

Overview receiver functionality

The overview below is written for piston tanks but can also be applied to a buoyancy system equipped with elastic ballast tanks for air or water that are controlled with pumps and valves<sup>1</sup>.

- The receiver is actually more of a controller. It combines multiple functions, one of which is the receiver.
- Besides servo outputs also digital/on-off outputs are supported (NPN, ULN2003).
- Provides high current power supply distribution to servo and on-off outputs.
- Uses external ESCs for the propeller and buoyancy system.
- Supports different types of (rechargeable) battery technologies in the range of 6 to 12V (lead acid, NiMH and Lithium/LiPo).
- Can be used without, with one or with two piston tanks<sup>2</sup>. This includes four inputs<sup>3</sup> for end-limit switches to stop a piston tank in case it has reached one of its ends. Provides an option to compensate for small speed differences between piston tanks (potentiometer on transmitter)<sup>4</sup>.
- Multiple built-in safety measures that distinguishes between fatal and non-fatal errors. Note a non-fatal error is overruled by a fatal error.
- Upon a fatal error (e.g. low battery) the piston tanks are emptied and further diving is not permitted.
- In the event of a non-fatal error (e.g. no RF reception) the propulsion is stopped until the cause ceases to exist. A non-fatal error that remains active for a longer period of time without interruption, causes the piston tanks to start emptying. It is an option to have the piston tanks start emptying right away. Once the cause of a non-fatal error has been resolved (RF link restored), the emptying of the tanks is stopped and diving may continue.
- Supports a fatal error input (e.g. water penetration detector and/or max depth detector).
- Supports a latched fatal error output (e.g. to release a buoy).
- Optional reverse thrust. In case of an error the propeller is run for a few seconds in the reverse direction. This to slow down/stop the forward motion of the vessel.
- Supports X-rudders.

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<sup>1</sup> Selection of buoyancy systems via software. Pumps and valves operate synchronously. Which valves are controlled depend on the direction of rotation of the pumps.

<sup>2</sup> Or elastic ballast tanks.

<sup>3</sup> In case of a buoyance system with elastic tanks these inputs can be used to stop a pump in case the elastic tank is full or empty.

<sup>4</sup> In case of a buoyance system with elastic tanks the speed of pumps is adjustable with a potentiometer on the transmitter.

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