



# DiveNET: Commander-A (Advanced)

## Ultra-Short Base Line (USBL) Underwater Acoustic Positioning System



Highly compact, multi-role solution for surface tracking and underwater navigation of individual or multiple carriers at short to long ranges.



- Surface tracking of up to 16 transponders
- Autonomous operation in relative bearings
- Integrated with surface GPS for absolute coordinates
- Transponder telemetry relay

$R_{max} = 3,000 \text{ m}$

### Commander Transponder (COMT):

- Standalone operation with own power supply
- Integrated operation with carrier system
- Independent ranging, depth and temperature
- Telemetry relay to base station
- Underwater navigation with range and direction to base station

### Master Transceiver (MAST):

- Effective long range communication
- Independent ranging and direction to transponders
- Transmission of direction angle to the transponders
- Interfacing with surface GPS for absolute coordinates and track recording

Max depth:  
300 m (standard)  
1,000 m (OEM)





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### Master Transceiver (MAST) USBL Base Station

Highly compact Ultra-Short Base Line (USBL) base station antenna providing communication with multiple subsea transponders. Operates in Relative Bearing mode in autonomous operation or in Absolute Coordinates mode with track recording when interfaced with a surface GPS and compass.



#### Specifications:

PARAMETER	VALUE
DIMENSIONS ( $\Phi$ x h)	64 x 128 mm
WEIGHT (dry)	0.44 kg
DEPTH RATING	40 m
DEPTH PRECISION	0.1 m
MAX. OPERATING RANGE	3000 m
VERTICAL WORKING ANGLE (cone, from the horizontal)	0 - 85°
HORIZONTAL PRECISION (typical)	1°
SLANT RANGE RESOLUTION	0.15 m
MAX BUILT-IN TILT COMPENSATION	+/- 30°
BATTERY LIFE (typical)	8 hrs
FREQUENCY BAND	10 .. 30 kHz
BIT ERROR RATE	10 <sup>-6</sup>
SNR	-3 dB
MAX RELATIVE VELOCITY	+/- 2 m/s
RATED STARTUP TIME	100 msec
WORKING TEMPERATURE RANGE	-5 .. 50 °C
INTERFACE	USB (COM) 9600 bit/s
INTERFACING PROTOCOL	NMEA0183 PAZM
CABLE LENGTH	10 m
MAX NUMBER OF TRANSPONDERS	16



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### Commander Transponder 300 (COMT300)

Highly compact subsea transponder providing range data to the DiveNET: Commander base station as well as range and signal direction to the transponder carrier when integrated.



#### Specifications:

PARAMETER	VALUE
DIMENSIONS (Φ x h)	64 x 62 mm
WEIGHT (dry)	0.3 kg
DEPTH RATING	300 m
DEPTH PRECISION	0.1 m
MAX. OPERATING RANGE	3000 m
ACOUSTIC SOURCE LEVEL	170 dB re 1 uPa at 1m
POWER INPUT VOLTAGE	12 V
DATA LINE VOLTAGE	3.3 V
FREQUENCY BAND	10 .. 30 kHz
BATTERY LIFE W STANDARD PACK (typical)	8 hrs
BIT ERROR RATE	10 <sup>-6</sup>
SNR	-3 dB
MAX RELATIVE VELOCITY	+/- 2 m/s
RATED STARTUP TIME	100 msec
WORKING TEMPERATURE RANGE	-5 .. 50 °C
INTERFACE	USB (COM) 9600 bit/s
INTERFACING PROTOCOL	NMEA0183 PAZM
CABLE LENGTH	1 m
MAX NUMBER OF TRANSPONDERS	16

## DiveNET: Commander-A

### Surface Power and Interfacing Unit (SPIU)

Topside deck box with onboard power, external power option, and interfacing connectors for a surface GPS unit and system operator station (PC).



Specifications:

PARAMETER	VALUE
DIMENSIONS (Φ x h)	110 x 20 x 210 mm
WEIGHT (dry)	2.5 kg
WORKING TEMPERATURE RANGE	-10 .. 50 °C
BATTERY CAPACITY	40 W*h
BATTERY TYPE	LiFePO4
ACOUSTIC SOURCE LEVEL	170 dB re 1 uPa at 1m
EXTERNAL POWER SUPPLY VOLTAGE	12 V
LOW BATTERY WARNING	YES
CONNECTORS	USB-B (1 or 2)
	RS-422 FULL (1)
	RS-422 TX ONLY (2)
	EXTERNAL POWER
	CHARGER
PROTECTION CLASS STANDARD	IP67