Model ISMart:

Current Meters
and Multi-parameter probes

Broad spectrum of applications

ISMart are compact smart instruments for oceanography, port treat-ment, water sciences, environmental monitoring, fishing farms, underwater technologies, offshore industry, and other areas of application.

Thanks to modular hard- and software they are used for

- Current, flow, and tide measurements
- Directional sea-state measurements
- Measurement of chemical and optical parameters

The probes are applicable for mobile use as well as for long-term deployments.

Variable sensor equipment

Various sensors (selection is overleaf), first to name our inductive current sensor (same as in ISM-2001), are available. Some sensors can be replaced by the customer; Third-party sensors are adaptable on demand.

Memory and serial output

A high-precision real-time clock (RTC) delivers time stamps for the data that are written into a non-volatile memory (micro-SD card).

In addition, the measured values can also be sent continuously or on request via the serial interface (direct reading).

Among others, communication is based on an ASCII protocol. Therefore, operation and integration into other equipment are straightforward. Further, an application for Windows®-PC allows ease of operation and comfortable data transfer.

Internal and/or external supply

Devices with only external power supply (via cable) as well as those with battery packages are available. The latter allow fully autonomous (self-contained) measurements. The cable interface is isolated from the internal electronics and the sensors to avoid ground loops.

The probes firmware controls the current drain from the battery down to nearly zero between the measurements what allows for long-term deployments.

Practice-oriented connecting technique

All ISMart use the RS-485 interface which allows for long cables. Further, the instruments are addressable and can jointly action at one cable (an RS-485 bus) therefore.

The connectors are wetly plug-able, and the probes are also suitable for fixed underwater installations which are maintained by divers therefore.

Flexible software:

Firmware can be loaded into the devices via the serial interface for updates or specific solutions. The broad spectrum from autonomous long-term deployments with demands for energy saving techniques up to fast measuring instruments with high internal computing power (e.g. directional sea-state probes) is covered this way.

The directional-sea state software is available as an option.

Variants:

Standard - 1000m depth rated POM tube; externally supplied probe for 1+1 or 1+4 sensors, internal orientation system (compass compensated for inclinations and inclination sensor as an option), microSD-card memory, cable interface; battery packs are optional.

Deep Sea – 6000 m depth rated titanium housing with a special two-phase current-sensor potting

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Specifications

Dimensions of the Electronics cylinder:	Ø 90 mm x L 200 mm optionally longer
Housing materials:	Sea-water resistant brass Polyoximethylene (POM) High-grade steel (1.4571) Titanium alloy optionally
Deployment depth:	standard – 1000 m (POM) deep sea – 6000 m (Titanium)
Power supply:	external 10 .. 30 Vdc (isolated) external battery pack 25 C-cells internal battery 20 C-cells (titanium housing)
Memory:	128K RAM, 512K FLASH microSD card (8 GB or more)
Clock:	Hardware (real-time clock, RTC) ± 0.44 s/day ± 5ppm
Communication:	„Keyword Protocol" (ISO 14230) and specific ASCII protocol; RS-485 semi duplex
Sensor interfaces:	analog voltage inputs, counting inputs, serial interfaces; specific interfaces (e.g. temperature/conductivity); different types are possible, also isolated
Switching outputs:	MOSFET

Sensors

See the corresponding data sheets for details. For most measurement parameters, several sensor models are available for different requirements.

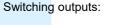|	
Internally:	compass, inclinometer
At the flange:	via ISMart fitting system: 1 + 4 (5)
Externally:	via fitting system and cable
Measurement Parameters:	current, pressure, temperature, turbidity, fluorescence conductivity, dissolved oxygen, pH-value, Redox potential (ORP)

Other sensors can be adapted on customers demand. Concerning requests are welcome.

Accessory

Broad spectrum: device mounts, cable (-drums), protection baskets, flow-through caps (active/passive), repair parts, calibrating accessory, software, communication systems.

Mobile use

Rugged suitcase with probe, cable or battery container; BlueHS (box with battery pack and Bluetooth™)

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