

The Automated Tide And Weather Observation Network



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It is an advanced real-time meteorological and oceanographic measurement system designed for ports and harbors. This innovative network combines moored floating stations or buoys, which comply with International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) marking standards, with land-based stations to collect a comprehensive range of atmospheric and oceanic data.

Background:

Traditionally, ports and harbors have relied on manual tide gauges, float-type charter gauges, or digital level gauges for planning safe anchorage and determining under-keel clearance. Historical or forecasted meteorological data has been used for issuing weather warnings. However, as maritime industry modernization lags behind sectors like aviation, there's a growing need for real-time, accurate data to support advanced port operations and safety measures.

Key Features and Advantages:

Flexible deployment: The system can utilize single or multi-point mooring systems, adaptable to specific site requirements.

Comprehensive data collection: Includes moonpool arrangements for submersible sensor deployment, capturing a wide range of meteorological and oceanographic parameters.

Eco-friendly operation: Utilizes solar power for sustainable, pollution-free functioning.

Advanced telemetry: Employs sophisticated onboard systems with configurable interfaces and multi-mode wireless data transmission.

Precise measurements: Incorporates GNSS-controlled tide gauges and dynamic freeboard sensors for accurate water level monitoring.

Smart port integration: Seamlessly interfaces with features like Estimated Arrival Time (ETA) systems, Just In Time (JIT) systems, Voyage Planning (VP) systems, Vessel Traffic Management Systems (VTMS), Smart Berthing Guidance System, and Dynamic Under Keel Clearance (Dynamic UKC) systems.



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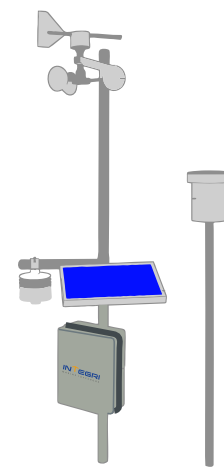
AI-enhanced capabilities: Uses artificial intelligence for tide prediction.

Remote management: Offers remote maintenance capabilities for efficient operation.

Data visualization: Features an open architecture web analytics platform with smart dashboard displays.

This Automated Tide and Weather Observation Network represents a significant advancement in maritime environmental monitoring and port operations optimization. By providing real-time, accurate data, it enhances navigational safety, improves operational efficiency, and supports environmental protection efforts in ports and harbors.

- Ku-band RADAR based fixed Tide cum Meteorological stations
- Location specific data buoy design to cater to the tide measurement requirements.
- Design for 4 m swell, 2 S period
- 5 m/s Water current considered
- 2.5 T reserve buoyancy, 0.7 m free board
- Two point stud chained mooring lines & RCC + Chain sinkers
- Instrumentation sinker with sensor payloads
- Sacrificial anodes for to enhance service life of buoy and mooring components
- Manhole, handrail & ladder for better service ability & safety
- Realtime precise water surface elevation was measured with combination of onboard Echo sounder, Motion compensators and Hi precision submersible and atmospheric Pressure sensors (with backup sensing)
- Raw sensor data fused and calibrated to Geoidal reference (WGS 84) and precise atmospheric pressure derived altitude.
- Live Weather data streaming include wind velocity, wind direction, solar irradiation, ambient temperature, etc by In-house Marine IoT system and Gateway
- Marine grade PV Panel supported
- LTE/ WCDMA /GSM and Long Range RF link
- GPS tracking



Our Presence



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