

Bringing Pharma 4.0 to GMP Chamber Maintenance

Walk-in Freezers | Cold Rooms | Warm Rooms | Warehouses | Stability Chambers

OverShield® (noun) ō-ver-shēld:

1. An engineering tool/service that surpasses traditional GMP monitoring systems by providing a first line of defense against controlled environmental chamber issues.

How OverShield Works

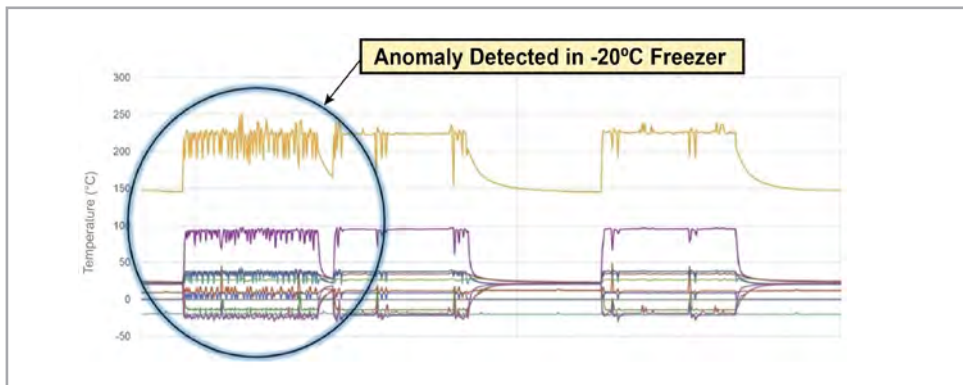
OverShield uses advanced IoT sensors to continuously monitor key refrigeration components. Data is wirelessly transmitted to the OverShield cloud, where AI-driven analytics and Machine Learning identify anomalies indicative of future chamber malfunctions. With OverShield you can:

- Prioritize maintenance tasks based on chamber health
- Maximize protection of high-value biologics and pharmaceuticals
- Achieve quick ROI from increased operational reliability

OverShield provides deep visibility into the state of your refrigeration systems and removes stress and uncertainty from biopharma storage.



OverShield installed on a refrigeration skid



OverShield continuously monitors trends across key refrigeration components.



Weekly Reports and Maintenance Insights

OverShield leverages data sets and lessons learned from more than four decades of chamber experience to provide the OverShield Weekly Report. This detailed report begins with a weekly scorecard that summarizes the overall condition of each chamber in a simple at-a-glance format.

Weekly Report Summary		
Asset Name	OverShield Score	Status
CR-3 B	69	Problematic
CR-5 A	70	Irregular
CR-1 B	72	Irregular
CR-1 A	87	Regular
CR-4 A	89	Regular
CR-3 A	89	Regular
CR-2 A	92	Optimal
CR-5 B	93	Optimal
FR-1 A	93	Optimal
FR-1 B	93	Optimal
CR-2 B	95	Optimal
CR-4 B	97	Optimal

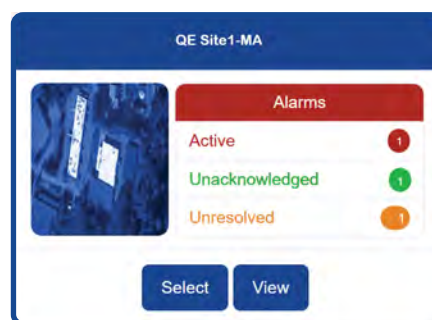
The Weekly Report Summary utilizes OverShield's proprietary algorithms to assign each chamber a color-coded OverShield Score from 0 to 100 so you can intelligently prioritize chamber maintenance.

When an anomaly is detected, the OverShield Weekly Report includes custom maintenance recommendations that consist of:

- Anomaly description
- Severity assessment
- Cause determined
- Risk determined
- How to verify the anomaly
- How to fix the anomaly

Intelligent Alerts

Whenever OverShield encounters sensor data that falls outside the prescriptive thresholds, your response team is notified via email, text, or phone. Intelligent data filtering minimizes false alerts, ensuring alarms are not triggered by routine events such as chamber door activity, idling, and weather variations.



Immediate Return on Investment

OverShield is an investment in operational excellence and sustainability. By protecting critical assets, reducing downtime and streamlining maintenance processes, lifesaving products can get to market faster. With OverShield, you can stop reacting to chamber failures and start predicting and preventing them before they occur.

The OverShield Advantage

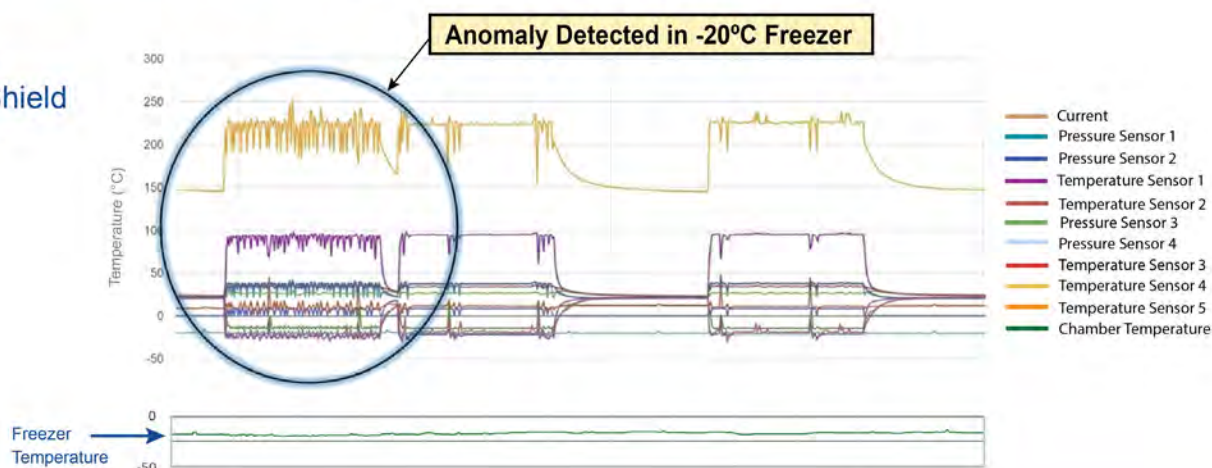
- Prioritize maintenance tasks to focus on which chamber needs attention first.
- Free up resources by performing maintenance proactively during regular business hours.
- Be confident that your chambers are operating optimally and that your high-value biologics and pharmaceuticals are protected.



OverShield Case Studies

OverShield® Case Study

What
OverShield
Sees



Anomaly: Both of the system's compressors were short cycling.

Outcome: OverShield sensors detected the anomalies and alerted the maintenance team.

Note: Traditional GMP monitoring did not detect these problems because the chamber's temperature remained within specifications.

Value: Avoided a drastic premature failure of both compressors and an emergency product move. Repairs were scheduled and performed during regular business hours. The product and the chamber were never at risk.



Case Study	5°C Walk-in Cold Room	-20°C Walk-in Freezer
Anomaly:	An electrical malfunction led to a hot gas valve failure. When the alternate refrigeration system was supposed to be off, the hot gas valve was fully open instead of fully closed. ▼	OverShield detected a change in amperage to the evaporator's fan bank. The fans were nearly impossible to access or inspect visually, though it was later confirmed that one of the three fans had failed. ▼
Outcome:	Even though the cold room had a redundant cooling system, OverShield detected the temperature increase in the hot gas line and alerted the maintenance team. ▼	It took several days to align the properly trained personnel to replace the fan. The repair was challenging, requiring a lift and a spotter. ▼
Value:	The team ordered a replacement valve and swapped out the malfunctioning part during business hours. Since the redundant compressor was operational, the chamber and the product were never at risk.	Prolonged undetection could have resulted in more fans failing, leading to overheating and product spoilage. OverShield gave the client sufficient pre-warning to make the problematic repair during regular working hours and avert a costly product move.

Put on Your OverShield

Put OverShield protection on all of your walk-in freezers, cold rooms, warm rooms, and stability chambers and enjoy the peace of mind that only comes from predictive maintenance practices.

Installing OverShield is quick, non-invasive, non-disruptive and requires no chamber re-validation.

Our team of experts do a preliminary evaluation of your refrigeration systems to identify the key components where OverShield sensors should be installed.

Once you're up and running, we'll train your team how to use the simple OverShield web application, respond to alerts, and utilize the OverShield Weekly Report. Predictive Monitor's HVAC-R experts provide consultation on your chamber's operating condition based on collected data and observations.



Don't Put it Off

Did you know that chamber failures are just as likely to occur in new chambers as in older ones? If you are storing pharmaceutical products without OverShield protection, it's just a matter of time before an environmental failure affects your business. It could be product loss, or lost time in a stability study that enables a competitor to get to market first.

With OverShield, your maintenance teams can act on predictive data and detect when a component is beginning to fail — days, weeks, or even months before the failure occurs.



Let's Talk

We'd love to hear about the concerns and challenges you're having with your chambers and discuss how your company could benefit from OverShield protection.

Call us: 603.773.3428 (603-PREDICT)

Email us: Sales@PredictiveMonitor.com

Learn more: www.PredictiveMonitor.com

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