

Spotlight

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COOLTROL® AND REMOTE SITE MANAGER

How to improve system performance and management with NRM's cutting-edge refrigeration control system

By Julia Stone

Innovative controls like CoolTrol® and Remote Site Manager monitor your equipment's performance so you can be proactive.

National Resource Management, Inc. (NRM) has been redefining cold storage and facility operations for more than 20 years with its optimization and analysis tools. Their comprehensive solution comprises CoolTrol®—NRM's cutting-edge on-site controls—and Remote Site Manager, a cloud-based platform that monitors your equipment's performance, making your facility operations run smoother.

None of the refrigeration controls on the market provided a high level of data access or flexibility, so NRM decided it was time to develop their own refrigeration control system. "We needed something that was smart enough to figure out when conditions were right and to use free cooling or mechanical cooling while not putting any of the customer's product at risk," says **Emre Schweighoffer**, president of NRM. "We also realized we should be able to use the internet, so we could connect with faraway clients and know what was going on before heading all the way out to their sites for service calls." And that's how Remote Site Manager (RSM) was born.

PHOTO: COURTESY OF NRM

Simplifying Operations

Schweighoffer and his team built a total solution from scratch. You can find NRM's controls in more than 40,000 coolers and freezers, including retail coolers, distribution and manufacturing plants, laboratory environmental rooms, and food service facilities across North America. "We're focused on the end-user and enabling them to quickly diagnose issues and determine the what, how, and when to best service their equipment," Schweighoffer says. Before NRM, you couldn't pinpoint problems or see what the compressor was doing during cooling—now you can. Their platform, which has much more processing power than other management systems, receives up-to-date data in real time.

"Part of it is energy savings and that it pays for itself, but the real value is the value our system provides for operations and management of their facility," Schweighoffer says. NRM makes life easier for contractors, technicians, and end-users alike.

"NRM lets me know there's a problem before there's a problem," says **Shawn Clarke**, facilities manager at **Thermo Fisher Scientific** in Austin, Texas. Clarke has relied on NRM to help manage Thermo Fisher's cold storage for eight years. He mainly uses the system to avoid product loss and emergency incidents. Thermo Fisher once suffered a brownout that knocked out two of its compressors. Thanks to NRM's notifications, they knew right away their compressors weren't running, which saved them from valuable product loss.

"NRM has the one software system that actually works for me," Clarke says. He can

also troubleshoot his refrigeration systems on his cell phone. Thermo Fisher stores invaluable medical supplies, including biomedical products and cancer research, so the products must be monitored carefully.

Clarke says he's become a better manager since implementing NRM's system. "It has allowed us to be more of a preventative facility team versus a reactive facility team," he says. "Now we actually have some time to figure out the issue."

Improving Convenience

Michael Bruzzese, director of facilities at **State Garden, Inc.**, doesn't know how he managed his facility before NRM's technology. He manages millions of dollars in products in three buildings and monitors and manages about 50 units. Bruzzese mainly uses NRM's system to monitor and maintain temperatures between the set boundaries. "To have something on the wall is nice, but no one will pay attention to it. But with NRM, I can check and see what is going on, even from my phone."

Because State Garden sells to major grocery stores, the company is frequently audited. With NRM, Bruzzese doesn't have to write down detailed records because he can show historical data to the auditors directly from the system.

NRM's unique solution also saves him time because

he doesn't have to drive from home to work to check on things. "I love that it's internet-based and I can make changes remotely. I can shut a unit off or call a contractor to fix it," he says. "It's very convenient, and I don't have to depend on other people to monitor things."

NRM's system stands out from the rest because it also offers a bypass mode where the user can easily turn off the system if needed. This feature gives users and technicians the option of reverting back to the original mechanical operation.

"I'm an old-school contractor and a lot of contractors in their 50s and 60s are not the most technologically savvy types of people," says **Charlie Sternberg**, owner of **S&S Refrigeration Co.** If one of Sternberg's workers isn't familiar with the NRM system, all they have to do is flip a switch and they can go back to the old method. Sternberg knows if the NRM system stops working, his refrigeration system can still run. And that's a big deal.

"A lot of refrigeration systems only offer temperature monitoring. But if you have a problem with temperatures, don't you want to know what caused it?" Schweighoffer says. NRM takes it a step further—showing you exactly when it started, as well as where and what

the problem is. The user can easily monitor their summary page, which shows all of their coolers and freezers in a clear and detailed table. The cells on

NRM AT A GLANCE

- ➔ On-site controls for cold storage facilities
- ➔ Remote Site Manager monitors equipment performance
- ➔ Receive email alerts for immediate fault detection



PHOTO: COURTESY OF NRM

THE CONTRACTOR'S CORNER

"What the NRM system provides is real-time system functionality and control, energy savings, monitoring, and notifications of potential issues," says **Charlie Sternberg**, owner of **S&S Refrigeration Co.** in New Jersey. "It's almost like a check engine light in your car."

When it comes to effective refrigeration controls, fault detection is key. Like a check

"It helps me as a contractor because I'm providing a viable and reliable service. It gives them more peace of mind."

engine light, NRM's system alerts facilities managers to check on their equipment. Sternberg and his team design, sell, and install refrigerated buildings and facilities for food and pharmaceutical distributors.

Many of Sternberg's clients feel safer knowing that he is monitoring their valuable product and equipment with a proven solution. "It helps me as a contractor because I'm providing a viable and reliable service. It gives them more peace of mind."

Contractors are usually not at their desks—they often work within a 100-mile radius of their office. "Driving a long distance to check a customer's system for a minor problem is a waste of time and money," Sternberg says. "With NRM, I can sit at my desk and maybe fix the problem remotely before we have to drive out to the site, like initiating a defrost remotely if a coil is iced up."

Another common issue with cold storage is short-cycling, or when the compressor goes on and off excessively. This can lead to a \$10,000 or \$20,000 malfunction. "Back in the day, all we would know is the motor has already burnt out," says Sternberg. Now, with NRM, he and his team can react to short-cycling right when the notification arrives and preempt a major repair.



BENEFITS OF NRM

The best turn to NRM, including **Harvard University**, who installed NRM's controls in more than 50 walk-ins after a major setback before an important fundraiser. They turned to NRM because features like these below guarantee they'll never experience such a failure again—and they haven't in the 10 years since.

Scheduling Options

- Schedule temperature setpoints and system ON/OFF for energy demand, production times, seasonality
- Schedule for alternating times (lead-lag) for main and spare units to make sure both are running properly

Time Savings

- Fix minor issues remotely to avoid the driving to site
- Know what the problem is before you arrive

Improved Maintenance

- Save on maintenance costs by preempting emergencies
- Be proactive instead of reactive

Fault Detection

- Get email and text notifications to help prevent major breakdowns and alert user of poor performance
- Customize the alerts you receive, such as:
 - Device stops communicating
 - Compressor or probe fails to respond
 - Excessive runtime
 - Short-cycling
 - Temperature is too low or too high

Saving Energy

- Monitoring based commissioning for continuous improvement and optimization
- Intelligent management of cooling, evaporator fans, anti-condensate heaters, setbacks, and defrost can reduce operating costs by up to 50%
- Adaptive defrost saves energy by initiating defrost only as needed

Detailed Information

- Summary page shows temperatures, equipment status, and diagnostics at a glance
- 24-hour: weighted average temp, number of compressor starts, percent run time of compressor and evaporator fans
- Data and information is updated in real time

Accessible Data

- Generate graphs for individual units
- Access data quickly for audits
- Set specific time intervals for viewing granular reports and download historical data as CSV file

Convenience

- Easily switch control between Run and Bypass mode for servicing and diagnosing an issue
- Access from any web browser on PC, tablet, and mobile phone

Technical Support

- Attend a video-recorded training session you can reference later
- Contact NRM for immediate assistance



the data table are constantly updating because NRM features a gateway that communicates with all of the controllers—if anything has changed, it immediately sends the information to their server.

The alarm and fault detection system can send an email alert to multiple users for a variety of equipment performance issues. You can easily inhibit alarms that don't apply to your system by customizing your notifications.

Additional Features

NRM also provides intelligent defrost. NRM's adaptive defrost control uses a variety of sensors and algorithms to achieve better defrost performance and efficiency, with improved temperature stability.

Sternberg compares the system to diagnosing a medical condition. If your doctor had remote access to your vital signals, he could call and tell you if you're coming down with something. Sternberg and his team of contractors are able to diagnose minor issues before they turn into serious ones, and his service team can help a customer eliminate potential failures or loss of product.

Users also can set up lead-lag schedules to alternate between units at preset intervals. This allows for redundancy where both units—the backup and the main unit—are exercised and used. "By scheduling alternating run times, you get quite a bit of savings. Users need to know if one of their units go down since it's their backup. They can't wait until the first unit

breaks down to figure that out," Schweighofer says.

Dole used NRM's system for its 113,000-square-foot cooler of fruit cups. By implementing an alternating lead-lag schedule of the five refrigeration systems and installing destratification fans in the center of each aisle, NRM reduced Dole's energy usage by over 50%. The new fans would constantly mix the air so it would be the same temperature at floor level and at up to 30 feet of product storage.

Schweighofer and his team are continuously improving the system and adding features. You can set specific permissions so only cer-

tain users can change settings. The setpoint change alert was added in the last couple of years because in regulated food storage or biomedical facilities altering the setpoint is a safety hazard—even a one degree change could negatively affect products.

One of the main problems in the facilities management industry is that people ignore alerts and alarms and then all of the sudden have a catastrophic failure, Schweighofer says. "It's not about blame. It's about how do we solve this problem so this doesn't happen again?"

MONITOR YOUR EQUIPMENT NOT JUST YOUR TEMPERATURES

Rethink how you address refrigeration issues with NRM's help. On-site or on-the-go, gain unmatched peace of mind knowing you're connected to your system's operation 24/7. By controlling, monitoring, and managing your system with NRM's solutions, you'll be able to leverage performance data into real-world application.



Want to see more examples? Visit www.nrminc.com/greenhvac

1. Instant notification when an issue occurs.

Lots of products offer the ability to receive alerts when a space temperature falls out of range. But only NRM's will let you know if it's a compressor problem, a coil problem, doors being left open, or a range of other possibilities.

2. Identification of the source of the issue.

Consult NRM's unique real-time performance trends to pinpoint when and where the problem first occurred. You'll be able to immediately perform a basic diagnosis, arming yourself with crucial information for a better-educated approach toward a resolution.

3. Informed decision-making.

With one glance at the performance trend, you can determine the severity of the issue, and swiftly plan your next step. Is it a major problem? You can remotely shut off the system until your technician can respond to your emergency maintenance call and avoid further damage to your equipment.

IF YOU HAVE COLD ROOMS, WALK-IN COOLERS, WALK-IN FREEZERS, OR COLD-PRODUCT CASES, NRM HAS A SOLUTION FOR YOU.



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