

NUS with Winch

The TDB2650 is a 2.65-meter diameter polyethylene (PE) buoy platform, purpose-built for advanced marine monitoring and research applications. Featuring a two-tiered modular design, it integrates a central core module for housing resident sensors and peripheral modules with integrated moon pools that support expansion and serve as testbeds for emerging marine technologies.

Designed with an open-architecture framework, the TDB2650 offers standardized mechanical, electrical, and software interfaces, enabling plug-and-play integration of new sensors and payloads. This ensures adaptability to a wide range of mission requirements and supports rapid deployment of evolving technologies.

The TDB2650 buoy was custom-developed for the National University of Singapore (NUS). A key feature is its central moon pool, engineered to accommodate a compact winch system for depth profiling operations.

The first unit was delivered to NUS in 2022. Based on field feedback, a second order was placed in 2023, incorporating several enhancements, including the integration of 12 solar panels for increased energy autonomy. The upgraded buoy was delivered in 2024, with a successful Factory Acceptance Test (FAT) marking a major milestone in the collaborative development of this advanced oceanographic platform.

Geometric details of the buoy:

Component	Values	Units
Float height	1400	mm
Buoy Outer diameter	2650	mm
Buoy Inner diameter	590	mm
Total buoyancy	6200	kg
Top structure Width	1200	mm
Top structure height	3193	mm
Height of solar panel from floats	2739	mm











