

The Smartwinch is a highly flexible compact size instrumentation device for fully automated deployment of various sensors for the hydrographical and geophysical survey industry. The winch is delivered with software which enables operation with most common sensors, such as sound velocity meters, OBS, CTD, side-scan and magnetometer systems.



Side scan control settings in Smartwinch software



Today hydrographical and geophysical survey operation show an increasing demand for intensive probing of the water column and seabed with various sensors. Though manual operation is in most cases possible, it becomes less feasible. The rapid survey demand, cost for sea time and human factors generally favors an automated approach for most common sensors. Following this demand the design of the Smartwinch not only focuses on the automated measuring cycle, but also on the integration of different sensors.

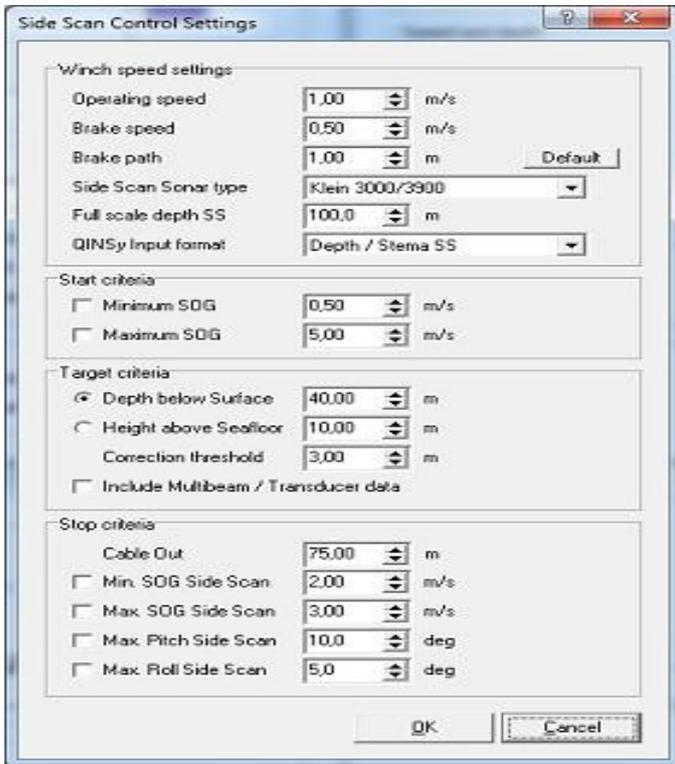
Additionally the highly flexible system allows normal communication and operation with third party sensor and RheoTune software. Build in time series makes the device also very suitable for scheduled measurements from unmanned platforms.

KEY Features

- ✓ Time series with single probe sensors
- ✓ Automated correction for sensor height/ inclination /depth/multibeam depth
- ✓ Both for vertical deployment and towed devices
- ✓ Variable speed up to 90 m/min
- ✓ Safety settings for SOG, Slack wire, end-stop, water-depth, sensor tilt, depth
- ✓ Manual override for safety and quick profiling
- ✓ Frequency controlled engine enables smooth sensor movement

Typical applications

- Sound velocity profiling (continuous)
- Environmental sensors (OBS, CTD)
- Time series of scheduled measurements
- Side-scan sonar/magnetometer at constant depth above seafloor.
- Rheotune: vertical density/rheometry profiling



System description

The winch is operated by a dedicated software package: the Smartwinch software. This software enables the selection of the sensor type and type of measurement (single deployment, fully automated time series, or constant height management for towed devices).

The Smartwinch control menu can be used to operate the winch. The main buttons are Up, down and stop. Also there is an option to enter the automated mode (for time series or tow-fish control). In this mode the software will control the winch depending on the sensor output.

In the winch data display all relevant winch data can be observed, such as cable out, end stop, slack cable, and also all available probe data the system can use to control the winch.

The single probe control settings and tow fish control settings enable user to make all settings for automated operation.

Smartwinch software

-Single probe control: device deployed and lifted automatically based on user settings and sensor readings (e.g. heading, depth, density)

-Towfish control: device will be kept at continuous height above seafloor

-Timeseries with calendar option: measurements will be executed at programmed date and time

Supported sensors:

Sound velocity (SVS +SVP): Ready for all models with RS232/UDP depth output

SVS/SVP Dedicated driver: Valeport (all models),AML ready

CTD/OBS: All models with RS232/UDP depth output

Tow fish: All models with at least RS232/UDP depth/height output

Dedicated driver tow fish: Klein 3900 (sidescan)

Density/yield: Rheotune

Data input: Serial/UDP

Data output: Serial/UDP

Survey software: All packages with RS232/UDP output of position, multibeam depth (optional), vessel heading(optional), dedicated driver for Qinsy

Winch

Weight: 120 kg
Dimensions: 90x60x60cm(LxWxH)

PLC control unit

Weight: 30 kg
Dimensions: 60x60x21cm(LxWxH)

Engine (lightest version)

Nominal work load: 82.5 kg. at 140 rpm
Max Nominal

pulling power: 57.5 kg. (140 rpm)
power: 2.2 kilowatt

Max power same

Winch (other engine): 3.3 kilowatt

Can be engineered to

max power large

model (not shown): 15 kilowatt

Power input: 110/220/380 VAC

Cable

Type: armored

Breaking strength: 25.8 kN (RS232)

Bending radius: 17.5 cm(RS232)

Data: RS232/RS485 or coax