Seacraft Special Submersibles





Contents

special for specials.								4
Series of unique feature	es							5
Magnetic propulsion								7
Zero torque								9
Control screen								11
Working efficiency .								13
Power management								15
Power outlet								17
TAC1000 DPV								21
TAC2000 DPV								23
Seacraft Dual DPV plat	forr	ns						27
Dual TAC1000 platform	۱.							29
Dual TAC2000 platform	า.							31
Power Converter .								35
Seacraft Light System								37
Batteries								38
Chargers								40
Transport cases								42
Coupling platforms .								43
Transport brackets .								46
Coupling connectors								47
Other accessories .								48
ENC3M navigation syst	em							57
Modular construction								59
ENC3M navigation plat	forr	n						61
DPC – Diver Propulsion	n Cra	aft						67
Norms, certifications a	nd c	qual	ity d	cont	rol			69
Customized military or	ders	5.						71



Special for Specials Newest technological solutions

SEACRAFT submersibles

are designed to put cutting-edge technology into simple, robust, and lightweight devices. Based on long development and testing in the most hostile natural environments – underwater caves, flooded mines, freezing water, and great depths – we created a revolutionary propulsion concept. **Extreme power, high comfort, and intuitive operation** were enhanced by features and solutions crucial to gaining an advantage in modern warfare. This is how **SEACRAFT**'s military line was born and developed in cooperation with the best special forces operators in the world.

Our products are designed to be **lighter, faster and simpler** than everything existing on the market. Combining intuitive driving with simple service protocols and long no-maintenance intervals, we minimize the amount of training required and operational cost.

To fully discover our full special offer, and its advantages – we kindly invite you to further reading.

Series of unique features

- Engine working in full water immersion
- Magnetic propulsion
- Extremely silent work
- Zero-torque (post swirl stator)
- Built-in control screen
- Custom-designed electronics
- External hermetic charging socket
- 12 V Power outlet
- Asymmetric and sealed battery





Engine working in full immersion

SEACRAFT created the first submersible in the world, in which the motor runs directly in the water. A specially designed and patented solution allows for **complete elimination of the drive shaft** and the need for unreliable seals and gear transmission used in other DPVs. The motor working in the water is much more durable and resistant to workload and as it is directly water cooled, completely eliminates overheating inside the scooter.

Simple and robust solution solves major flaws of other scooters, providing:

Magnetic propulsion

• Silent and covert operation, due to elimination of transmission systems. BLAC engine steering removes also electromagnetic noise.

Maximum power output without overheating, even for a long time.

• Long maintenance-free periods, easy and simple servicing.

No risk of flooding of the scooter's interior.

Extreme weight reduction, allowing to pack the power of an "old construction" 27 kg scooter, into a 16 kg ready-to-dive unit.



ZERO

0

Post-swirl stator

The torque effect is a natural consequence of the propeller's rotating action, which causes the water stream to swirl, and creates a turning force on the scooter handle thus increasing diver's fatigue.

Inspired by jet engine constructions, SEACRAFT developed a post-swirl stator system, which interacts with the propeller slipstream, changing its swirl to net thrust. This allows to completely eliminate the torque effect, and simultaneously increase the propulsion system efficiency, due to recovering usually lost water swirl rotation force.









Current gear indicates used power level. There are gears 1-9, gear "+" which is a booster gear and "R–" reverse.

Battery charge level allows for precise mission planning and control of remaining battery time.

Remaining run time and trigger time are displayed on the screen, based on current used gear and load.

Power outlet status icon indicates the current power set to be delivered by the external power outlet.

Control screen

TFT screen displays in covert red color all important information for the operator – current gear, battery charge level, remaining run time, and trigger time. With an installed power converter, it also displays the power intake and the voltage used by the connected device.

speed when needed.

Fast dimming – the operator can quickly dim, or turn off the screen to avoid detection.

Ergonomic double steering handle with two triggers allows driving the scooter with one, or both hands. Pre-defined "double tap" functionalities provide instant acceleration to the maximum

One-handed control allows to fully control **SEACRAFT** scooters with one hand – including changing speed, and activating the engine.





All elements of the drive system – engine, propeller, propelling nozzle, and post-swirl stator – were precisely designed taking into account speed and load parameters divers encounter under the water. The three-phase motor (currently the only one on the market) is controlled with a BLAC algorithm, minimizing the energy consumption. **SEACRAFT** devices have exceptional work efficiency and consume even up to **half the energy** required for propulsion as competing devices.

SEACRAFT'S DPC is one of the first submersibles with a fully modeled hydrodynamic shielding, designed for the diver. It dramatically reduces a diver's drag, and water resistance, allowing for a very long range with high speed.

Working efficiency





Power management

External hermetic charging socket allows for quick recharging of the scooter, without the need to open the unit. It is waterproof to 150 m, even without the charging port cap.

Battery construction is based on hard-welded cells, with asymmetric weight distribution. This results in a 'handles-up' position underwater, which provides easier and more intuitive operation. The battery is sealed and thus protected from damages due to water contact. It can be easily replaced with a new one or charged outside of the scooter.

SEACRAFT DPVs use the latest generation of lithium-ion batteries, characterized by very high capacity, high efficiency, resistance to harsh environments, and short charging times. The integrated battery control system provides constant multi-level protection and cell balancing. For special applications, optional Ni-Mh batteries may be installed.

Fast recharging means, that the standard battery will be recharged fully within 2-3 hours.

helicopter drop handling.

Trimming system provides neutral buoyancy in all water salinities. It can be also configured to have a negative, or positive buoyant scooter. In addition, an optional external trimming system allows for easy





Power outlet

With an installed **power converter**, **SEACRAFT DPVs** may power external devices from their own battery. Power activation and voltage choice are possible via the DPV's steering panel – in 5 steps, with a maximum of **12 V provided**. This allows for smooth control of the diver's personal **heating systems** in cold water and during long missions.

This feature is also used to connect external sonar scanning and navigation systems, which have a high energy usage, allowing for long operations **without additional battery packs**.

In case of search or patrol night missions, it is also possible to connect a dedicated **lighting system** – **SEACRAFT SLS2**.



Divers team using TAC1000 with ENC3M navigation platform, and TAC2000





Sec. 6

Is an extremely lightweight and powerful unit. Weighting just 15,75 kg, it is widely used where mobility and speed of reaction are crucial. Despite the very compact size, its range and speed are superior to most other, bigger scooters.

FM1742
FM_1742
FM1770
UM1720



SEACRAFT TAC1000 DPV – complete set

TAC1000 DPV

Accessories and spare parts set for TAC Ø160

Aluminium transport box with dedicated insert foam for TAC DPVs





dual-scooter platform.

GM1744	
GM_1744	
GM1770	

UM1720

TAC2000 DPV

Is the most powerful and long lasting scooter in its class. With over 11 h runtime and a range of over 30 km, it is a tool for most demanding operations. Designed to withstand depths 300 m, it can be easily transported outside of bigger submersibles and weighing still only 22,75 kg does not create any problem to be carried by a single person. The perfect working base for SEACRAFT modular

SEACRAFT TAC2000 DPV – complete set

TAC2000 DPV

Accessories and spare parts set for TAC Ø208

Aluminium transport box with dedicated insert foam for TAC DPVs



Diver using TAC1000 with assembled ENC3M navigation console and rigid mast with GPS module.

MODEL

MOTOR Working time at op Working time at m Range* Range at maximur Maximum static th Top speed*** BATTERY Battery Li-Ion capa Nominal battery vo Maximum battery Minimum battery Charger operating Average time of ch Average time of ch DIMENSIONS Dimensions in mi Housing diameter Weight without ba Weight with batte **

TAC1000	TAC2000
>350 min.	>700 min.
>95 min.	>220 min.
>15,7 km	>31,5 km
>7 km	>14 km
>350 N	>350 N
>1,6 m/s	>1,6 m/s
1000 Wh	2000 Wh
32,4 V	32,4 V
37,8 V	37,8 V
26 V	26 V
400 W	400 or 900 W
3 h	6 or 3 h
4 h	7 or 3,5 h
845 × 360 × 410	800 × 360 × 410
160 mm	208 mm
10 kg	12 kg
15,75 kg	22,75 kg
	TAC1000 >350 min. >95 min. >95 min. >15,7 km >7 km >350 N >350 N >1,6 m/s 1000 Wh 32,4 V 37,8 V 26 V 400 W 3 h 4 h 845 × 360 × 410 160 mm 10 kg 15,75 kg

Applicable in terms of a diver in standard chestmount oxygen rebreather, in a dry suit, in fresh water. Range tested for optimal speed.

Applicable for the diver in test configuration*, and gear 9. DPV automatically decreases maximum available power to gear 7, when the battery reaches 20 % of charge. For the exact speed profile, ask the manufacturer.

*** Top speed is acheived in lighweight configuration, using a special booster gear '+'





Dual DPV platforms are used, where a higher pulling force and cargo-transport capabilities are required. **SEACRAFT** coupling system allows to connect two regular DPV into transport platforms. The central connecting platform has water-trimmable innovative buoyancy compensation chambers, allowing one to assemble a navigation system, and specialistic equipment, or simply load it with dry bags.

A straightforward and quick coupling system allows splitting it into two fully independent scooters in a few seconds.

SEACRAFT Dual DPV platforms



SEACRAFT Dual TAC1000 with a wide platform is usually used where high mobility and big pulling capacities are needed over shorter distances, with a capability of cargo equipment transportation.

TFM1_1742	Du
FM1742	TAC
TFM1800	DP∨
FM1755	Balla
UM1793	Tow
UM1770	Univ

Dual TAC1000 with narrow platform, SLS2 and ENC3M with folded GPS mast.

Dual TAC1000 platform

al TAC1000 platform – wide coupling system

1000 DPV – 2 pieces

/s Ø160 coupling set with wide platform

ast belt Ø160 – 2 pieces

bar – 2 pieces

/ersal spare parts set for TAC – 2 pieces



SEACRAFT Dual TAC2000 with a wide platform built on is the most often chosen set for heavy loads transport on the extended distance, or big team transport with simultaneous use of navigation systems.

TGM1744	Du
GM1744	TAC
TGM1800	DP
GM1756	Ba
UM1793	Tov
UM1770	Un

Dual TAC2000 with wide platform and ENC3M platform

Dual TAC2000 platform

ual TAC2000 platform – wide coupling system

C2000 DPV – 2 pieces

Vs Ø208 coupling set with wide platform

ast belt Ø208 – 2 pieces

v bar – 2 pieces

iversal spare parts set for TAC – 2 pieces



MODEL

Working time at c
Working time at r
Range*
Range at maximu
Maximum static t
Top speed***
BATTERY
Battery Li-Ion cap
Nominal battery
Maximum battery
Maximum battery Minimum battery
Maximum battery Minimum battery Charger operating
Maximum battery Minimum battery Charger operating Average time of c
Maximum battery Minimum battery Charger operating Average time of c Average time of c

		IOMI_1/44
otimal speed (45 m/min.)*	>490 min.	>980 min.
aximum speed (gear 9)*	>95 min.	>220 min.
	>22,1 km	>44,1 km
n speed**	>9,1 km	>18,2 km
rust	>700 N	>700 N
	>2,0 m/s	>2,0 m/s
ncity	2 × 1000 Wh	2 × 2000 Wh
oltage	32,4 V	32,4 V
voltage (after charging)	37,8 V	37,8 V
voltage (after discharging)	26 V	26 V
voltage (230 V, 50 Hz)	400 W	400 or 900 W
arging 90 %	3 h	6 or 3 h
arging 100 %	4 h	7 or 3,5 h

TEN41 17/3

TCM1 17//

Applicable in terms of a diver in standard chestmount oxygen rebreather, in a dry suit, in fresh water. Range tested for optimal speed.

** Applicable for the diver in test configuration*, and gear 9. DPV automatically decreases maximum available power to gear 7, when the battery reaches 20 % of charge. For the exact speed profile, ask the manufacturer.

*** Top speed is acheived in lighweight configuration, using a special booster gear '+'





SEACRAFT TAC DPVs are eqiped with power converter that all to use them as a big battery pack for powering external devices. Via a dedicated E/O power output cable (single or twin), the user may connect personal heating systems, lighting or other external 12 V devices.

The power converter and the external charging socket are some of the **unique SEACRAFT scooters features** providing additional use for different mission types and multiple options to connect external devices.





Power Converter

UM1093

E/O output – single cable adapter (70 cm)

UM1010

E/O output – twin cable adapter (2 x 70 cm)



SEACRAFT Light System



UM1798

SEACRAFT Light System SLS2

SLS2	
Light output:	2 × 3600 lumens
Power	2 × 30 W
Beam angle	14°
Colour temperature	5700 K
LED type	2 × XHP70.2
Power supply	DC stabilized 12 V / 2.5 A via DPV's power converter and external E/O power outlet
Thermal protection	Yes
ON/OFF control	Individual, with a magnetic slide switch
Brightness adjustment	Via the buttons on the DPV display
Working time	Depending on the battery capacity. As an example: Minimum 15 h at 100 % power with a fully charged SEACRAFT 1000 Wh battery (when the DPV engine is not running)



Batteries



FM1746

Battery 1000 Wh nominal voltage: 37,5 V; nominal capacity: 1000 Wh; weight: 5,5 kg



GM1748

Battery 2000 Wh nominal voltage: 37,5 V; nominal capacity: 2000 Wh; weight: 10,5 kg

UM1700

Modular air-travel friendly battery 582 Wh

UM1701

Modular air-travel friendly battery 780 Wh

UM1810

97 Wh segment of modular air-travel friendly battery



Chargers





Charger 400 W – hermetic charging port connector



UM1756

Charger 900 W – hermetic charging port connector





Direct battery charging connector for TAC1000 and TAC2000 scooters (hermetic plug)

UM1755

In

USB charging outlet $(2 \times 5 V)$ – from scooter's hermetic charging port.





Transport cases



Allows for connecting two independent scooters together, in order to create a dual-scooter platform

UM1720

Aluminium transport box with dedicated insert foam for TAC DPVs

Coupling platforms

TUM1000

DPV coupling platform – wide

TUM1100

DPV coupling platform – narrow



Example of coupling set assembly, narrow platform and Ø208 brackets

TFM1800

DPVs Ø160 coupling

TGM1800

DPVs Ø208 coupling

TFM1500

DPVs Ø160 coupling

TGM1500

DPVs Ø208 coupling

Each coupling set contains the chosen platform (wide or narrow), 4 matching transport brackets and 5 coupling connectors sets (one as a spare).

et with wide platform
set with wide platform
set with narrow platform
set with narrow platform



Transport brackets



Transport bracket Ø160 mm

GM1758

Aluminium transport bracket Ø208 mm





Coupling connectors

FM1760

Multipurpose transport bracket Ø160 mm

TUM1758

Coupling connectors set – front and rear



Other accessories

UM1792

Scooter trigger's lock – 2 pieces Used for temporary locking scooter's trigger.

UM1793

Tow bar

Highly increases operator's comfort, by transferring scooter's pull on the body in optimal way.

UM1744

Diver towing harness – basic

UM1787

Tow indicator

UM1767

Universal ball mount, attached to transport bracket

UM1775

Trimming weight 65 g

UM1776

Trimming weight 200 g

UM1760

DPV tow cord 1,8 m with boltsnap and two tensioners



0

5

Other accessories

UM1761

Professional aluminium tensioners, 2 pieces

FM1763

Harness with a carabiner for the DPV nose Ø160 mm

GM1762

Harness with a carabiner for the DPV nose Ø208mm

UM1764

Service key





and the second s

FM1765

DPV stand Ø160 mm

GM1766

DPV stand Ø208 mm

FM 1755

Ballast belt Ø160 mm

GM 1756

Ballast belt Ø208 mm



Other accessories

	UM1783		10 pm
Ŷ	Cap nut		and the second s
			1 6 1
	UM1789		
	Post swirl stator		
	UM1782		
\sim	Marine propeller		
	UM1791		
\mathbf{i}	Charger socket cap – with radial o-ring		
		an the Martine and Anna and An	
			- //
			- /
			12

52



GM1788

Rotor

FM1762

Seals set for DPV Ø160 mm – 7 pieces

GM1763

Seals set for DPV Ø208 mm – 9 pieces

UM1765

Grease for seals 14 ml



Other accessories



Scooter's screen protective foil for TAC1000 | TAC2000 models

FM1770

Accessories and spare parts set for TAC Ø160 includes: Charger 400 W – hermetic charging port connector; Direct battery charging connector for TAC DPVs – hermetic plug; DPV tow cord 1,8 m with boltsnap and two tensioners; DPV trigger's lock; Modular tow-rope segment, dedicated for diver towing; Seals set for DPV Ø160 mm – 7 pieces; Grease for seals 50 ml; Drive system grease 5 ml; Rubber buttons for steering module – 4 pieces; DPV's screen protective foil; Trimming weight 65 g; Trimming weight 200 g; Service key; Transport case dedicated for spare parts

GM1770

Accessories and spare parts set for TAC Ø208 includes: Charger 400 W – hermetic charging port connector; Direct battery charging connector for TAC DPVs – hermetic plug; DPV tow cord 1,8 m with boltsnap and two tensioners; DPV trigger's lock; Modular tow-rope segment, dedicated for diver towing; Seals set for DPV Ø160 mm – 9 pieces; Grease for seals 50 ml; Drive system grease 5 ml; Rubber buttons for steering module – 4 pieces; DPV's screen protective foil; Trimming weight 65 g; Trimming weight 200 g; Service key; Transport case dedicated for spare parts

UM1770

Universal spare parts set for TAC includes: with buoyancy foam

DPV trigger's lock; Modular tow-rope segment, dedicated for diver towing; Cap nut; Marine propeller; Post-swirl stator



Diver using TAC2000 with assembled ENC3M on on navigation platform

ENC3M navigation system

SEACRAFT ENC3M is a user-friendly navigation system, working based on IMU and dead-reckoning principles. This results in a very compact, lightweight, and affordable navigation system, which often outperforms big traditional underwater navigation systems.

It can be used in various operation modes:

standalone, without any sensors – with **attached GPS module** – works perfectly for subsurface operation, or as simple dive parameters and navigation display for a diver;

with connected speed sensor, allows for **precise navigation** in full diving mode;

in a complete set with speed sensor and **GPS buoy** assembled on a dedicated support base (which allows assembling also backup measurement instruments). This system supports navigation in full diving mode while recalibrating the fixed position covertly (if required), in order to improve the approach precision.



Modular construction

The ENC3M is designed in a way, that supports the operator in fulfilling various mission types. Different GPS receivers may be connected to a standard device:







- Rigid mast optimized for the low hydrodynamic draft. It is used when stopping is not an option, or a constant position fix is needed (in rivers for example);
- **GPS type B** module receiver which can be installed directly on the console, with a 10 cm compact cable connection. The same module can be directly attached to the ENC3M with a 10 cm cable or used with a 3 m, or 10 m long cable and additional buoyancy floats. Cables can be easily switched with the same GPS module.



ENC3M navigation platform

Navigation platform ENC3M – is a complete set with speed sensor and GPS buoy assembled on a dedicated support base (which allows assembling also backup measurement instruments). This system supports navigation in full diving mode while recalibrating the fixed position covertly (if required), in order to improve the approach precision.

PEM1803	Navigati
EM1730	Electronic I
EM1760	Accessories
EM1750	ENC3M ma
EM1812	GPS set wit
EM1734	Transport o

tion platform ENC3M – complete set

Navigation Console ENC3M

and spare parts set for ENC with speed sensor type D

punting platform with adjustable arm and speed sensor type D

h buoy – type B (included 10m connecting cable)

case with dedicated insert foam for ENC3M navigation platform



ENC3M



9

EM1730

Electronic Navigation Console ENC3M

EM1760

Speed sensor type D

EM1731

Speed sensor type B

EM1812

GPS set with buoy – type B (included 10 m connecting cable)



EM1811

GPS set – type B (included 0,1 m connecting cable)

EM1735

ENC3M screen's protective foil

EM1736

Spare seals set for ENC3M – 2 pieces

EM1737

ENC3M charging port plug

EM1738

Charging cable for ENC3M



ENC3M





GPS module type B

EM1825

GPS float – type B to mount GPS receiver



DPC – Diver Propulsion Craft

DPC is a lightweight, fast, long-range, multi-use (surface and underwater) transport vehicle. To move faster underwater DPC has been designed with **fully hydrodynamic shielded hull**, made from lightweight composite materials. It can work both as a "small boat" – using an integrated inflation/emergency breathing system, as well as a fully submerged SDV (max. depth up to 80 m). DPC is reaching an underwater speed of 150 m/min. and can easily transport underwater six or even more combat divers or very large cargo transport containers.

Key features of DPC:

- Optimised for comfort and ergonomy with high-speed driving Great maneuverability both underwater, and on the surface
- Intuitive use
- Assembly and disassembly of components without tools
- Great mechanical resistance

- Safe battery voltages
- Highly amagnetic construction
- Low detectability, due to very silent operation
- Ability to work in any climate conditions
- Extremely efficient propulsion 48 km range with cruising speed for 1 diver

- Simple and robust modular construction
- Big thrust 1250N (127 kg), allowing to pull an entire divers team
- Lowest weight in this class 2×23 kg (thrusters) + 11 kg (hull)



Norms, certifications and quality control

We ensure highest industrial standards for design and production of all our products. All Secraft products are manufactured in accordance with **AQAP 2110:2016** (NATO Quality Assurance Requirements for Design, Development and Production), ISO 9001:2015, and PN-EN ISO 14001:2015.

SEACRAFT factory quality control runs rigorous testing on every manufactured product. Each manufactured scooter goes through:

pressure chamber test – 60 minutes on test depth

battery capacity test with 25 A load

functional tests in water pool, with thrust measurement and monitoring and real burntime on maximum power

electrical and electronic tests

internal quality control with machining and production quality

Signed test reports are stored for each individual unit.











SEACRAFT provides the possibility of designing and developing solutions tailored for specific military and combat units needs. Marine Tech SA – the manufacturer of SEACRAFT DPVs – has a military concession and can manufacture combat-dedicated equipment when cooperating with relevant local partners, which also possess a military equipment trade concession. In order to discuss tailored military orders – **contact us**.

Marine Tech SA NCAGE code is 99QRH.

Customized military orders



To discover the full **SEACRAFT** military offer, contact us: **www.seacraft.eu/military** military@seacraft.eu

