

robotic
intervention
engineering

Seaeye Falcon 12118 ROV

Technical Specification



Equipment

SEAEYE FALCON 1287 ROV	
Manufacturer	Seaeeye
Length	1.00 Metres
Width	0.60 Metres
Height	0.50 Metres
Weight	50 Kgs or 62 Kg with additional Buoyancy
UMBILICAL WINCH	
Manufacturer	Seaeeye
Length	1.00 Metres
Width	0.75 Metres
Height	0.75 Metres
Weight	100 Kgs
CONTROL VAN	
Manufacturer	
Length	4.60 Metres
Width	2.45 Metres
Height	2.45 Metres
Weight	3,000 Kgs
SYSTEM POWER REQUIREMENTS	
Supply Rating	220 Vac @ 60Hz – 1 Phase
Minimum Generator Size	15 Kva

Standard Falcon features include

- 300m (1.000ft) depth rating, 16Kg (35 lbs) payload
- Max 450m umbilical length upgradeable to 1100m length with F2 Fibre Optic Pack upgrade
- Magnetically coupled brushless DC thrusters with velocity feedback – 4 vectored and 1 vertical
- 50kgf (110lbs) of thrust with 1:1 power to weight ratio
- Distributed intelligence control system
- High resolution colour camera on 180° tilt platform
- Variable intensity 150 Watts of lighting
- Auto heading and depth with auto altitude option
- Single phase 100-270 Vac universal auto sensing power input at 2.8kW

Propulsion

Brushless DC thrusters have been used on all Seaeeye ROVs since 1987 when the company first introduced this technology to the offshore oil and gas industry. These thrusters have drive electronics with velocity feedback for precise and rapid thrust control. A fast PID control system and a solid-state rate gyro for enhanced azimuth stability also prevent overshoot on a change of heading making this vehicle so easy to fly.

The Falcon MCT01 thrusters are magnetically coupled and run cool without oil. Having no moving shaft seals they are extremely low maintenance, reliable and ideal for use in sensitive areas such as fisheries and on reefs.

Thruster Configuration

4 Vectored Horizontal Thrusters and
1 Vertical Thruster

The open frame and clutter free layout between decks in the Falcon provides the clearest water flow to 4 horizontal vectored thrusters positioned for optimum thrust and control in all directions and superior station keeping in strong cross currents.



Camera System

A high resolution fixed focus colour camera is fitted to a camera platform that can be tilted ± 90 degrees. An additional switched camera can be added. The F2 Fibre Optic Pack in Falcon DR which is optional in standard Falcons, provides 3 simultaneous video channels. Panning the camera is achieved by turning the vehicle which it can do within its own length.

Standard Camera Specification

Camera Resolution 480 TVL
 Min. Scene Illumination 0.2 LUX (F1.4)
 Pick Up Device 1/2" CCD Image Sensor
 Lens 1/2" Aspherical 3.8mm lens, wide angle fixed focus
 Horizontal Field of View 91°
 Tilt $\pm 90^\circ$

Lighting

Two forward facing variable intensity 75 Watt Tungsten Halogen flood lights are fitted. An optional additional light can be added. The lights are powered at low voltage, to improve reliability and longevity. In the Falcon DR the



forward facing lights tilt with the camera for improved scene illumination. HID lights are offered as an option.

Navigation System & Auto Functions

All navigation sensors and aids are housed in a single hardened aluminium pod. Auto depth and heading are standard fit with auto altitude offered as an option. A pitch and roll sensor is included and may be selected for display on the video overlay.

Nav Specifications

Compass Accuracy $\pm 0.5^\circ$
 Depth Sensor Accuracy $\pm 0.5\%$ of FSD
 Gyro 0.1 $^\circ/s$
 Surface Update Rate < 40 mS
 Optional Auto Altitude

SURFACE EQUIPMENT

Input Power Requirements:

Single phase universal auto sensing input, 100-270 VAC at 2.8 kW.

Falcon Surface Units

The Falcon's switch mode power supplies, control system, fold out 17 inch LCD monitor and keyboard are installed in a 19 inch rack transport case.

All connections to the surface unit are on the front panel for easy access including the hand controller with its 5 metre flying lead.

The power output from the surface unit to the umbilical is a galvanically isolated 500 VDC protected by a L.I.M.

An optional IP68 waterproof surface unit is available and is particularly popular with military users.

Vehicle Controls on the Hand Control Unit

The following vehicle controls are provided on the hand controller:

- Single 3 axis joystick for horizontal vehicle control
- Rotary trim controller for vertical thrust up or down
- Push button dive and surface control
- Thruster enable / disable and power setting
- Camera selection
- Rotary control for lights intensity
- Auto pilot function for both heading and depth
- Auxiliary vehicle controls (including manipulator open / close).



A video overlay system is incorporated as standard providing the following information to the pilot:

- Compass heading
- Depth
- Camera tilt position
- Auto pilot function status
- Umbilical turns counter
- Vehicle pitch and roll
- CP reading
- Date and time
- Free text using a QWERTY keyboard.

Umbilical Cable & Winch Options

A choice of neutrally buoyant or thinner, slightly heavy umbilical cable is offered. These light weight proprietary jacketed cables offer high abrasion resistance and incorporate a Vectran strength member. A choice of hand operated winches are available including a compact wheeled Pelican case housed winch that can accommodate a useful 295 metres of 11 mm diameter umbilical. Electric winches are available for the longest umbilical lengths. All have appropriate slip rings to suit the umbilical type.

F2 Fibre Optics

The F2 Fibre Optic Pack is standard fit to the Falcon DR and an optional upgrade for standard Falcons.

It provides the addition of a subsea and surface fibre optic multiplexer and a suitable umbilical for transmission of video and data over fibre optics between the surface and the vehicle.

The benefits of the F2 Fibre Optic Pack include:

- 14 mm low drag twin pass fibre optic umbilical
- Spare fibre optic pass
- 2 x RS 485 (1 spare) and 4 spare RS 232 bi-directional channels
- 3 Simultaneous video channels
- Ability to use broadcast quality video cameras
- Extended ROV excursions to 1600 m or more with custom umbilicals.



