

Why measure with a probe at all

A logger inside a shipment measures the air around itself. That is often the wrong quantity: quality decisions and regulatory records are about the **product** — the vaccine vial, the pallet core, the reefer's return air. Air temperature moves fast during door openings and recovers fast; product temperature moves slowly in both directions. An excursion in the air record may be irrelevant to the product, and a compliant air record can hide a warm pallet core. The external PT1000 probe lets GPT45-M record the quantity your quality system actually rules on, while the internal channels keep recording the environment around the load.

What a PT1000 is

A PT1000 is a platinum resistance thermometer (RTD): 1,000 Ω at 0 °C, with a resistance curve standardised in IEC 60751. Platinum RTDs are the reference technology where stability and repeatability matter — they drift far less than thermistors, tolerate repeated thermal cycling, and their behaviour is defined by an international standard rather than a vendor curve. That is why GDP-style quality documentation is comfortable with them: the sensor's physics is auditable.

Three placement patterns

Product-core (simulant)

The probe sits in a simulant load — a buffer bottle or product dummy — travelling with the real product. Records what the product experienced, filtered by its own thermal mass. The standard pattern for pharma lanes.

Between-carton

The probe tip sits between cartons at the pallet core. Faster to deploy than a simulant; records a conservative approximation of product temperature. Common for produce and food lanes.

Return-air (reefer)

The probe sits in the reefer's return-air path; the device body stays with the load. Records what the refrigeration unit is actually delivering — the number to compare against the setpoint when attributing an excursion to equipment rather than handling.

Deep-frozen and dry-ice lanes

Rechargeable lithium-ion cells lose usable capacity below 0 °C, and commodity cells are generally not rated for discharge below -20 °C — chemistry, not design. The probe solves this: the GPT45-M body stays in a thermally moderated position (outside the dry-ice zone, inside the insulated shipper's ambient compartment, or on the reefer bulkhead), while the probe reaches into the cold. The device records its own environment and the product's — two temperatures, one time base, which is exactly what an investigation needs.

Calibration and traceability

EU GDP-style documentation expects temperature records from instruments with traceable calibration, on a defined cycle (annual is the common practice). For GPT45-M programmes, calibration scope — points, tolerance, certificate format and cycle — is agreed at the configuration gate and delivered with validation evidence, per device or per batch as your quality system requires. Probe range and accuracy for your configuration are confirmed per project and stated on the calibration certificate, not estimated on a marketing page.

Probe variants (tip geometry, cable length, food-contact materials) and connector sealing are selected during project definition. This note is guidance, not a specification; the configuration sheet delivered with your order takes precedence.