

VaCom's **Industrial Refrigeration Control Systems** package proven control strategies that eliminate the operational inefficiencies inherent in most refrigeration systems. Traditional engineering approach results in equipment sized for peak conditions which only occurs a few hours per year.

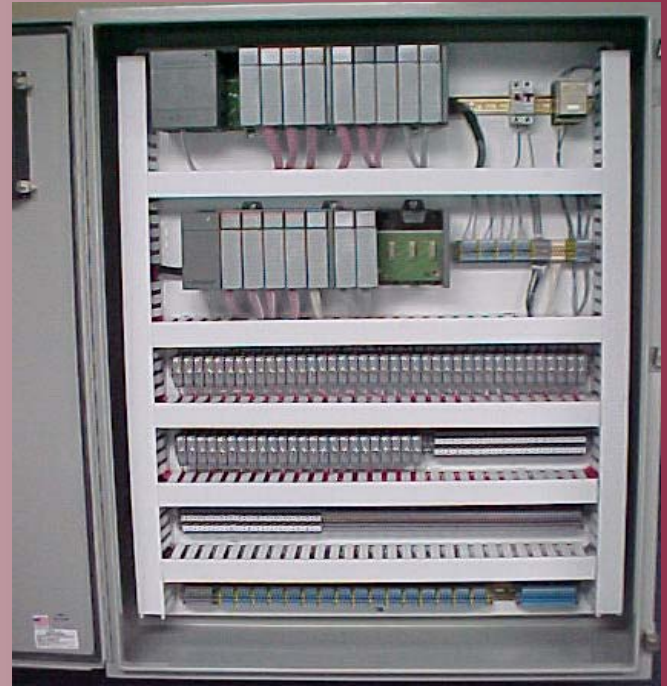
Achieving Balance

Our control systems have been especially designed to optimize performance over each systems life-cycle. We address the inefficiencies that occur during 99% of the time, when systems operate at part-load. Our controls will provide *balanced* performance and deliver low operating costs 8,760 hours per year.

We have integrated our in-depth refrigeration knowledge resulting from years of research, testing, analysis, and computer simulation into a control system that will deliver results!

Versatile

VaCom's controls integrate a wide variety of hardware, software, power components and control strategies. Our systems can be applied to numerous applications in either new construction or retrofit applications.



**Energy-Efficient
Control Solutions for
Industrial Refrigeration**

Equipment & Systems Interface

- | | |
|-------------------------|------------------------|
| ▶ Screw compressors | ▶ HVAC |
| ▶ Recip compressors | ▶ Lighting |
| ▶ Condensers | ▶ Battery Chargers |
| ▶ Air Units | ▶ Underfloor Heating |
| ▶ Vessels | ▶ Defrost Cycle |
| ▶ Exhaust Fans | ▶ Refrigerant Monitors |
| ▶ Variable Speed Drives | ▶ Power Monitoring |

Communications Integration

Compressors

- ▶ Frick
- ▶ FES
- ▶ Mycom
- ▶ M&M

Control Devices

- ▶ DiXell Microcontrollers
- ▶ Draeger Leak Detection systems
- ▶ Veris Power Meters
- ▶ GE Fanuc PLCs
- ▶ ABB Variable Speed Drives

Opto22 Standard Platform

VaCom's standard hardware and software platform utilizes Opto22 which features easy use, low cost, and wide applicability. Opto22's event-driven flowchart based programming environment with advanced communications and programming capability provides a user-friendly system. Easy integration of Opto's SNAP hardware and FACTORYFLOOR or IO Project software provide a powerful single-suite of capabilities.

Other Platform Options

When a traditional PLC approach is desired, can utilize alternate hardware and software solutions such as:

- ▶ Allen Bradley SLC 500
- ▶ Allen Bradley ControlLogix 1500
- ▶ Wonderware HMI
- ▶ Rockwell RSVIEW

For interface with legacy systems, our control system can integrate with others including GE Fanuc, AB PLC-5, Andover, and many more!

Powerful HMI Interface

Information is power and VaCom's HMI interface functions provide dynamic insight to your system. Our HMI features include:

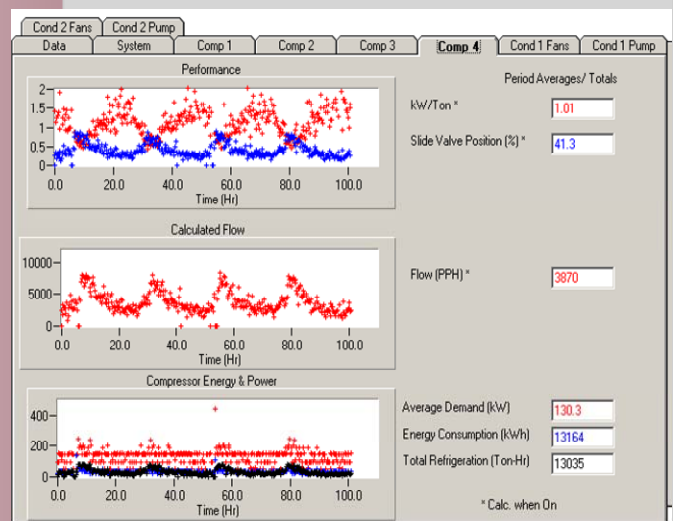
- ▶ Alarm display and history logging
- ▶ Messaging applications via the internet
- ▶ Real-time and historical trend charts
- ▶ Graphical visualization to provide rapid system assessments and troubleshooting

EnergyDashboard™ for Lasting Energy Savings

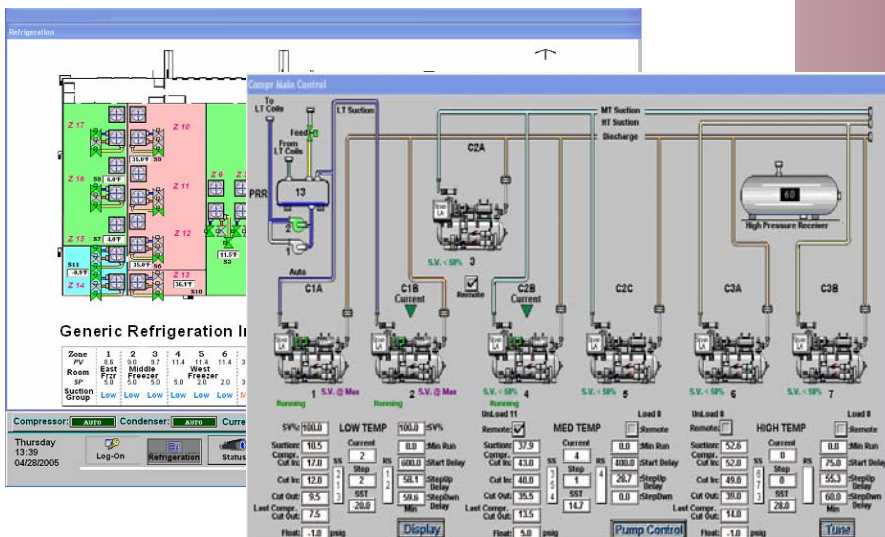
VaCom's web-based energy and performance monitoring service for refrigeration systems will help ensure optimum performance is maintained over your system's life.

- ▶ Track system efficiency
- ▶ Benchmark performance and plant production metrics
- ▶ "Drill-down" and aggregation views
- ▶ Display real-time results
- ▶ And much more

What gets measured gets better!



Example of Many Interface Screens Available



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