



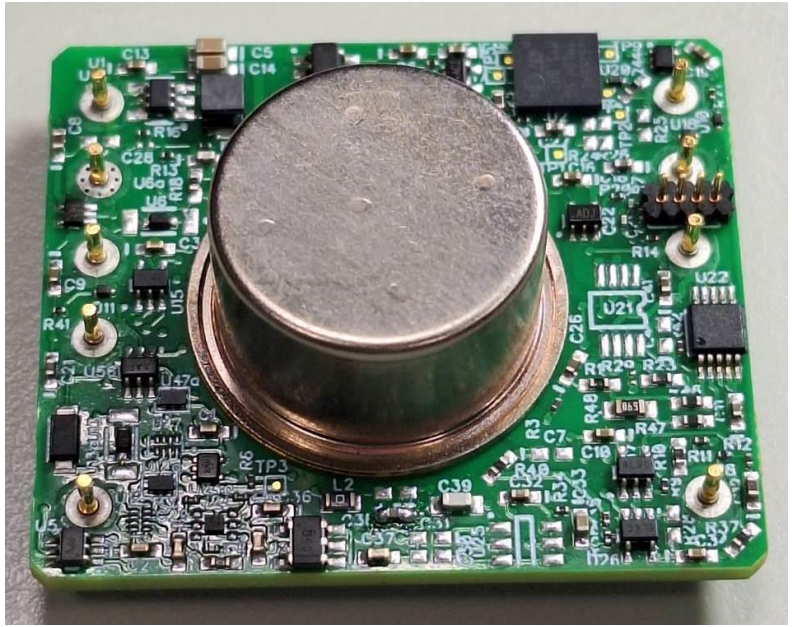
TAITIEN

The Frequency Control Specialist

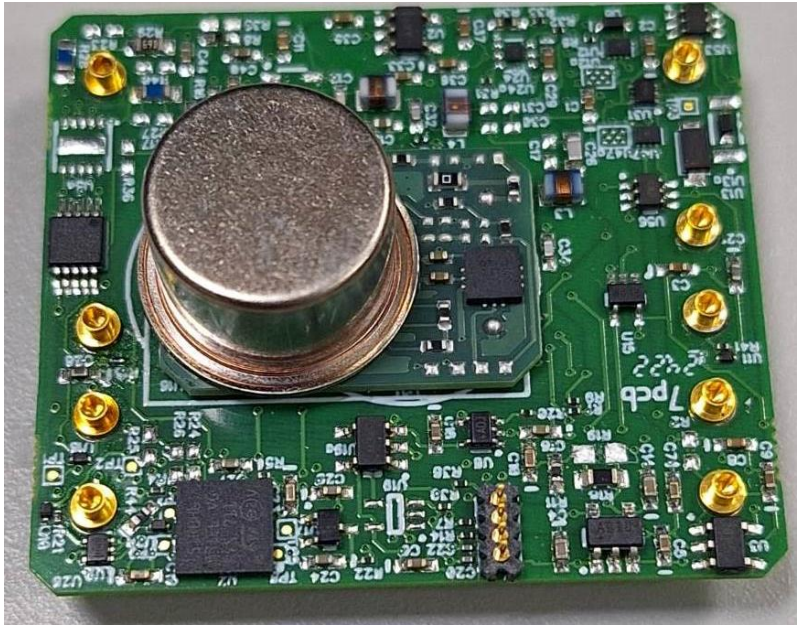
Application Note for DTQ-100, holdover performance

Product Models and Applications

DTQ-100A: Suitable for deployments longer than 130 days, designed for deep-sea applications.



DTQ-100N: Suitable for deployments shorter than 70 days, ideal for shallow waters or lake environments.



Warm-Up Time Requirements

- First-Time Use:
  - Requires an initial 7-day warm-up.
  - 1 PPS disciplining can be completed within 2-10 minutes.
  - After continuous operation without power interruption, the re-disciplining process will also complete within 2-10 minutes.
- Power Outage and Recovery:
  - If the outage is less than 30 minutes, re-warm-up will take 1-2 hours.
  - For outages greater than 30 minutes, the required warm-up time will be twice the duration of the outage.

1 PPS Accuracy Requirements

- Recommended 1 PPS reference signals should be sourced from Rubidium clocks, Cesium clocks, or GPSDO modules, with frequency accuracy ≤ E-12.
- If using GPS-based 1 PPS, customers should carefully monitor jitter in the 1 PPS signal.

Holdover Performance

- DTQ-100A:
  - Achieves ±1 ms holdover accuracy over 130 days under calibrated, temperature-stable conditions.
- DTQ-100N:
  - Achieves ±1 ms holdover accuracy over 70 days under similar conditions.
- Calibration Process:
  - The calibration process involves four commands: CDP, CDGO0, CDGO1, and CDD. Detailed instructions can be found in the User Guide, Time Drift Correction
  - Power Interruptions during Calibration: If the DTQ-100 loses power during calibration, the internal prediction data will be lost.
- Uncalibrated Holdover Accuracy:
  - DTQ-100A: ±0.7–2 ms over 15 days.
  - DTQ-100N: ±3–9 ms over 15 days.

Thank You for Your Attention

For more Information,
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Taitien Electronics
Our Performance, Your Reputation