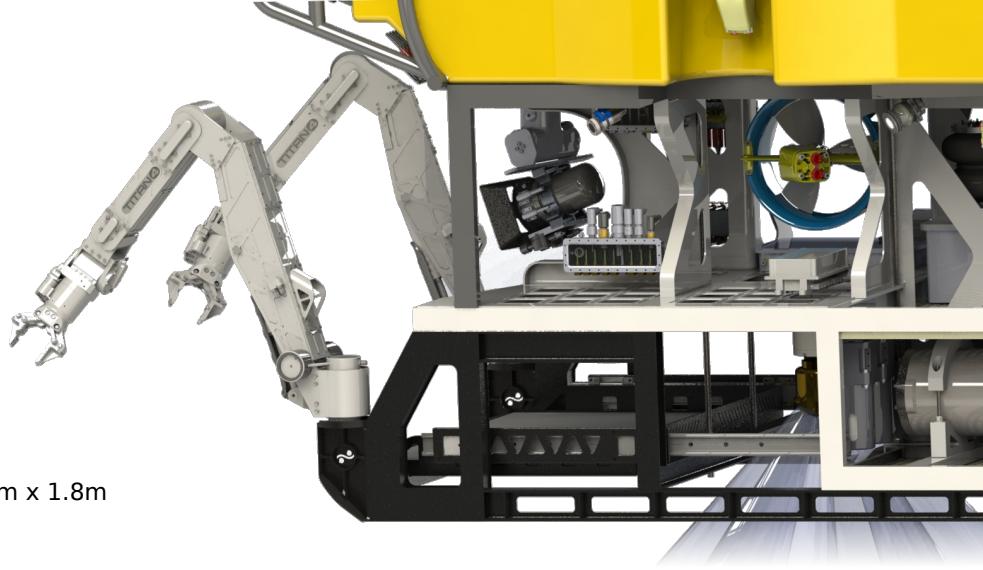


# Schmidt Ocean Institute S5K Vehicle Specification

v1.3 PRELIMINARY 01/26/16



## Mechanical specifications

Maximum operating depth	4500m
Overall dimensions	2.7m x 1.8m x 1.8m
Maximum transit speed	3 knots
Vehicle weight in air	3200kg
Payload weight in air	100kg

## Electrical requirements

Topside PDU	370/390/410V three-phase 50/60Hz, ~90A typical
Support van	240/390/480V single-phase 50/60Hz, ~30A typical

## Control system

Operator interface	Greensea Systems Balefire
Control modes	Conventional open-loop thrust or closed-loop position/velocity
Logging facility	All navigation and core science sensors logged via. black box
Still image capture	Situational and science cameras, with annotation queue facility
Video recording	Situational and science cameras, plus four auxiliary cameras

## Hydraulic system

HPU	45hp motor with 100cc pump
Manipulators	2 x Schilling Titan 4 (T4)
Thrusters	5 x SubAtlantic, orthogonal
Thruster valve pack	6ch proportional, 60Lpm
Tooling valve pack	8ch proportional, 15Lpm
Science valve pack	8ch proportional, 15Lpm

## Sonar

Scanning sonar	Tritech Super SeaKing DST
Imaging sonar	Teledyne BlueView M900

## Lighting

Spot lighting	4 x CathX APHOS 16, 28,000lm
Strobe lighting	2 x CathX APHOS 32, 100,000lm
Flood lighting	10 x DSPL SeaSphere, 8,500lm
Local lighting	6 x DSPL SeaSphere, 6,000lm

## Imaging

Situational camera	SULIS H100
- video standard	4K UHD 2160p
- still image resolution	12 megapixels
- actuator facility	Vertical tilt only

## Science camera

- video standard	SULIS Z70
- still image resolution	4K UHD 2160p
- actuator facility	20 megapixels
- zoom facility	Pan / tilt / extend
- scaling lasers	12X optical zoom
	10cm spacing

## Auxiliary cameras

- port side peripheral cam	DSPL MSC (HD)
- stbd side peripheral cam	DSPL MSC (HD)
- umbilical monitor cam	DSPL MSC (HD)
- rear view cam (wide fov)	DSPL MSC (HD)
- manipulator arm cam	T4 wrist cam (HD)
- tooling/payload cam 1	DSPL NSC (SD)
- tooling/payload cam 2	DSPL NSC (SD)
- tooling/payload cam 3	DSPL NSC (SD)

## Navigation sensors

MRU	Sondyne Lodestar
INS	Sondyne SPRINT
DVL	Sondyne Syrinx
USBL	Sondyne WMT 6G
Depth	Sondyne strain gauge

## Core science sensors

Temperature	PT100-based High-T probe
Depth	Paroscientific DigiQuartz
CTD	SeaBird FastCAT SBE49
O2	Aandera O2 optode 4831

## Physical sampling

Water sampler	Niskin bottles, ? x ?L samples
Suction sampler	MBARI design, ? x ?L samples
Core tubes	MBARI design, ? x ?L samples
Biological collection	Insulated and sealed bio-box

## Available interfaces

AC power	230V AC up to 2400W (other voltages via. transformers)
DC power	24V DC up to 350W (other voltages via. DC converters)
Serial ports	8 ports, RS-232 / RS-485
Ethernet (10/100)	2 ports via. science junction box
Ethernet (Gigabit)	3 ports via. dedicated connectors
Fiber optics	2 available single-mode dark fiber

