

Chillventa Specialist Forums 2022
Chillventa Fachforen 2022

**CONNECTING
EXPERTS.**



SUSTAINABLE EFFICIENCY CROSS STORES FORMAT

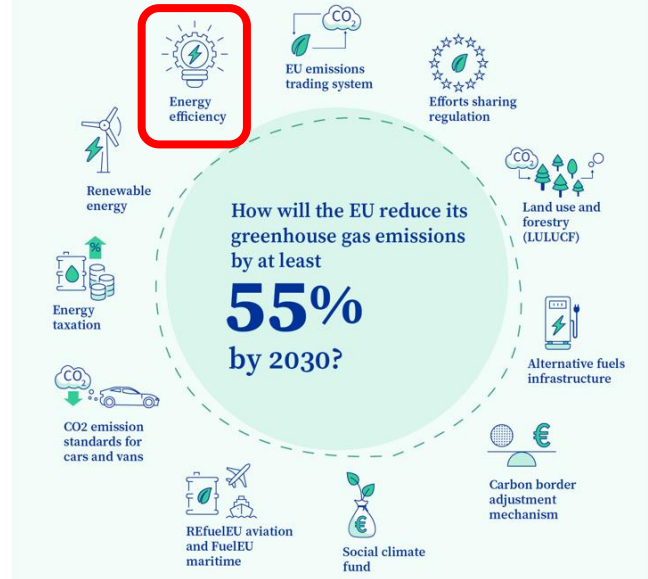


Cold Chain & Energy Efficiency

- **Cold chain climate footprint** strongly depends on the energy efficiency.
- **Lots of innovations** are involving remote control and predictive maintenance, with the target to optimize the energy consumptions of installation / appliances.
- **Technology migration** towards new and optimized solutions for cold chain are the keystones to improve energy efficiency as well as preserving the food quality.
- **EU regulation** is pushing for improving energy efficiency. All cold chain actors must help this transition.


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Fit for 55: how the EU will turn climate goals into law




Council of the European Union
General Secretariat


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Sustainability 

Environmental sustainability strategies are a critical issue for industrial manufacturers across the globe.

Food Loss & Waste 

Too much food is wasted daily.

Energy Efficiency 

Improve the Energy Efficiency through the entire Cold Chain.

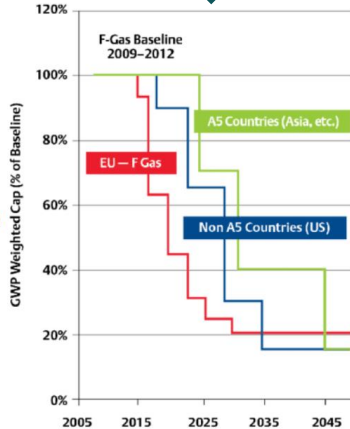


A big effort from EU institutions, towards a more sustainable World, is involving both Energy Efficiency activities and Food Loss and Waste countermeasures.

Retail Market Macro trends: Regulations, Efficiency and Proximity

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F-gas Driving the Innovation & the Adoption of Natural Refrigerants



- Massive adoption of natural or low GWP refrigerants: CO₂, Hydrocarbons
- **New technology:**
 - CO₂ Booster with Parallel compression/ Ejectors
 - Transcritical Scroll
 - Hydrocarbon: Plug in, IDC

Display Case Energy Labelling Boosts the new Technologies

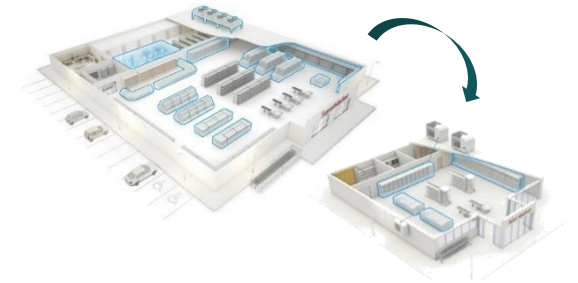


Glass Door - LED light - EC fan

Controllers with smarter algorithms for energy saving



From Hypermarket to Proximity Store



- New habits, covid pandemic and eCommerce are impacting on shop formats
- Proximity stores, Discounters and Medium Supermarket are gaining momentum
- The shop formats impacts on refrigeration systems

F-gas Regulation Boosts Natural Refrigerant Adoption Across the Retail Market

Propane

R290 Plug-in Units* **2.7Mil**

EUROPE

IDC Shops

18000+

EUROPE

9000+

R290 EUROPE



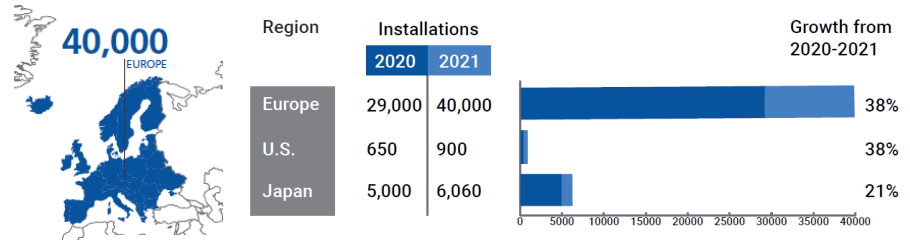
- Continuing **Trend**
- Variable Speed and Fix speed units
- From Plug-in to IDC **integrated** in the Building Heating System

2021

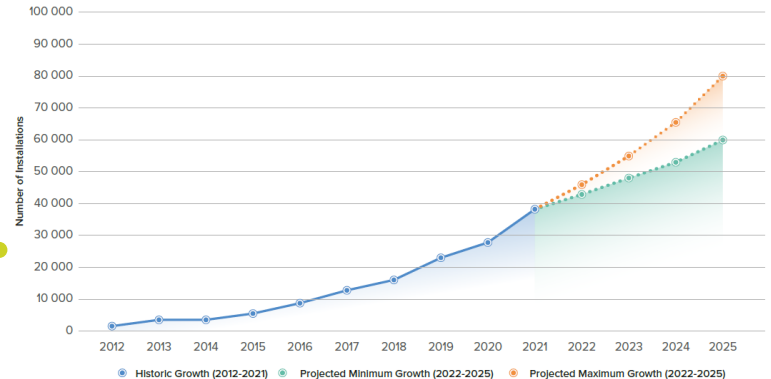
- CO₂ Growing Globally
- Some Slow Down in 2020
- Europe Leading
- **Strong Growth** in 2021 at Key EU Players
- Number of Systems Nearly **Doubled** in Last 2 Years

CO₂

Transcritical CO₂ is booming in EU*






Europe: Growth in Transcritical CO₂ Commercial Installations



*Natural Refrigerants Market Report (2021-2030) – Atmo

Predicted Adoption Refrigerants in Different Store Sizes of Food Retail Market

Store Type & Surface Area in m ²	Trend Architecture & Refrigerant After 2022		
	Centralised Systems 	De-Centralised Systems 	Integral Display Cases 
Hypermarkets >2500m ²	Booster CO₂		
Supermarket & Discounters 1000 to 2500m ²	Booster CO₂ Cascade IDX A2L Chiller IDX R290	Multiple Units HFO A2L / CO₂	R290 Water Loop
Small / Convenient 600 to 1000m ²	Mini Booster CO₂ Small Racks A2L / IDX R290	Multiple units A2L Multiple units CO₂	R290 Water Loop R290 Plug-Ins
Petrol Stations & City Stores Food Service 120 to 600 m ²		Units A2L/CO₂ Units A2L	R290 Plug-Ins

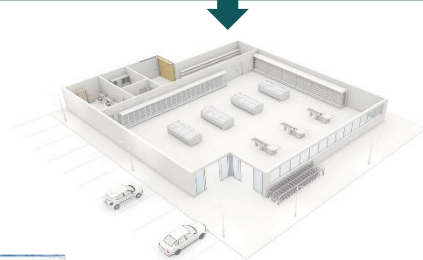
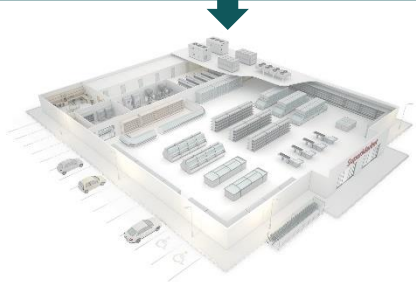
Retail Formats Drive the Refrigeration Systems and the Electronics

<p>Large Super & Hypermarkets >2500m² Supermarket & Discounters 1000 to 2500m²</p>	<p>Small / Convenient / Discounters 600 to 1000m²</p>	<p>Express & City Stores <120 to 600 m²</p>
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Centralised CO₂ Systems

De-Centralised Systems

Integral and Plug in Display Cases



XWEB XeCO₂
 Advanced controlling and supervisory system. Gateway to enterprise software



iProRACK XeCO₂
 Controller platform for transcritical booster racks



XM600 XeCO₂
 High performance multiplexed cabinet controllers



XWEB XeCO₂
 Advanced controlling and supervisory system. Gateway to enterprise software



iProRACK
 CO₂ condensing unit controller



XM600 XeCO₂
 High performance multiplexed cabinet controllers



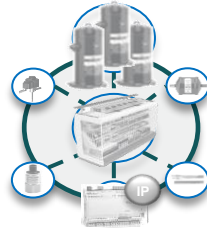
XCM25D
 A2L condensing unit controller



XWEB
 Advanced controlling and supervisory system. Gateway to enterprise software



XRi-XWi
 Plug-In display controllers



IDC range
 Integral display case unit controller

XeCO₂: Integrated Solution for Energy Efficiency Of Transcritical CO₂ Applications

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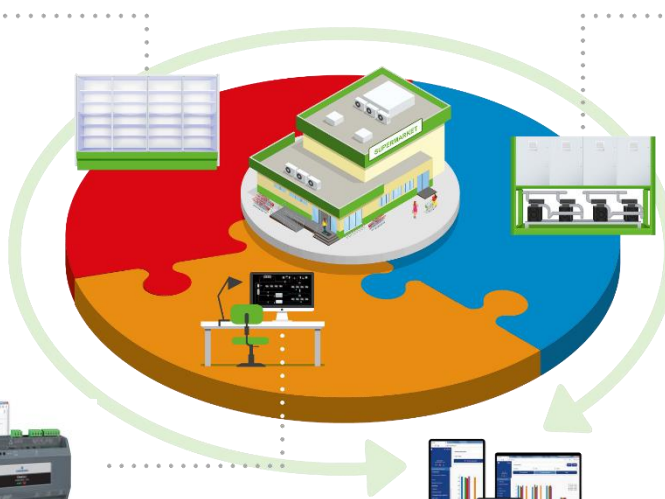
XM600 XeCO₂
High performance multiplexed cabinet controllers



iProRACK XeCO₂
Controller platform for transcritical booster racks



XWEB XeCO₂
Advanced controlling and supervisory system



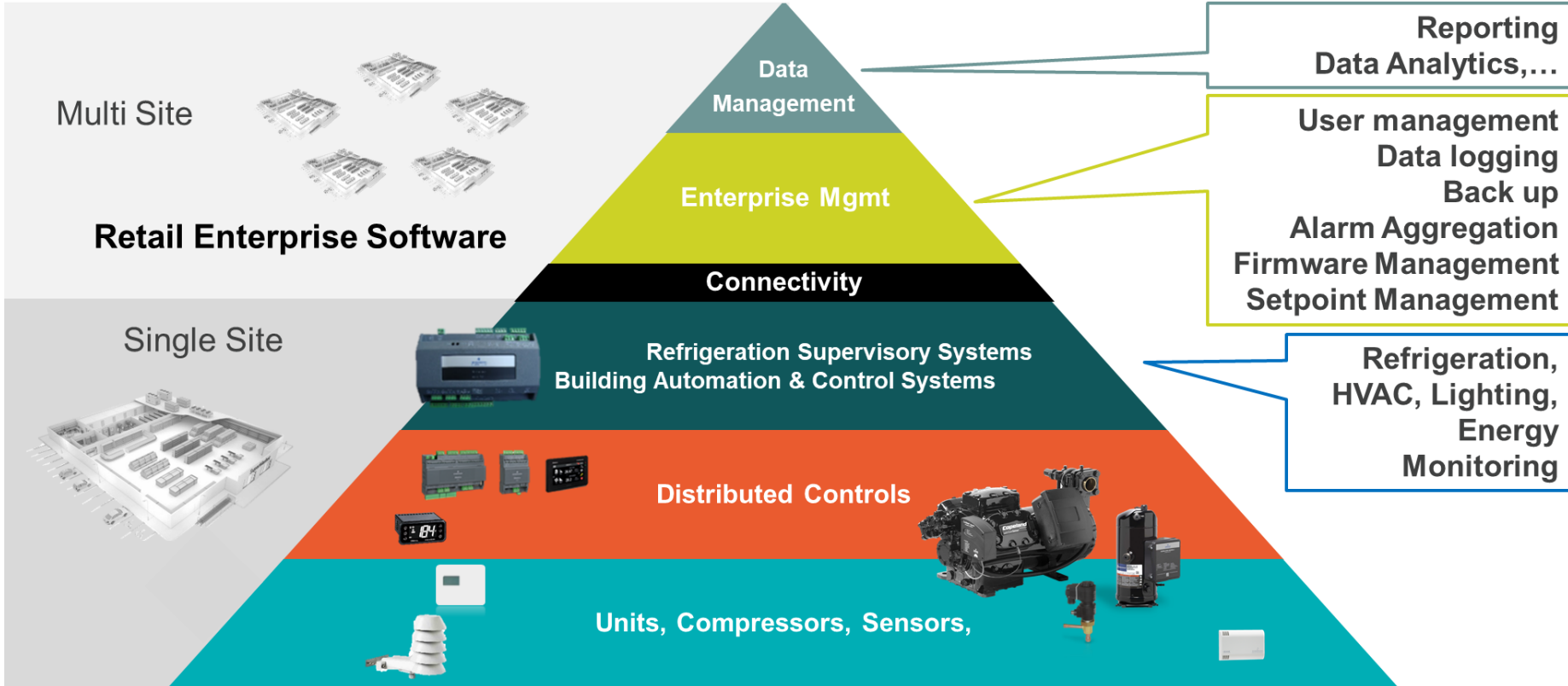
XeCO₂

- Synchronization between cabinet requests and compressors availability
- **Active compressor protection against flood back and high discharge temperature:** SH synchronization between compressor pack and loads
- Optimization of parallel compressors line when the heat reclaim is active (increase the performance of the heat reclaim)
- **Compressor care: not short cycles during the night.** It takes care about compressor life/reliability (less service and maintenance cost). It reduces the consumption

Retail Enterprise Software

How does it fit in the architecture?

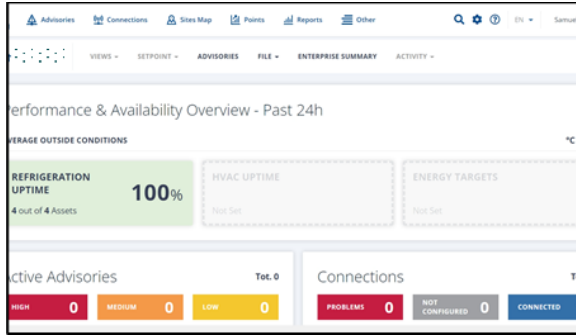
A modern IoT solution for food retail applications



Retail Enterprise Software



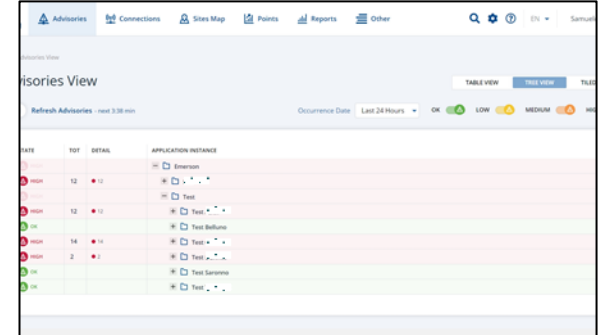
Easy access and functionalities to quickly assess status of operations and prioritize resolution of issues and optimization of systems



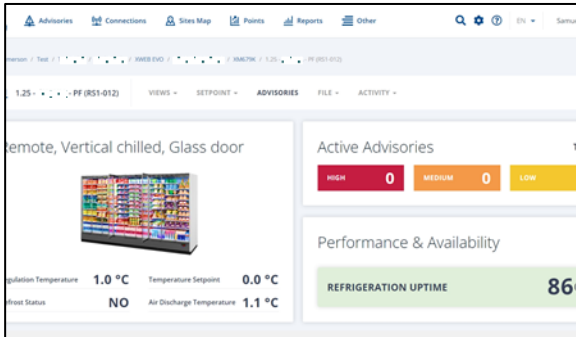
Multisite landing pages with dashboard



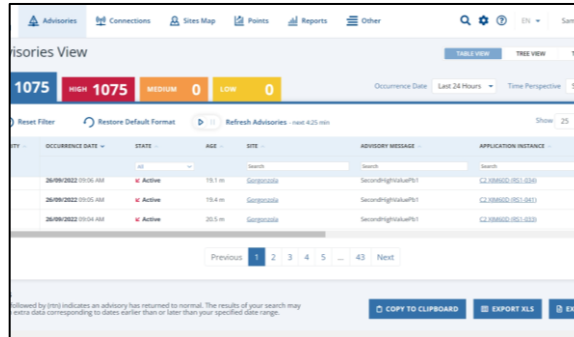
Geolocation with alarms and connections info



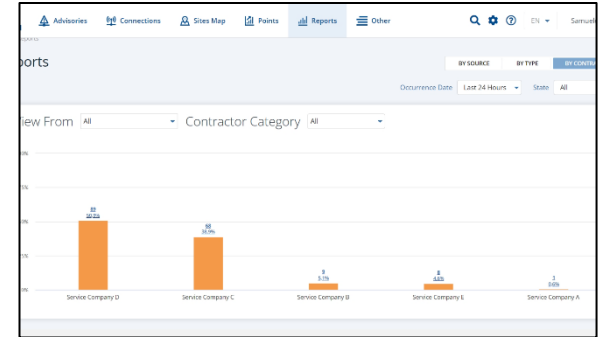
Top-down visualization of active alarms



Single asset landing pages



Database of all accumulated alarms



Analysis of accumulated alarms



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For more information about our solutions and expert insights, check out Emerson's website:

<https://climate.emerson.com/en-gb/brands/dixell>

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