

NetDI™

High-speed subsea Datalogger

- High-performance industrial ARM controller
- High-performance data acquisition
- Full ocean depth
- High and safe data storage capacity
- External USB download, no need to open
- Low-power for long-term deployments
- Customized designs to your need
- Fail-safe operation
- Titanium for harsh conditions
- ***** On request approved subsea ISO 13628-6 / API17f, or MIL-STD 810G

The NetDI[™] (**Net**working **D**ata **I**nterface) Datalogger is designed special for high-safety, high-speed, rough and high-accuracy measuring applications. With its TCP/IP network connectivity it can be used for many complex and remote tasks. The low-power design enables long-time deployments.

Multiple high accuracy and high-speed analogue inputs can be used to acquire external analogous

signals. Serial optical isolated inputs, configured as RS-232 or RS-485 interfaces, can be used for digital sensor signals and online real-time data output. Multiple data formats are provided such as plain ASCII, NMEA-0183, MODBUS or other.

The industrial-grade 32GB SDHC Card can be used on a standard PC to readout the data from many years. The modular hardware and flexible software design enables sufficient solutions for many different challenging applications. With the



optionally (internal) Li-Ion rechargeable battery a complete autonomous measuring system is realized.

De/Mobilisation is easy by using magnetic switch, checking the LED control light or setting up the configuration by ASCII commands.





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Subsea Technologies for the marine environment



Control	ler Specification	

Applications	High-speed data logger for subsea instruments • Low-power and long-time deployments • Customized designs with special sensors or hardware • Deep-sea research • High-speed condition monitoring • Wave parameter measurement		
Controller	High-speed, low power industrial-grade ARM controller Watchdog		
Firmware	Industrial real-time multitasking kernel • KEIL Complier certified for functional safety applications up to SIL-3 (IEC 61508) • Configuration or software updates via USB port		
Processing	Standard formulas following IEEE "Double Precision" and UNESCO formulas for seawater analysis • Simple polynomial calibration formula for sensor values		
Data storage	Industrial grade flash memory 8 GB SDHC • No moving parts • High reliability with journaling file-system and integrated mini-USV: survives resets • PC compatible – easy to use • Standard NMEA-0183 data storage format (simple ASCII) • High storage capacity for years • Data download via USB <i>Option: 32 GB SDHC</i> • <i>card backup storage into EEPROM</i>		
Safety	Hardware Watchdog • Integrated Uninterrupted Power Supply (UPS) filters power- drops • Journaling file system survives resets • optical isolated interfaces • industrial "safety" compiler with development tools such as version history management		
Monitor, Control	External 7" Touch-Screen Box • Water-proof design • USB download • Power input		
Time base	Real-time-clock • ISO 8601 • Option: calibrated to deviation 1ppm - 30s/year		
High speed Analogue Inputs	Option: 2 channels 12/16 Bit • Expandable to 4 channels • Typ. 10 kHz sampling Input range ± 200 mV to ± 80 V • Accuracy 0.25% FS • Up to 1 MS/s for 2 channels		
Standard Analogue Inputs	8 channels 24 bit • 18 bit effective • Galvanic de-coupled Input range ~mV to $\pm 10V • 0/4-20mA •$ Amplifier on request • Accuracy 0.05% FS		
Serial Interfaces	3 x RS-232 or RS-485 interfaces • 2 x USB 2.0 • Configurable Option: Module with additional 28 x RS-232/485, up to 1 Mbit/s • LAN or WLAN		
Real-time output	RS-232 or RS-485 • ASCII NMEA-0183 data format • Configurable settings <i>Option: other interfaces, TCP/IP data transmission, radio or satellite modems etc.</i>		
Digital IO	6 x power output $3A \bullet 6 \times OC$ output $\bullet 6 \times$ digital out, optical isolated <i>Option: Module with more 4 x power output 3A</i> $\bullet 4 \times$ <i>digital out (LEDs)</i> \bullet <i>special programming</i>		
Sensor inputs	Analogue and digital sensor inputs: Standard 0-10V, 4-20mA, 3rd party Probes		
Power / Sleep	+5.5 36 VDC • Operating <1W • Sleep mode ~mW • Integrated Uninterrupted Power Supply (UPS) filters power-drops <i>Option: Power-Manager (PMM)</i> • <i>extra DC/DC's</i>		
Temperature	-20°C +50°C operating • -40°C +85°C storage		
Qualification	Option: MIL-STD 810G, ISO 13628-6, API17f (shock, vibration, temperature, EMI/RFI)		

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	Battery Sp	ecification (optionally)
Applications	Build-internal Li-Ion rechargeable battery with high-power, high safety, highly reliable cells and electronic protection (Battery Management System – BMS)	
Temperature	-20 +60 °C 0 +40 °C -20 +50 °C	Operating temperature Charge temperature Storage temperature, recommended +5 +15°C
Voltage	14.4 VNominal voltage,16.8V charge voltage12.0 VMinimum voltage,10.0V cut-off self-protection)Option: other capacities or voltages e.g. 25V on request	
Capacity	34Ah / 490Wh 70Ah / 1010Wh 140Ah / 2020Wh 280Ah / 4040Wh Additional 30% capacity	additional housing length: 100mm additional housing length: 170mm additional housing length: 310mm additional housing length: 620mm y (same size and weight as above) with "A" cell
Battery Current	7 A max. current Option: currents up to 50A on request	
Self discharge	< 5 % per year at +25°C	
Charge cycles	>500 cycles for 80% remaining capacity Option: special setup for 3000+ cycles – approx. 10% less capacity	
Protection	Over-charge	
Charger	SmartCharger [™] , can be connected all time • Do not open the housing for charging. Special procedure to revive deeply discharged batteries • Signal LEDs for Power, Charging, 100%, Error • IP65 protected for on-board usage.	
BMS	Optionally Battery Management System (BMS) • Parameter voltages, current, temperatures, State-of-charge (SOC), diagnostic flags • Interface RS-232/RS-485	
Storage	Storage at +5 +15°C. medium-full charged • Recharge after 3-6 months. We provide storage/transport boxes with low-power cooling devices and charging.	
TransportationDangerous goods class 9. SubCtech is registered a approved by Luftfahrtbundesamt (LBA) for air-cargo. on request. We are pleased to advise you.		ss 9. SubCtech is registered as a vendor of batteries and bundesamt (LBA) for air-cargo. Transportation test UN T38.3. ased to advise you.



Data logger installed into ROV frame with a number of sensors for condition and environmental monitoring. A special power supply converts e.g. 300Vdc to the required 12V dc or 24V dc.



Power logger with internal Li-Ion battery. An underwater LED signal light is used to check operational states with ROV support.

ISO 9001

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ISO 9001

	Housing and Note: specification dependir	Environ. Specification	
Housing	Titanium housing • Corrosion free • Shallow-water POM housings available		
Size	Ø168mm Ø180mm Logger without battery: Battery 34Ah / 490Wh Battery 70Ah / 1010Wh Battery 140Ah / 2020Wh Battery 280Ah / 4040Wh <i>Option: other configurations and</i>	Shallow water 300m Deep sea 1000m to 6000m 220mm, 7kg (2kg in sea water) 270mm, 9kg (3kg in sea water) 350mm, 12kg (5kg in sea water) 470mm, 19kg (8kg in sea water) 750mm, 31kg (14kg in sea water) Note: all weights for shallow water housings. customizing on request.	
Connector	SubConn [®] micro connectors MCBH-5 titanium • BH-8/12/16 for high currents Option: special or additional connectors on request		
Operational depth	th 300m shallow water (Ø168mm) • 1000m up to 6000m (Ø180mm)		
Signal lights	2 LEDs display operating mode, status etc. The high-bright LEDs are visible under water to check the deployment stats.		
Battery	Option: external or internal Li-Ion rechargeable battery, see above		
Switch	Option: simple manual or ROV magnetic switch for power on/off during shipping		
Monitor	Removable external Display-Box with 7" Touch-Screen		
Holder	Option: clamps and holders for installation support or ROV usage		



External Display-Box with 7" Touch-Display may connected for setup, calibration and diagnostic. For data download or firmware upgrades the USB port can be used.



PowerLogger™ with Li-Ion battery for shallow water 300m. A number of sensor inputs and the control light are installed. Internal signal lights and connectors make setup and testing easy.

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