

ABH-300-L

Long-life offline industrial · No power, no radio, no problem

ABH-300 family — Industrial multi-channel · Data logger datasheet

The industrial multi-probe unit on AA lithium cells with no radio — remote stores, mapping studies and sites without power or Wi-Fi.

7 channels	IP65	E-paper	409,600 readings	Battery: ≈3.5 yr at 300 s (calc.)
------------	------	---------	------------------	-----------------------------------

Specifications

Product type	Offline · industrial
Sensing channels	7 — 4 × probe temperature · Ambient T + RH · Pressure
4 × probe temperature	PT100 Class A via probe board · −50...+200 °C
Ambient T + RH	SHT41 · ±0.2 °C typ
Pressure	BMP390 · 300–1250 hPa
Measurement accuracy	±0.15 °C at 0 °C · PT100 Class A (IEC 60751) probe
Display & indication	1.54" e-paper 200 × 200 · −25...+50 °C · holds last reading while asleep
Connectivity	Offline — no radio
Power	2× AA Li-SOCI ₂ (LS14500, 2.6 Ah)
Battery life	≈3.5 yr at 300 s (calculated, spec-compliant logging at firmware defaults; ≈1.7 yr worst-case) — Field-replaceable primary cells
Memory	16 MB W25Q128JV · 409,600 readings · separate never-erased audit region
Sample interval	300 s default · 1 s minimum
Enclosure	106.4 × 150.0 × 29.3 mm · PC/ABS · UL94 V-0 · UV-stabilised · RAL 7035 grey
Ingress protection	IP65 (design target)
Mounting	Keyhole (2×) + bonded magnets · M12 cable ports
Operating band	−40 to +70 °C (cell-limited band)
Firmware & transport	Signed .abhfw packages · dual-bank A/B · RSA-2048 · trial boot with automatic rollback · MQTT over TLS 1.2+ with per-device credentials (mTLS supported) · X.509 identity
Factory identity	ABH-[model]-[YYWW]-[5-digit sequence] — factory identity written to the ID EEPROM
Ports	4 × M12 probe ports · USB-C (harvest)

Applications

Sites without power or Wi-Fi	≈3.5-year AA lithium offline logging, or an LTE monitor where Wi-Fi never reaches.
------------------------------	--

Compatible probes

PRB-PT100-3W — PT100 immersion probe	PRB-PT100-3W-3M · PT100 Class A (IEC 60751:2022) · ± 0.15 °C at 0 °C · –50 to +200 °C
---	---

Part of the Abhilekh platform

One 80 × 50 mm 4-layer platform PCB — 145 parts, single-sided SMT — becomes 20 SKUs by BOM selection and a SKU record in the on-board ID EEPROM.

Firmware updates	Signed .abhfw packages · dual-bank A/B · RSA-2048 · trial boot with automatic rollback
Data transport	MQTT over TLS 1.2+ with per-device credentials (mTLS supported) · X.509 identity
Offline evidence	Plug an offline logger into a PC and it enumerates a FAT16 drive with README.TXT, DATA.CSV and an ECDSA P-256-signed REPORT.PDF — a self-verifying trip record.
Calibration	Probe channel templates live in the ID EEPROM; the platform tracks NIST-traceable calibration certificates, due dates and reminders per probe.
Certification roadmap	EN 12830:2018 — temperature recorders · CE — RED / EMC / safety · FCC Part 15 · WHO PQS E006 — vaccine cold chain · IEC 61010-1 / IEC 62368-1 · UN 38.3 / IEC 62133-2 — cells & packs — targets, not held certificates

The ABH line is at the design-frozen, pre-production stage: every enclosure has passed generated fit-check geometry (791/791 checks, 20/20 SKUs) and every battery-life, drop, thermal and IP figure shown is a calculated or simulated design estimate — measured values replace them as validation hardware runs. Regulatory marks above are the certification roadmap, not held certificates.

Neodrics Technologies · Vadodara & Gandhinagar, Gujarat, India · info@neodrics.com · <https://neodrics.com>