

Paperless Process Recorder (PPR)

Advantages of Cloud Storage

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Summary

As the digitization of industries accelerates, the need for a more efficient, secure, and scalable method for record-keeping has become increasingly apparent. Traditional paper charts, once the backbone of data storage across sectors, are now widely considered inefficient and risk prone.

This white paper provides an in-depth analysis of paper charts cloud storage and paperless process recorders like the PPR, with Legendary™ software. We will discuss concerns many food processing customers have voiced over paper chart recorders and how cloud storage offers unparalleled benefits in terms of security, accessibility, cost-effectiveness, and environmental sustainability.

Introduction

In the food processing industry, quality and safety are paramount, making the ability to store and readily access operational data a critical necessity.

The sector is subject to stringent laws and regulations designed to ensure that products reaching consumers are both safe and of high quality. Failures in compliance can lead to costly recalls, legal issues, and irreversible damage to a brand's reputation. Accurate chart storage enables facilities to maintain essential records that can be instantly accessed for compliance with quality standards and safety protocols during audits and inspections.

Beyond regulatory considerations, maintaining consistent quality is key to customer satisfaction and brand loyalty. Accurate storage of data such as test results, production batch numbers, and machine calibrations helps quality assurance teams track performance over time. Being able to quickly cross-reference this stored data allows teams to identify trends, make informed decisions, and implement improvements more effectively.

But the importance of robust chart storage and data referencing doesn't end there; it's also crucial in the unfortunate event of a product recall. In 2022, nearly 45 recalls were issued across the country, leading to the recall of 2 million pounds of products.¹ Product recalls can wreak havoc on a business's chances of success, particularly if they lack proper tracking systems. A reliable storage system allows businesses to swiftly trace back through their entire supply chain to identify the source of the issue. This rapid response is only possible when all relevant data, from ingredient

sourcing to processing and distribution, is neatly organized and readily accessible.

Efficiency also comes into play. Time is money, and in the fast-paced environment of food processing, delays due to inefficiencies in data retrieval can be costly. Staff who spend excessive time searching for essential data are not only less efficient but also more prone to errors. An organized storage system streamlines these processes, making it easier for staff to find the information they need to perform their roles effectively.

“ In 2022, nearly 40 recalls were issued across the US, leading to the recall of almost 2 million pounds of products. ”

As the industry increasingly moves toward digital transformation, electronic chart storage and data referencing are becoming even more significant. These digital systems allow for real-time data monitoring, trend analysis, and instant access to stored information, which are vital for a modern, efficient food processing plant. The ability to accurately store and easily reference data is not an optional luxury in food processing; it's an operational imperative that affects everything from regulatory compliance and quality assurance to overall efficiency while avoid the inherent security flaws of paper chart recorders.

The Inherent Security Flaws of Paper Charts

In an age where data security is a top priority for business's and organizations, the limitations of paper charts become glaringly apparent.

While they may appear to be a simple and straightforward method for data storage, paper charts are fraught with vulnerabilities that

pose substantial risks. From their susceptibility to environmental hazards and unauthorized access to the challenges they present in ensuring data integrity, the security flaws inherent in paper charts make them increasingly obsolete in today's digital landscape. Here, we delve into the specific issues that contribute to the insecurity of relying on paper charts for data management.



Susceptibility to Physical Hazards

The physical nature of paper charts makes them prone to loss or destruction from environmental risks like fire, water damage, handling damage and natural disasters. This creates a dual challenge of operational setbacks and compliance liabilities.



Weak Control Over Unauthorized Access

Storing data on paper charts in physical filing cabinets or rooms offers limited protection against unauthorized access. The lack of strict security measures means that anyone who gains physical entry to the storage area has the potential to view or manipulate sensitive data.



Ease of Misplacement and Erroneous Disposal

In fast-paced or crowded work settings, the chances of paper charts being misplaced or unintentionally discarded are high. The recovery process for lost documents is often cumbersome and sometimes impossible, posing a risk to data integrity.



Challenges in Maintaining Data Integrity

Paper-based records, often filled out by hand, are susceptible to legibility issues and human errors. Furthermore, the lack of a reliable mechanism to track changes or alterations makes it difficult to maintain a secure and accurate data history.

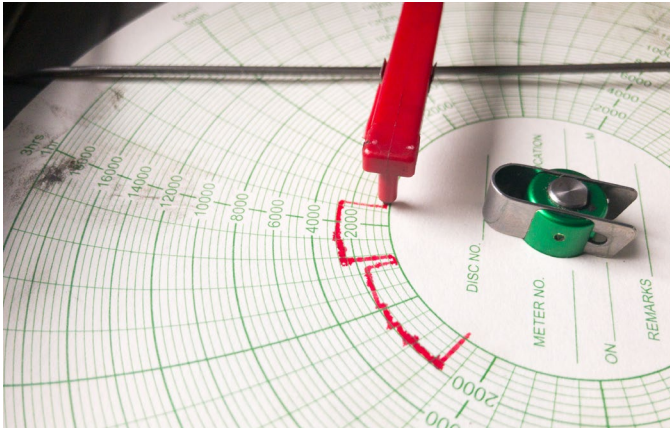


Absence of Technological Security Safeguards

The inability to implement modern digital security features like encryption or multi-factor authentication renders paper charts vulnerable to a wide range of security threats.

Paper charts carry multiple inherent vulnerabilities that make them ill-equipped for secure data storage and tracking. From physical risks and limited access controls to challenges in safeguarding data integrity and the absence of technological security solutions, paper charts offer a less secure alternative in an increasingly data-driven world. As time pro-

gresses, the food processing sector faces stricter regulations, both from internal standards like [SQF \(Safe Quality Food\)](#) and federal mandates like [FSMA \(Food Safety Modernization Act\)](#). Both heighten the risks and consequences associated with the loss or damage of paper charts.



Implications of Lost or Damaged Paper Charts

Regulatory Consequences

Most jurisdictions have strict regulations requiring food processing plants to maintain accurate records that can verify the safety and quality of their products. Failure to produce these records upon request during an inspection can result in immediate operational cease and desist orders, fines, or even legal action.

“ Cloud storage has streamlined the review and approval process. With records on the cloud, I can effortlessly review and approve whether I'm at home or on the go. ”

— Quality Manager, Dairy Pasteurization Plant

Legal Ramifications

Inability to provide charts can lead to legal problems, especially if the plant's products are found to be the cause of foodborne illnesses or other safety concerns. Without proper documentation, the company might struggle to demonstrate its adherence to safety guidelines. This could result in potential lawsuits and substantial financial penalties. Moreover, a lot of time and effort would be expended even if a recall isn't mandated.

Loss of Consumer Trust

Consumer confidence is crucial in the food industry. If a food processing plant cannot produce required records, it may suggest that the plant is not following safety guidelines, leading to public fear and distrust. This can result in a loss of customer loyalty and significantly impact on sales.

Supply Chain Disruptions

A failure in compliance can often trigger a ripple effect throughout the supply chain. Suppliers and distributors may terminate their relationships with the plant due to the increased risk and potential liability. This can cause production halts and revenue loss, affecting not just the plant but also various stakeholders.

Impact on Business Partnerships

Retailers and other business partners may be hesitant to continue their association with a plant that cannot maintain proper records, given the risk to their own reputation and potential legal liabilities. This can result in contract terminations and lost business opportunities.

Increased Scrutiny

After such a compliance failure, the food processing plant is likely to face increased scrutiny from regulatory bodies, which means they may be subject to more frequent inspections, audits, and reviews, adding additional operational and financial burdens.

As detailed above, the inability to provide charts and records in a food processing plant is a serious issue that can result in a slew of problems including regulatory penalties, legal actions, loss of consumer trust, and significant disruptions in business operations and partnerships. Therefore, maintaining accurate and accessible records is an operational imperative for any food processing facility, and this can be easily achieved when utilizing a cloud solution.

Advantages of Cloud Storage

The shift from traditional paper chart recorders to cloud storage solutions offers customers a multitude of advantages.

One of the most significant benefits is the ease of accessibility. Unlike paper charts that require physical storage and retrieval, cloud storage allows customers to access their data from anywhere with an internet connection. This is particularly useful for those who may not be near where the physical records are stored, providing unparalleled convenience.

Alongside this increased accessibility is a heightened level of security. As stated, tradi-

tional paper charts are vulnerable to a wide range of threats, from unauthorized access and theft to damage from environmental factors. In contrast, cloud storage is fortified with robust security protocols. Features like encryption and multi-factor authentication ensure that sensitive data remains protected, giving customers peace of mind.

Another advantage is the ability for real-time monitoring and updates. With paper charts, updates can be manual and periodic, causing lags in receiving essential information. Cloud storage, however, allows for almost instant updates that customers can help in facilitating timely and informed decision-making.

Cost is also a factor that can't be ignored. The long-term costs of maintaining paper charts—encompassing printing, storage, and labor, can accumulate over time. Cloud storage eliminates these overhead costs. The savings often extend to customers, either through reduced service fees or other financial benefits, making it a more cost-effective choice.

In terms of reliability, cloud storage systems like Legendary™ usually feature multiple layers of redundancy, ensuring that data is backed up in more than one location. This stands in stark contrast to paper records, which, once lost or damaged, offer no avenue for recovery. The assurance of having a reliable backup adds another layer of security for customers, who can rest easy knowing their data is safe.

Data integrity is yet another area where cloud storage holds an edge. Features like version control and audit trails provide a secure and accurate history of data changes. This is especially valuable for customers who require this data for compliance reasons or for analytics.



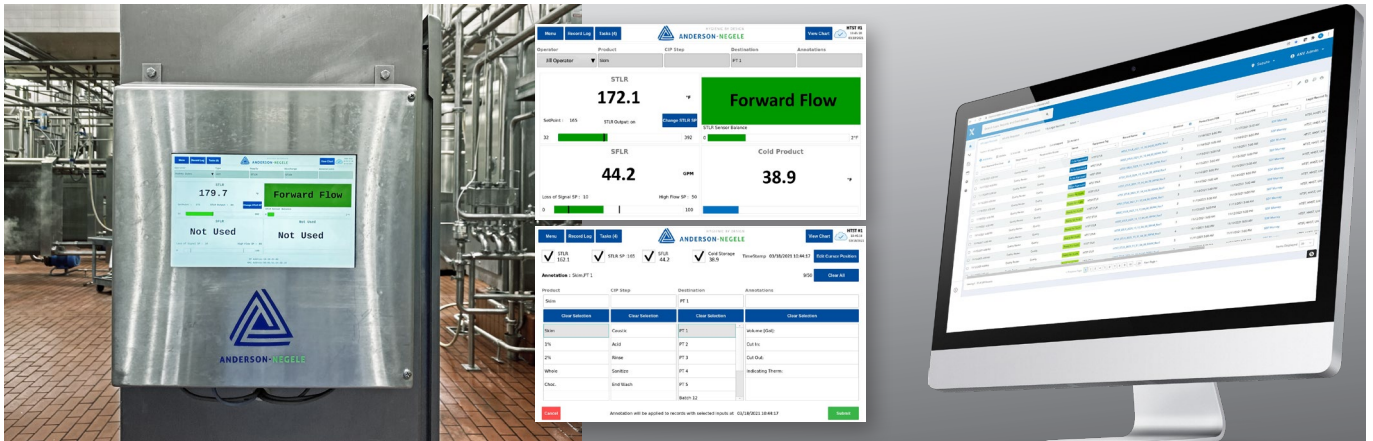
“Leveraging cloud-based storage is a single change which brings improvements across all three facets of the security triad: Confidentiality, Integrity and Availability.”

— Sarah-Jane Madden,
Chief Information Security Officer,
Sensing Technologies Group, FORTIVE



Lastly, the environmental impact of paper consumption is a growing concern. Customers increasingly prefer environmentally sustainable options that reduce physical waste, and cloud storage provides an alternative way to store content and reduces the need for physical materials.

The numerous advantages of cloud storage as illustrated above range from superior accessibility and enhanced security to real-time updates, cost savings, reliability, data integrity, and environmental benefits, make it a highly favorable alternative to traditional paper chart recorders for today's data management needs.



Comparative Analysis

Feature	Paper Charts	Digital Recorders	PPR with Cloud Storage
Accessibility	Low	Moderate	High
Physical Storage Cost	High	Moderate	Low
Security	Low	Moderate	High
Disaster Recovery	Low	Moderate	High
Efficiency	Low	Moderate	High
Environmental Impact	High	Low	Moderate
Scalability	Low	Moderate	High

The Paperless Process Recorder offers cloud storage with its Legendary™ software. Legendary™ software's continuous data recording, automated backup mechanisms, real-time monitoring, and remote access are available.

These features collectively enhance data integrity, accuracy, and reliability, which are crucial in various industries where precise data tracking is essential.

Additional Notes

The [Paperless Process Recorder](#) by Anderson-Negele has been evaluated and reviewed by both the [FDA \(Food and Drug Administration\)](#) and AMDERC and found to be compliant with the 2019 Pasteurization Milk Ordinance (PMO), offering a unique value to dairy pasteurization plants. The Memorandum-b was issued April 21st, 2023, and the only paperless process recorder to obtain the Memorandum-b at the time this article was written.

For additional information regarding the Paperless Process Recorder please visit: [Contact Us for PPR Paperless Recorder | Anderson-Negele USA](#)

Citations:

1. Summary of Recall and PHA Cases in Calendar Year 2022 | Food Safety and Inspection Service (usda.gov)

For additional informations on the
Paperless Process Recorder (PPR)

