

Small Water Level Observation Buoy



- Quick: Water level observation at the landslide dam can be started quickly by transportation and installation of the unit using a drone.
- Safe: Secondary disasters are avoided as no ground work is required near the landslide dam.
- Stability: Ability to install the unit at the center of the landslide dam reduces risks of device breakage and wash-away.



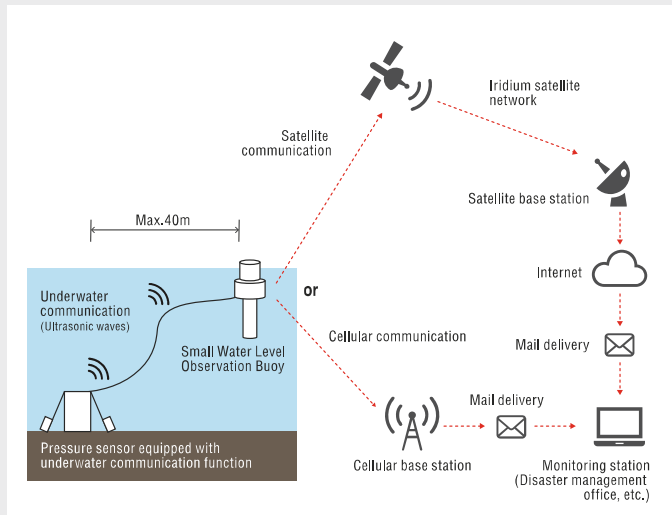
To measure the water level, this device is designed for transportation and installation using a drone when accessing a target landslide dam is difficult due to, for example, disruptions of road caused by a natural disaster. The device consists of a buoy floating on the water surface and an anchor cage fixed on the river bed. The pressure sensor, equipped with an underwater communication function, on the anchor cage collects the water level data. The captured water level data is transmitted to the buoy via underwater acoustic communication (ultrasonic waves), then transferred to the monitoring station through an Iridium satellite or mobile network communication network.

Specifications

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Model	BCPS-40R
Buoy	1) Shape Cylindrical 2) Dimensions $\phi 250 \times 1002$ mm 3) Weight 14kg or less 4) Total buoyancy 154N (about 16 kgf) 5) Material Hood Polycarbonate resin Body Aluminum alloy Float Polystyrene (With a full surface coating of urethane resin)
Anchor cage	1) Dimensions 512W \times 867H \times 512D mm 2) Weight 10kg or less 3) Material Stainless steel
Communication function (satellite/cellular communication)	1) Communication method Short Burst Data (SBD) communication using Iridium satellites, communication through mobile phone network. ※When using mobile communication, it is necessary to prepare a separate SIM. 2) Communication direction Two-way (buoy to monitoring station) 3) Send data Format ASCII format Time year, month, day, hour, minute Location latitude, longitude Water level $\bigcirc\bigcirc.\bigcirc\bigcirc$ m Voltage $\bigcirc\bigcirc.\bigcirc\bigcirc$ V 4) Communication terminal Iridium satellite communication 4Gmobile communication integrated terminal
Communication function (Underwater)	1) Communication method Underwater acoustic communication (ultrasound) 2) Communication direction One-way reception (water level gauge \rightarrow buoy)
Power supply (Communication unit)	1) Method Dedicated lithium battery 2) Nominal voltage DC12V 3) Rated capacity 45Ah 4) Operational period (estimate) When observation interval is set to 60 minutes 3months When observation interval is set to 10 minutes 1month (Variied depending on the initial voltage and ambient temperature when used)
Underwater communication pressure sensor	1) Method Pressure type 2) Measurement range 0 to 40m 3) Accuracy $\pm 0.2\%$ FS *According to our regulations (ambient temperature 20°C pneumatic test) 4) Communication method Underwater acoustic communication (ultrasound) 5) Communication interval 1minute or 5minutes 6) Power supply Dedicated lithium battery (DC6V,10Ah) 7) Material SUS316L + POM 8) Dimensions $\phi 60 \times 450$ mm 9) Weight 2.5kg or less
Overall dimensions	512W \times 1004H \times 512D mm
Total weight	23.5kg or less *Maximum dimension/mass when the buoy and sensor is mounted on the anchor cage
Monitoring software	Function control command submission, Graphing, listing

Configuration diagram



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