PÖLWAX®

Technical Datasheet

Single-Use
Temperature Data Logger
PTRANS T10 / TD10

EN12830:2018 CE RoHS COMPLIANT

PTRANS Series

Single-Use Temperature Data logger

Simple and easy to use

The parameters are pre-configured at the factory. You only need to start it with one click and then place it in the target package to monitor the temperature of the environment, which is convenient and efficient.

Non-Drive Report

Automatically generate comprehensive and authoritative report that can clearly trace cold chain transportation and food preservation conditions.

Complies with EN12830

Complies with EN12830:2018 (for the transport, storage and distribution of refrigerated, frozen, deep-frozen and quick-frozen food or other goods)

Thin and light design

As thin and light as a label, it can be easily attached to cold chain logistics

Air Freight Compliance

Complies with RTCA/DO-160G environmental conditions and test procedures for airborne equipment, qualified for air shipment in active status.

Single-Use
USB Temperature Data Logger
PTRANS T20

The Polwax PTRANS T10 and TD10 are compact, single-use temperature dataloggers engineered to provide reliable, high-precision monitoring for cold chain transportation and storage. These devices are specially designed for logistics environments where temperature-sensitive goods—such as pharmaceuticals, vaccines, food, and biotech materials—must remain within strict regulatory temperature ranges.Both models offer plug-and-play functionality via USB, generating automatic, tamper-proof PDF reports with comprehensive time-stamped data. With no software installation required, they ensure rapid access to compliance documentation for QA teams, auditors, and recipients across the supply chain.The PTRANS T10 is a streamlined version with a sealed body and LED status indicators for go/no-go visibility, making it ideal for large-scale distribution and disposable shipments.

Features

- Single-Use Functionality
- High Accuracy ±0.4°C for critical Temperature monitoring
- User-Friendly Interface
- Rugged Design
- Plug-and-Play Report Generation
- LED Indicators
- Up to 4 individually programmable alarm
- USB 2.0 Interface
- Wide Application Range
- Standards Compliant – Meets EN12830:2018,RoHS,CE,RTCA/DO-160G

Why Choose Polwax Cold Chain Dataloggers?

Advanced Technology: Cutting-edge technology for precise and reliable data logging.

Global Reach: Ensures product integrity across borders and industries worldwide.

Customizable Solutions: Tailored solutions to meet the unique needs of your cold chain requirements.

Expert Support: Our customer service team provides expert support for installation, troubleshooting, and maintaining your system.

Technical Specifications : PTRANS T10 (Without Display)

LED Indicator	Green（Recording，OK），Red（Alarm），Yellow（Start Delay）
Battery life	Up to 2 years（1 year storage / 1 year useful life）@25℃，5 minutes logging interval
Operation Temperature	-30℃～70℃
Measurement Accuracy	±0.4℃@-10～40℃，±0.8℃@-30～-10℃&40～70℃
Resolution	0.1℃
Alarm Limit	Up to 2 individually programmable alarm limits（Alarm threshold and over-temperature trigger time can be customized according to customer needs）
Logging Interval	1 minute -24 hours optional（Default 5 minutes）
Memory Space	Up to 33,000 points
Start Delay	0 minute -24 hours optional（Default 10 minutes）
Start Mode	Manual start
Report Format	PDF/CSV/PDF&CSV(Optional, configured before leaving the factory)
IP Grade	Ip67
Battery Type	3.0V CR2032
Connection	USB2.0
Weight	23g
Dimensions	70*33*7mm
Certification	CE，EN12830:2018，RTCA/DO-160G，RoHS

Technical Specifications : PTRANS TD10 (With Display)

LED Indicator	Green（Recording，OK），Red（Alarm）
Battery life	Up to 2 years（1 year storage / 1 year useful life）@25°C,5 minutes logging interval
Operation Temperature	-30°C～70°C
Measurement Accuracy	±0.4°C@-10～40°C。±0.8°C@-30～-10°C&40～70°C
Resolution	0.1°C
Alarm Limit	Up to 2 individually programmable alarm limits（Alarm threshold and
	over-temperature trigger time can be customized according to customer needs）
Logging Interval	1 minute -24 hours optional（Default 5 minutes）
Memory Space	Up to 33,000 points
Start Delay	0 minute -24 hours optional（Default 10 minutes）
Start Mode	Manual start
Report Format	PDF/CSV/PDF&CSV(Optional, configured before leaving the factory)
IP Grade	Ip67
Battery Type	3.0V CR2032
Connection	USB2.0
Weight	23g
Dimensions	85*34*7.5mm
Certification	CE，EN12830:2018，RTCA/DO-160G，RoHS

PHARMACEUTICAL

Applications & Case Studies

Pharmaceutical Company Ensures Vaccine Safety

Client: Global Pharmaceutical Manufacturer
Challenge: The pharmaceutical company needed a solution to monitor the temperature of vaccines during transit from the manufacturing facility to distribution centers and hospitals. The temperature-sensitive nature of the vaccines made it critical to ensure that they remained within the required temperature range throughout their journey.

Solution: The company implemented Polwax Cold Chain Dataloggers in their transportation process. The dataloggers were placed in the shipping containers and tracked the temperature continuously during the entire journey. Real-time alerts were set up to notify logistics teams if the temperature went outside of the acceptable range.

Results:
✔ **Improved Temperature Control:** The vaccines were consistently stored and transported at the optimal temperature, preventing any spoilage.

The Polwax PTRANS T10/TD10 Series plays a crucial role in ensuring environmental stability for pharmaceuticals and healthcare products. Accurate monitoring of both temperature is essential to maintain the integrity, efficacy, and regulatory compliance of medical goods across the supply chain. Below are the key use cases in this sector:
1. Vaccine Distribution and Storage Ensures strict temperature and humidity adherence for vaccines, especially mRNA-based and biologic types. Prevents degradation due to exposure outside safe conditions during shipping or warehousing.2. Cold Chain for Biologics and Injectables Maintains stability for insulin, hormones, monoclonal antibodies, and injectable drugs that require narrow environmental conditions.3. Blood & Plasma Transport Tracks real-time temperature and humidity to protect the viability of blood products, plasma, and cell samples.4. Hospital & Clinic Storage Used in refrigerators and pharmaceutical storage rooms to maintain validated storage conditions for medicine and medical supplies.5. Clinical Trials & R&D Labs Supports accurate logging for investigational medicinal products (IMPs), ensuring audit-ready data for regulators. Provides reliable records for stability testing and environmental control.

FOOD

Food Distributor Prevents Product Loss

Client: Large Food Distribution Company

Challenge: A food distributor faced challenges maintaining the cold chain during the distribution of perishable food items. The distributor required a way to ensure that food was stored and transported at proper temperatures to avoid spoilage, particularly during long-distance shipments.

Solution: Polwax Cold Chain Dataloggers were installed in refrigeration units used to transport the food. The dataloggers tracked temperature changes during both storage and transportation. The system provided data insights that allowed the distributor to adjust refrigeration settings proactively.

Results:

✔ **Reduced Waste:** By ensuring that food items were maintained at the correct temperature, the distributor saw a significant decrease in product spoilage.

✔ **Cost Savings:** The company saved thousands of dollars annually by preventing unnecessary food loss, thanks to better temperature control and real-time data monitoring.

✔ **Increased Customer Satisfaction:** Clients received fresh, safe products, which improved the distributor's reputation in the market.

Maintaining strict temperature control throughout the food supply chain is critical to ensuring product quality, shelf life, and compliance with food safety regulations. The Polwax PTRANS T10/TD10 enables accurate, monitoring of these environmental parameters, making it an essential tool across all stages of food production, storage, and distribution.

1. Perishable Goods Monitoring Monitors fresh produce, dairy, seafood, and meats from harvest/processing through final delivery. Helps prevent bacterial growth, spoilage, and moisture-related degradation.2. Cold Storage Warehouses Ensures optimal temperature and humidity levels are maintained in refrigerated and frozen storage areas. Supports HACCP and ISO 22000 compliance with continuous data logging and reporting.3. Food Processing & Packaging Areas Controls ambient conditions in production zones to protect sensitive ingredients. Verifies that packaging and filling processes occur within the required environmental thresholds.4. Refrigerated Transport Verifies cold chain integrity in refrigerated trucks, containers, and distribution vehicles. Provides proof-of-compliance reports to customers and auditors with automated PDF/CSV output.5. Retail and Supermarket Cold Chains Monitors refrigeration units and cold rooms to ensure safe storage of ready-to-eat and frozen products.

BLOOD BANK

Healthcare Provider Tracks Blood Supply Integrity

Client: Blood Bank and Healthcare Provider

Challenge: A national blood bank needed to monitor the temperature of blood samples during storage and transportation to various hospitals. Even slight deviations in temperature could compromise the integrity of the blood and render it unsafe for use.

Solution: Polwax Cold Chain Dataloggers were deployed to track the temperature of blood bags from collection sites to storage facilities and hospitals. The system provided real-time data on temperature fluctuations and sent alerts to healthcare staff in case of any temperature excursions.

Results:

✔ **Improved Product Safety:** The blood bank maintained the required temperature range for blood products, ensuring patient safety.

✔ **Compliance with Standards:** The blood bank adhered to regulatory guidelines, including those set by the World Health Organization (WHO) for blood temperature control.

✔ **Efficient Response:** Early detection of temperature fluctuations allowed staff to respond quickly, reducing the risk of compromised blood products and unnecessary wastage.

Precise temperature monitoring is critical in blood banks to preserve the safety, viability, and traceability of blood and blood components. The Polwax PTRANS T10/TD10 provides the necessary accuracy and data integrity to support blood banking operations in compliance with regulatory standards.

1. Blood Storage Refrigerators Continuously monitors storage conditions for whole blood, plasma, red cells, and platelets. Ensures temperature remains within the safe range of +2°C to +6°C, preventing coagulation, hemolysis, or microbial contamination.2. Plasma Freezers and Cryogenic Units Supports sub-zero storage monitoring for frozen plasma and rare blood types requiring long-term preservation.3. Blood Transport & Distribution Tracks environmental conditions during transport to and from hospitals, mobile collection units, and laboratories. Provides tamper-proof, time-stamped reports to validate the cold chain throughout transit.4. Platelet Incubators & Agitators Maintains stable room temperature and humidity conditions for platelets stored at 20–24°C with constant agitation. Avoids risks of platelet activation or desiccation due to environmental fluctuations.6. Alarm & Alert Management Configurable alarm limits notify users of excursions, allowing rapid intervention to protect critical blood supplies.

LOGISTICS

Logistics Company Enhances Cold Storage Operations

Client: Global Logistics Provider
Challenge: A logistics company needed a solution to improve the monitoring of temperature-sensitive products in cold storage warehouses. With the increasing complexity of global supply chains, it was becoming more challenging to ensure that storage facilities were properly maintained within the required temperature ranges.

Solution: Polwax Cold Chain Data loggers were implemented in cold storage units across multiple warehouse locations. The data loggers continuously monitored temperature and humidity levels, sending data to the cloud for real-time tracking. Additionally, the system integrated with the logistics provider's existing warehouse management software.

Results:
✔ **Optimized Cold Storage:** The company ensured that products such as frozen foods and medical supplies were stored in optimal conditions, preventing temperature excursions.

✔ **Regulatory Compliance:** The company met all relevant industry regulations, ensuring the safety of sensitive products and avoiding costly penalties.

In cold storage and warehousing environments, maintaining controlled temperature levels is vital for preserving the quality and safety of temperature-sensitive products. The Polwax PTRANS T10/TD10 offers precise, real-time monitoring capabilities that support operational efficiency, inventory protection, and regulatory compliance.
1. Walk-in Cold Rooms and Freezers Continuously monitors storage conditions for products such as frozen food, vaccines, chemicals, and pharmaceuticals. Detects temperature excursions to prevent product spoilage or loss.2. Large-Scale Refrigerated Warehouses Enables centralized monitoring across multiple zones or chambers using multiple data loggers. Helps maintain uniform environmental conditions for consistent product storage.3. Humidity-Sensitive Storage Ideal for goods like spices, dry foods, electronics, and chemicals that are susceptible to moisture damage. Prevents issues such as mold growth, corrosion, and packaging degradation.4. Inventory Protection & Quality Assurance Provides data-driven insights to manage environmental risks and extend product shelf life. Prevents product recalls by ensuring traceable environmental history for each batch.

Biotechnology Firm Secures Lab Samples

Client: Biotech Research Institute
Challenge: A biotech research institute needed to monitor the storage conditions of biological samples that required strict temperature controls. These samples were critical for ongoing research, and any deviation in temperature could lead to sample degradation, risking the research progress.

Solution: Polwax Cold Chain Dataloggers were placed in the storage units where the biological samples were kept. The dataloggers tracked temperature changes over time, and all data was automatically logged and accessible via a secure cloud platform.

Results:
✔ **Optimized Preserved Research Integrity:** The temperature-sensitive samples were maintained at precise conditions, ensuring their integrity for ongoing research.

✔ **Audit-Ready Data:** The data from the dataloggers provided an easy-to-access audit trail, demonstrating compliance with research standards and protocols.

Biotechnology samples—including cell cultures, DNA/RNA extracts, reagents, and biologics—require controlled environmental conditions to maintain stability and integrity. The Polwax PTRANS T10/TD10 ensures precise temperature monitoring across research, storage, and transport phases, offering traceability and compliance with industry standards.
1. Cold Chain for Sensitive Biological Materials Maintains critical conditions for temperature-sensitive samples such as enzymes, antibodies, plasmids, and genetic material. Prevents denaturation, degradation, or loss of bioactivity caused by thermal excursions.2. Ultra-Low Freezer Monitoring Tracks storage conditions in ultra-low temperature freezers (-20°C to -80°C) used for long-term preservation of biotech samples. Ensures consistent monitoring even during power failures or defrost cycles.3. Humidity-Sensitive Sample Storage Monitors relative humidity to protect lyophilized (freeze-dried) biotech products and reagents from moisture absorption. Prevents clumping, rehydration, or loss of efficacy in dry-state biological samples.4. Sample Transport Between Labs or Facilities Ensures cold chain integrity during sample transfers for clinical trials, diagnostics, or research collaboration. Provides traceable records that confirm storage conditions throughout shipment.

FRUITS EXPORT

Ensuring Freshness in International Fruit Exports

Client: Premium Tropical Fruit Exporter
Challenge: A fruit export company specializing in mangoes, bananas, and papayas needed to ensure that their fruits remained fresh during the long journey by sea to European supermarkets. Fluctuations in temperature and humidity inside refrigerated containers often led to premature ripening or spoilage, resulting in significant product losses and customer complaints.Solution:

Solution: The company deployed Polwax Cold Chain Dataloggers inside every refrigerated shipping container. These dataloggers monitored temperature and humidity at multiple points and sent real-time alerts in case of any deviation from the safe range. The data was automatically uploaded to the cloud for access by quality assurance teams.

Results:
✔ **Extended Shelf Life:** Fruits arrived fresher, with better color and texture due to consistent storage conditions.
✔ **Fewer Claims & Returns:** The number of rejected shipments by European retailers decreased by 60%.

In fruit export operations, maintaining precise temperature control is essential to preserve freshness, extend shelf life, and meet phytosanitary and international quality standards. The Polwax PTRANS T10/TD10 enables exporters to monitor and document environmental conditions throughout storage and transportation, ensuring optimal product quality upon arrival.
1. Pre-Cooling and Packing Facilities Monitors temperature and humidity during the pre-cooling process to rapidly reduce field heat and slow down respiration. Prevents condensation that could promote mold or spoilage during export.2. Cold Storage Before Shipping Ensures that fruits such as mangoes, apples, bananas, grapes, and citrus are held at the correct set point for their variety. Helps maintain skin firmness, sugar content, and aroma throughout the storage period.3. Reefer Container Monitoring Tracks conditions inside refrigerated containers during long-distance sea or air freight. Protects produce from temperature shocks or humidity imbalances that can lead to chilling injury, dehydration, or ripening issues.4. Multi-Zone Cold Chain Monitoring Enables exporters to monitor produce at multiple points: packing house, container loading, transit, and customs clearance. Provides seamless traceability across the full export life cycle.

SEAFOOD EXPORT

Protecting Quality of High-Value Seafood Shipments

Client: Seafood Exporter

Challenge: A seafood company shipping fresh fish (including tuna and shrimp) to high-end sushi chains in Japan needed to maintain near-freezing temperatures throughout air and road transit. Even minor temperature excursions could lead to changes in texture, loss of quality, or bacterial growth—making the shipment unusable.

Solution: The company adopted Polwax Cold Chain Dataloggers to accompany every shipment of seafood. The compact devices were placed directly within the insulated fish containers. They tracked temperature fluctuations from cold storage, airport handling, in-flight conditions, and local delivery to the destination.

Results:

✔ **Maintained Freshness:** Fish consistently arrived with optimal freshness and met the strict quality criteria of Japanese buyers.

✔ **Customer Trust:** Japanese partners praised the transparency and traceability, leading to expanded contracts and larger orders.

✔ **Loss Prevention:** Spoilage-related losses dropped by over 80%, protecting thousands of dollars in high-value seafood per shipment.

Exporting seafood demands strict environmental monitoring to preserve freshness, prevent contamination, and comply with global food safety standards. The Polwax PTRANS T10/TD10 offers high-accuracy temperature monitoring, making it an essential tool for maintaining product integrity throughout the cold chain—from catch to international delivery.

1. Onboard Catch Storage Monitors temperature in insulated fish holds or refrigerated seawater (RSW) tanks during marine harvesting. Ensures that the catch remains at optimal conditions immediately after processing or freezing.2. Processing and Blast Freezing FacilitiesTracks freezing cycles to ensure seafood reaches core temperatures of -18°C or lower, minimizing microbial growth. Supports monitoring of chilled processing zones to comply with HACCP protocols.3. Cold Storage Warehouses Maintains consistent low temperatures in frozen seafood storage prior to dispatch. Detects potential deviations that could compromise texture, taste, or safety.4. Container & Reefer Monitoring Monitors conditions in refrigerated shipping containers (reefer units) during long sea freight journeys. Prevents thawing and refreezing cycles that can degrade product quality or safety.

SAMPLE CERTIFICATE

Certificate
Calibration & Validation

Certificate of Validation
Certificate No.: PLXCV251001
Date of Issue: April 15, 2025

Environmental Conditions:
Temperature: 24.4 °C
Humidity: 58.4 % RH

Reference Instruments and Validation Environment

Instrument Type	Model	Serial No.	Accuracy
Thermometer	YET-720L	24029071	±0.05 °C
Constant Temperature Bath	DC-3006	240903041	±0.05 °C

Note: All validation equipment is periodically calibrated by third-party laboratories accredited by full member of the International Laboratory Accreditation Cooperation (ILAC), and as such, this certificate is recognized by all ILAC MRA signatories.

Validation Details - Temperature & Humidity

Validation Point	Standard	Tolerance	Result
T1	–30 °C	±0.4°C	PASS
T2	0 °C	±0.4°C	PASS
T3	30 °C	±0.4°C	PASS
T4	50 °C	±0.5°C	PASS
T5	65 °C	±0.5°C	PASS

Product Details

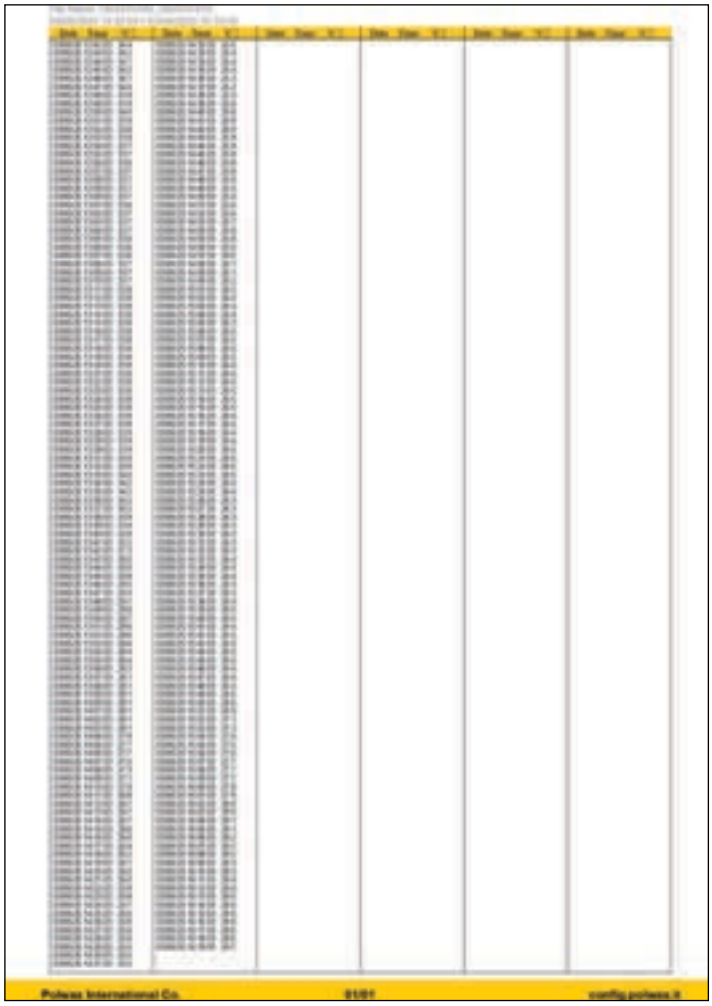
Product Type	Model	Serial No. / Range	MFG Date	Expiry Date
Single-Use Data logger	Polwax PTRANS T10	2504070051	03/2025	03/2027

This validation certificate remains valid for a period of one years from the manufacturing date.

Dr. Stefan Bauer
Quality Assurance Manager

global.polwax.it

REPORT FORMAT

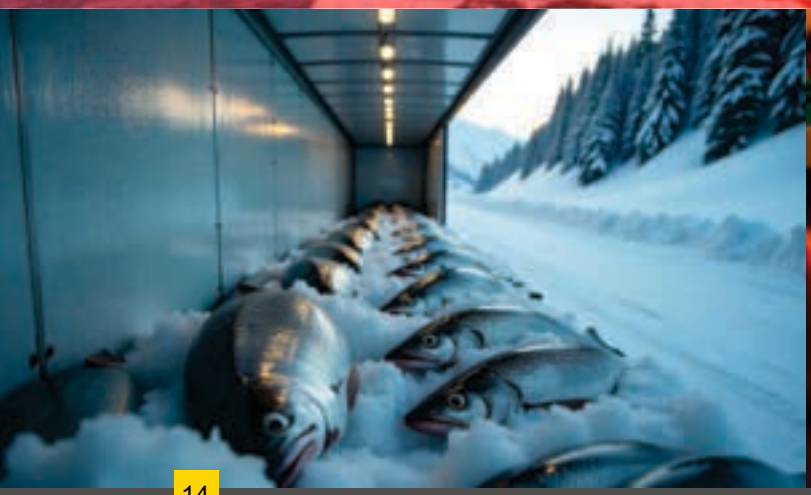


Importance of the Polwax Data logger Report

In the cold chain industry, maintaining the integrity of temperature sensitive products—such as pharmaceuticals, fresh produce, vaccines, and seafood—is non-negotiable. The Polwax **PTRANS T10/TD10** Cold Chain Datalogger Report plays a critical role in ensuring product safety, regulatory compliance, and operational transparency.

- **Ensures Product Quality and Safety** The report provides accurate, real-time logging of environmental conditions, such as temperature and humidity, throughout the storage or transport period. Any deviation from the permissible range is immediately captured and flagged, allowing quick corrective actions. This prevents spoilage, loss of potency, or contamination—especially crucial for perishable goods and life-saving medications.
- **Evidence-Based Quality Control** By clearly identifying when and how long a shipment was exposed to off-limit conditions, the report provides conclusive evidence to support claims, reject damaged goods, or optimize packaging and insulation methods. It also supports root cause analysis for supply chain failures.
- **Helps Optimize Cold Chain Operations** Over time, the analysis of multiple reports helps identify trends, recurring failures, or weak links in the supply chain. This allows companies to proactively improve logistics, equipment, and vendor performance, reducing operational costs and minimizing product loss.

APPLICATIONS



POLWAX Group has got an experienced, highly-qualified project team conducting extensive R&D operations. Owing to that, goods holding the POLWAX brand feature customer-tailored flexibility and meet requirements of various industries.

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