

Design of the Readout Electronics for the TRIDENT Pathfinder Experiment

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The TRIDENT, also known as Hailing, is a possible large-scale next-generation neutrino telescope. In September 2021, the TRIDENT Pathfinder experiment completed in situ measurements of seawater properties at a depth of 3500 m in the South China Sea. One light emitter module (EM) and two light receiver modules (RMs) were deployed, synchronized by White Rabbit technology. The EM generates nanosecond width LED pulses, while the RM hosts three PMTs and a CCD camera to detect photons. We report about the design and performance of the readout electronics for TRIDENT Pathfinder, including hardware modules, firmware design for digital signal processing and host-computer software.

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