
SUBSEA SALES AND ENGINEERING PTE. LTD.

HIGH-POWER PROPULSION FOR ROVs, AUVs & MARINE ROBOTICS

SSAEPL X1080 Underwater Thruster

Product Brochure & Technical Datasheet

Engineered for reliability. Proven in the harshest subsea environments — offshore, defence, research and aquaculture.

Integrated Land, Air & Sea Technologies | enquiry@ssaep1.com



The X1080 at a Glance

The SSAEPL X1080 is a high-performance brushless electric propulsion system built for continuous-duty underwater operation. It delivers powerful, balanced thrust with precise speed control for ROVs, AUVs, USVs and custom marine robotics platforms.

46 kgf

Rated thrust

1.4 kW

Rated power

300 m

Operating depth

±5–10%

Fwd/rev balance



CORE VALUE

- Direct drive — no gearbox, no wear-prone transmission
- Continued operation in the event of shaft seal failure
- Ultra-low acoustic and EMI signature for sensitive payloads

Reliability by Design

Every subsystem is specified for uninterrupted duty in cold, high-pressure, high-salinity water — where recovery of a failed vehicle costs far more than the thruster itself.

FAIL-SAFE SEALING

Zero-leakage magnetic coupling with pressure compensation. Operation continues even if the shaft seal is breached.

DIRECT DRIVE

No gearbox, no belts. Fewer moving parts means fewer failure modes and a longer maintenance interval.

PROTECTED ELECTRONICS

Enhanced over-current and over-temperature protection with standardised PCB across the model range.

MARINE-GRADE BUILD

Stainless steel housing and propeller, corrosion-resistant hardware, proven in continuous offshore service.

Performance Highlights

THRUST & CONTROL

- Balanced bidirectional thrust — forward and reverse within a 5–10% band
- FOC vector dual closed-loop control for precise, stable speed regulation
- Smooth acceleration and highly responsive manoeuvrability
- Supports accurate station-keeping and dynamic positioning
- Improved thruster response under rapidly changing load



EFFICIENCY & ENDURANCE

- PMSM permanent magnet direct drive maximises electrical-to-thrust efficiency
- High propulsion efficiency extends vehicle endurance on a given battery
- Optimised propeller and nozzle geometry reduce energy loss in strong currents
- Maintains high thrust while lowering total power draw

Key Features

Propulsion

- High-thrust brushless PMSM motor
- Direct drive — no gearbox
- Optimised ducted propeller
- Balanced forward / reverse thrust
- Continuous-duty rating

Construction

- Marine-grade corrosion-resistant housing
- Pressure-compensated sealing
- Compact, lightweight envelope
- Left- or right-handed rotation
- Stainless propeller and housing

Electronics

- Built-in driver electronics
- Over-current & over-temperature protection
- RS485 / CAN serial control
- Speed, current, temperature feedback
- Multiple connector options

Technical Specifications

PARAMETER	SPECIFICATION	PARAMETER	SPECIFICATION
Rated power	1.4 kW	Weight in air	5.2 kg
Rated thrust	46 kgf	Weight in water	3.2 kg
Rated speed	3,700 rpm	Dimensions	Ø242 × 352 mm
Rated voltage	340 VDC (300 / 600 VDC options)	Housing / propeller	Stainless steel
Motor type	Brushless PMSM, direct drive	Nozzle	Black composite
Sealing	Zero-leakage magnetic coupling	Control mode	CAN / RS485
Operating depth	300 m standard	Signal power supply	24 VDC
Propeller diameter	144 mm (5.7 in)	Connector	MCBH8M / MCBH8MB

Figures represent a typical X1080 configuration. Thrust, voltage, power rating, depth and communication interface are configurable to the selected model and project requirements.

Environmental & Mechanical Data

PARAMETER	SPECIFICATION
Operating temperature	-5 °C to +40 °C
Storage temperature	-40 °C to +70 °C
Rotation direction	Left-handed / right-handed
Driver	Built-in, potted electronics
Pressure compensation	Integrated, oil-filled
Duty cycle	Continuous
Maximum bollard thrust	26 kgf (57 lbf) – light work class variant
Nominal motor supply	300 VDC & 600 VDC @ 1.25 kW

Built for the Harsh End

- Designed for harsh offshore and subsea environments
- Long service life with minimal scheduled maintenance
- Low acoustic signature protects sonar and survey payloads
- Field-serviceable with standard spares support

Alternative ratings reflect selectable X1080 variants; confirm the target configuration at order.

Control & System Integration

01

CONTROL INTERFACE

RS485 serial control as standard across all models, with CAN bus available. Multiple connector options to match existing vehicle harnesses.

02

TELEMETRY

Speed, current, temperature and direction feedback returned over serial comms for health monitoring and predictive maintenance.

03

PROTECTION LOGIC

Enhanced over-current and over-temperature protection acts locally, protecting the vehicle even during comms loss.

04

DROP-IN INTEGRATION

Standardised PCB and mounting geometry allow integration into new builds or retrofit onto existing ROV and AUV platforms.

Applications & Industries

PLATFORMS

- Observation and light work-class ROVs
- Autonomous Underwater Vehicles (AUVs)
- Unmanned Surface Vessels (USVs)
- Underwater inspection systems
- Marine research and survey platforms
- Aquaculture robotics



SECTORS SERVED

Offshore Oil & Gas

Offshore Wind

Defence & Naval

Marine Construction

Ports & Harbours

Research & Academia

Why Choose the X1080

A propulsion decision is a mission-availability decision. The X1080 is specified to keep vehicles working when conditions turn against them.

Mission availability

Redundant sealing and protection logic reduce unplanned recovery and downtime.

Performance in current

Maximises vehicle capability and holds position in strong tidal flow.

Lower energy cost

High efficiency cuts consumption while sustaining rated thrust.

Fast integration

Standard serial control and connector options simplify new builds and retrofits.

Low lifecycle cost

Direct drive and long service intervals reduce maintenance spend.

Backed locally

Regional engineering, spares and 24/7 technical support across Southeast Asia.

About Subsea Sales and Engineering

A technology and engineering solutions provider delivering integrated systems across the marine, land and air domains — with world-class partners and full lifecycle support.

MARINE PROPULSION RANGE

- Underwater thrusters
- ROV & AUV components
- Subsea cable assemblies
- Sonar systems
- Autonomous underwater tech

SERVICES

- Engineering & system integration
- Installation & commissioning
- Operations & maintenance
- Technical training
- Spare parts management
- Project management

SUPPORT COMMITMENT

- Complete turnkey project delivery
- Experienced engineering team
- Comprehensive after-sales service
- Regional Southeast Asia coverage
- 24/7 technical support

READY TO SPECIFY

Reliable thrust, mission after mission.

Tell us your vehicle, depth rating and control architecture — we will configure the X1080 to match and support it through its full service life.

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