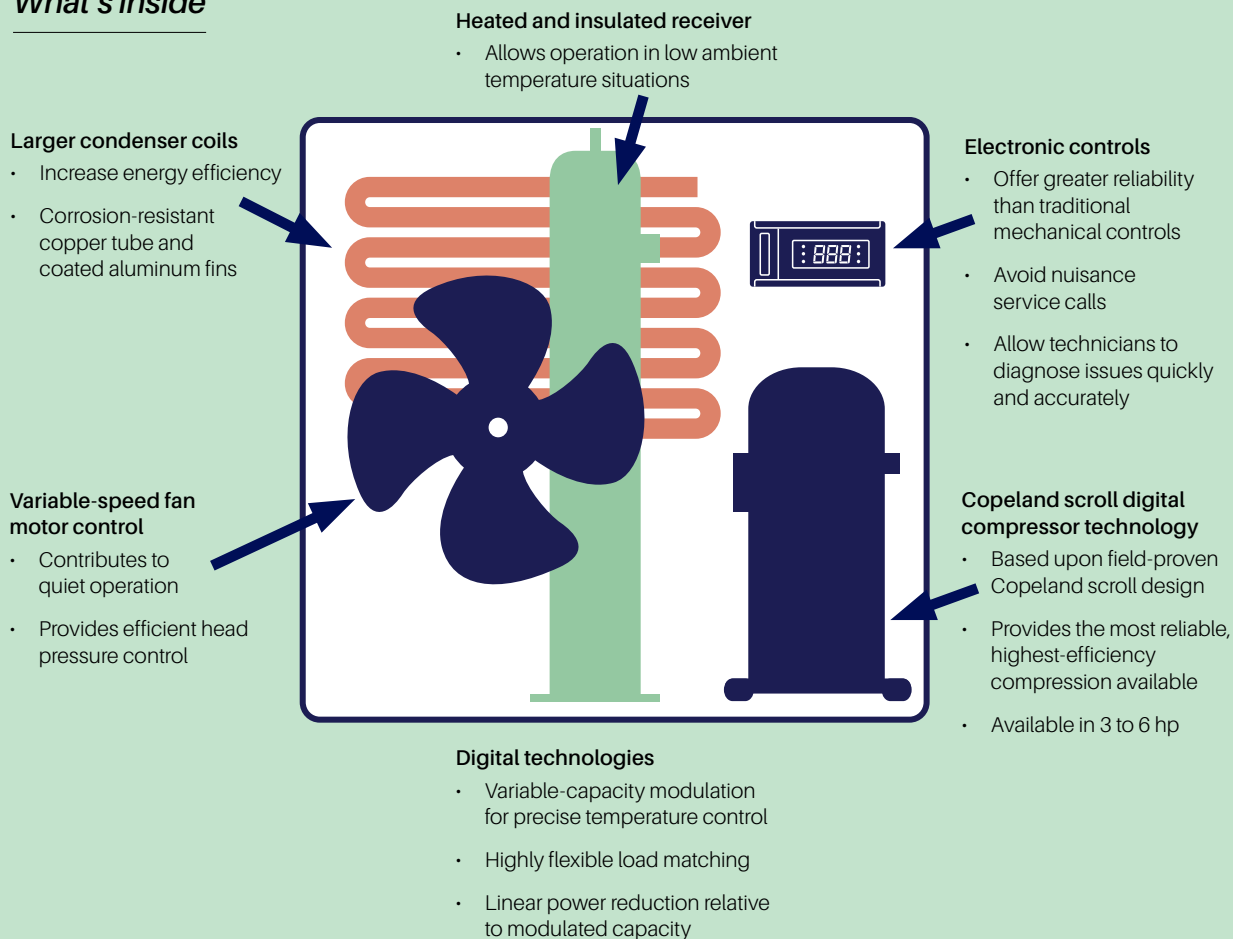
X-Line Series is practically undetectable. The units are unobtrusive and allow more mounting options where the sound produced by traditional units might prevent their use, such as customer-facing locations near entryways, patios or even indoors.

**Corrosion-resistant and designed  
for extreme conditions**

The digital X-Line series is equipped to operate in harsh and extreme environments, from low ambient conditions to temperatures up to 120°F. Protective, pre-painted enclosures and condenser coil fin coatings also resist corrosion in coastal zones. A heated and insulated receiver enables the units to operate in low ambient temperatures. CoreSense electronic controls help to constantly tune and adapt the system for optimum performance and efficiencies in any condition.



## What's inside



## Diagnostic features

CoreSense diagnostics provide connectivity to facility management control systems (including Copeland's Site Supervisor suite of control products) to alert owner/operators of faults and key performance indicators (KPIs).

- Over-current protection
- Incorrect phase detection
- High-pressure lockout
- Flood-back prediction
- Demand cooling
- Flooded start protection ("bump-start" logic)
- Discharge temperature protection
- Anti-short cycle time delay
- Digital fault code display/remote alarming
- Over/under voltage protection



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