

PRODUCT CATALOG
2013/2014

ROV

REMOTELY OPERATED VEHICLES

Powerful, Rugged, Reliable

The Teledyne Benthos line of ROVs incorporates some of the best features available in inspection class ROVs. Our current line of vehicles addresses a broad range of applications, options, and accessories.

The SeaROVER, our newest addition to the ROV product line, was designed with the payload centric approach — the ROV is built around the sensor! The SeaROVER Series can be expanded to accommodate different sensors and literally “flies” the sensor underwater.

The MiniROVER® is an extremely powerful, highly portable system with built in connectivity for many optional sensors, including imaging sonars. It was developed in response to customer requests for a portable but powerful ROV system. Over 500 of Benthos' MiniROVER series vehicles have been sold, making the MiniROVER one of our most popular ROVs.

Rounding out our ROV product line is the Stingray. The Stingray ROV has two built-in slide rails for easy installation of additional buoyancy, tools, cameras, lights, sensors, sonars or frames. The Stingray comes standard with three connectors for optional equipment and two camera connectors, giving the vehicle a high level of flexibility.

The SeaROVER, MiniROVER, and Stingray are Teledyne Benthos' solution to the ever-changing needs of inspection class ROV customers.



SeaROVER

MiniROVER

Stingray

INNOVATIVE UNDERSEA SYSTEMS TECHNOLOGY



**TELEDYNE
BENTHOS**
Everywhereyoulook™

MiniRover

MiniROVER®

Portable Inspection Class ROV

High Performance, Low Logistics Inspection

The MiniROVER Remotely Operated Vehicle is Teledyne Benthos' answer to our customers' request for a more portable and powerful ROV system. Over 500 Benthos MiniROVER series vehicles have been sold worldwide. The latest MiniROVER is an extremely robust, highly portable system. With its extreme thrust capability, the MiniROVER allows the user to extend the operational envelope of their ROV projects and explore areas never before possible. The MiniROVER is one man deployable and has built in connectivity for many optional sensors, including Teledyne BlueView sonars. This versatility allows the MiniROVER to be used for a wide array of applications.



▼ The MiniRover is unmatched in its ease of use in any environment.

Applications

- Port and harbor security tasks
- Ship hull inspections
- Dam and tunnel inspections
- Inspection of water tanks
- FPSO inspections
- Police evidence search and recovery operations
- Search and rescue (SAR) operations
- Under-ice surveys and operations
- Interior and exterior pipe inspections
- Inspection of nuclear reactor facilities
- Offshore structure surveys
- Salvage operations
- Real-time monitoring of marine construction operations
- Artificial reef monitoring operations
- Pipe and cable tracking

Standard Features

- Auto heading and depth
- 2 cameras in Lexan Tube – A High Resolution zoom color camera and a low-light level B & W camera
- 90 degrees up/ -90 degrees down camera tilt range
- 2 LED Arrays – fully dimmable – external to camera enclosure
- Heading and depth sensors
- Rugged frame constructed from Ultra-High Molecular Weight Polyethylene (UHMWPE)
- 3 powerful, reliable, magnetically coupled DC brushless thrusters (lateral thruster is optional)
- Lightweight and water resistant hand control box
- Built in I/O's (RS-232, RS-485)



▲ The MiniRover is easily deployed and recovered by one person.



▲ The compact dimensions of the MiniRover make it ideal for inspection tasks where limited access presents a problem with larger vehicles.

MiniRover

High-output MiniRover ROV System with Lateral Thruster Option Installed (12 Amp)

Part Number: 014412 (NTSC)

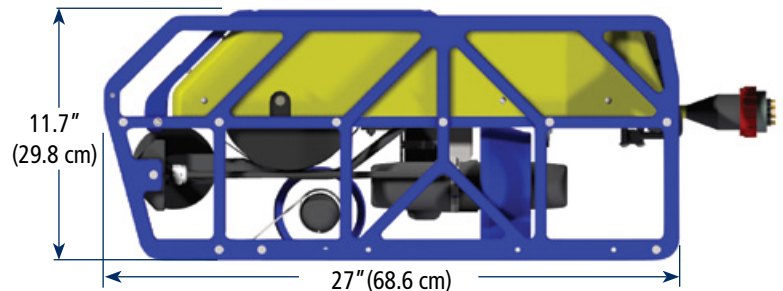
This system includes:

- ROV Vehicle
- Topside
- Handbox
- Handbox Cable
- Topside shipping case and ROV shipping case

Features of this system:

- Lightweight splash-proof hand box controller with 50' extension cable.
- High-resolution color zoom video camera: 470 Lines Resolution, 1.0 LUX Minimum Illumination, +90 degrees up / -90 degrees down Tilt, NTSC - Lexan housing also contains fixed focus black and white high resolution, low light level camera. - 600 lines, 0.003 lux - tilts with color zoom camera.
- Video Overlay with Depth, Heading, Date, Time, Cable Turns Indicator Displays.
- Two variable intensity LED light arrays.
- Two high output 1 HP rare earth, magnetically coupled brushless motors with stainless steel propellers (Max 40 lbs thrust each) for horizontal control, one 1/3 HP thruster for vertical and one 1/3 hp lateral thruster.
- Heading sensor, rate gyro, auto heading and auto depth features.
- Heavy duty rugged and reusable watertight shipping and storage cases.

Note: Specifications subject to change.



* Tether sold separately.

MiniRover

High-output MiniRover ROV System without Lateral Thruster Option Installed(12 Amp) Part Number: 013427 (NTSC)

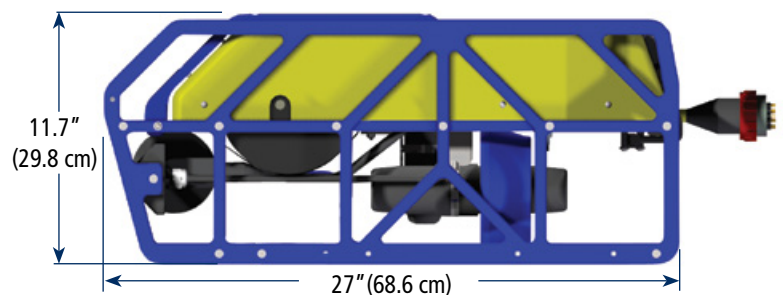
This system includes:

- ROV Vehicle
- Topside
- Handbox
- Handbox Cable
- Topside shipping case and ROV shipping case

Features of this system:

- Lightweight splash-proof hand box controller with 50' extension cable.
- High-resolution color zoom video camera: 470 Lines Resolution, 1.0 LUX Minimum Illumination, +90 degrees up / -90 degrees down Tilt, NTSC - Lexan housing also contains fixed focus black and white high resolution, low light level camera. - 600 lines, 0.003 lux - tilts with color zoom camera.
- Video Overlay with Depth, Heading, Date, Time, Cable Turns Indicator Displays.
- Two variable intensity LED light arrays.
- Two high output 1 HP rare earth, magnetically coupled brushless motors with stainless steel propellers (Max 40 lbs thrust each) for horizontal control, one 1/3 HP thruster for vertical.
- Heading sensor, rate gyro, auto heading and auto depth features.
- Heavy duty rugged and reusable watertight shipping and storage cases.

Note: Specifications subject to change.



* Tether sold separately.

MiniRover

Options

012200	17" Color Flat Panel LCD Multi-Input Display
014587	Color 0.1 LUX Low Light Fixed Focus camera with Universal Bracket and Shielded Cable (NTSC)
014588	B&W 600 Line 0.0003 LUX Very Low Light Fixed Focus Camera with Universal Bracket and Shielded Cable (NTSC)
014589	Color 0.1 LUX Low Light Fixed Focus camera with Universal Bracket and Shielded Cable (PAL)
014590	B&W 600 Line 0.0003 LUX Very Low Light Fixed Focus Camera with Universal Bracket and Shielded Cable (PAL)
D251-0580	2 Function Manipulator - Wrist Rotation and Open/Close
B251-0476-2	Dual Frequency Miniature Scanning Sonar System Option (675 kHz and 850 kHz)

Spares

Part Number: 014580 **TOPSIDE SPARES KIT**

Items included in kit	Part Number	Quantity	Description
	010781	1	Topside Power Supply +5VDC and +/- 12VDC
	B251-1313	1	GFI/Filter Board
	B251-1124	1	CPU Board with Programmed Compact Flash Card for Topside
	MRC-220	1	I/O Board

Part Number: 014581 **SUBSEA SPARES KIT**

Items included in kit	Part Number	Quantity	Description
	007458	1	Subsea Power Supply 12VDC DC-DC Converter
	009314	1	Subsea PC-104 Power Supply Board
	013173	1	DC-DC Power Converter, 150VDC to 24VDC 100W
	009875	1	Subsea Camera PCB
	B251-1125	1	CPU Board with Programmed Compact Flash Card for Subsea
	MRC-220	1	I/O Board

Part Number: 013167 **Handbox Spare Kit**

Items included in kit	Part Number	Quantity	Description
	009336	1	3-Axis Joystick
	009337	1	1-Axis Joystick
	010785	1	Handbox Cable
	010850	2	Switch Boot
	010849	2	Switch Boot
	010709	2	Switch Boot
	009406	2	Shaft Boot
	B251-0025	1	Test Kit

MiniRover

(Spares continued)

Part Number: A251-0048 Magnesium Anode

Part Number: 013169 Fuse kit - comprehensive set

	Part Number	Quantity	Description
Items included in kit	010771	20	7 Amp fuses
	0501-017	10	2 Amp fuses
	0600-103	10	1 Amp fuses
	010772	10	1.5 Amp fuses

Part Number: 013171 Lubricants kit

	Part Number	Quantity	Description
Items included in kit	003051	1	Dow Corning Low Temp Silicon grease
	001123	1	Super Lube Clear Silicon O-ring grease
	013129	1	Silicon Spray lube

Part Number: 012929 Spare 1HP Thruster - 40 lbs forward thrust - (RH) - Stainless propeller

Part Number: 012930 Spare 1HP Thruster - 40 lbs forward thrust (LH) - Stainless propeller

Part Number: 011034 Spare 1/3 HP Thruster - 18 lbs forward thrust - Stainless propeller

MiniRover Specifications

PERFORMANCE

Maneuverability:	3-axis translation
Horizontal speed:	4 knots on surface with minimal tether deployed
Operating depth:	300 m (984 ft) of seawater

PHYSICAL CHARACTERISTICS

Size:	29.8 cm (11.7 in) high 40.6 cm (16 in) wide 68.6 cm (27 in) long
Weight:	23.5 kg (51.8 lbs) for standard 2-horizontal thruster configuration, excluding ballast and installed options

THRUSTERS

Horizontal:	Two 1 HP magnetically coupled brushless DC motors
Forward static thrust:	18.1 kg (40 lb) per thruster
Reverse static thrust:	10.4 kg (23 lb) per thruster
Vertical:	One 1/3 HP magnetically coupled brushless DC motor
Upward static thrust:	8.2 kg (18 lb) per thruster
Downward static thrust:	4.1 kg (9 lb) per thruster
Lateral (optional):	One 1/3 HP magnetically coupled brushless DC motor
Port static thrust:	8.2 kg (18 lb) per thruster
Starboard static thrust:	4.1 kg (9 lb) per thruster
Propeller:	Stainless Steel
Nozzle:	Nylon Kort

VIEWING SYSTEM (Both cameras mounted in Lexan tube)

Camera 1:	High resolution color video - NTSC
Resolution:	470 lines
Sensitivity:	1.0 lux
Tilt mechanism:	180° for both cameras simultaneously
Camera 2:	High resolution B/W video - NTSC
Resolution:	600 lines
Sensitivity:	0.003 lux
Lights:	Variable intensity LED arrays - 1 Port & 1 Starboard – External to camera enclosure

OPTIONAL REAR FACING CAMERA

Camera Option A:	High resolution color video- NTSC
Resolution:	480 lines
Sensitivity:	0.01 lux

SENSORS

Pitch/Roll:	±20°, 0.2° resolution
Heading:	0–360°, 1° resolution
Depth:	±1° of operating depth

SURFACE CONTROL UNIT & VEHICLE POWER SUPPLY

Physical Characteristics

Size:	37.1 cm (14.6 in) high 56.2 cm (22.1 in) wide 56.0 cm (22.0 in) long
Weight:	41kg (90 lbs)

ELECTRICAL SPECIFICATIONS

Input Power Requirements:	100–130 VAC or 200–250 VAC, 47–63 Hz, auto-sensing - single phase, 3000 Watts - 5000 VA maximum, depending on installed options. Adjustable current limiting for use with small generators
Output Power to Vehicle:	150-300 VDC 12 Amps - isolated, regulated at vehicle

TETHER - DUAL COAX

Diameter:	1.65 cm (0.65 in)
Weight in Fresh Water:	Neutral
Weight in Air:	65 kg/305 m (143 lb/1000 ft) nominal
Breaking Strength:	900 kg (2000 lb) nominal
Peak Tension Load:	164 kg (360 lb) maximum
Minimum Bend Radius:	20 cm (8 in)
Construction:	Outer yellow foam polyurethane flotation jacket over Kevlar braid
Conductors:	(2) 75 ohm coax, (4) 16 AWG, and (2) 26 AWG twisted shielded pair
Maximum Length:	500 m (1640 ft)

(Specifications continued next page)

MiniRover

(Specifications continued)

CONTROLS AND INDICATORS

Front panel displays:	Hours
	Power supply voltage
	Power supply current
Front panel indicators:	Vehicle power
	12 VDC power
	Over temperature alarm
	Ground fault alarm
	Water leak alarm
	Communications loss alarm
	Audio alarm
	Power supply over voltage shutdown
	Power supply AC fault
Front panel controls:	System power switch
	Ground fault bypass switch
	Alarm silence switch
	Graphics overlay on/off switch
	Power supply on/off switches
Front panel fuses:	AC (2)
	12 VDC
Video overlay displays:	Depth, digital with analog bar graph
	Heading, compass rose
	Altitude, digital with bar graph (optional)
	Date in month, day and year
	Time in hours and seconds
	Cable turns, up to 99 turns
Input/output connections:	Ethernet (factory or advanced users only)
	GPS
	RS-232 / RS-485
	Video out A and B
	Handbox
	Tether
	Sonar
	Power supply
	Power source AC in

HANDBOX

The handbox connects to the surface control unit with the handbox extension cable and is used to control all of the MiniRover's functions. It is packaged in a rugged, cast aluminum housing with drop protectors and includes a comfortable padded neck strap.

Physical Characteristics

Size:	14.0 cm (5.5 in) high
	22.2 cm (8.8 in) wide
	15.9 cm (6.3 in) long
Weight	1.7 kg (3.7 lb)
Extension cable length:	15.2 m (50 ft)

HANDBOX CONTROLS AND INDICATORS

Indicators:	Vehicle power
	GFI/leak/temperature alarms
	Auto heading/depth/optional altitude
Controls:	Horizontal joystick (3-axis)
	Vertical joystick (1-axis)
	Vertical trim control
	Range trim control
	Vehicle power switch
	Tilt down/up switch
	Tilt return home button
	Camera select A/B switch
	Zoom in/out switch
	Focus auto/manual
	Lights/brightness switch
	Depth/altitude select switch
	Auto heading/depth/altitude button
Optional manipulator:	Manipulator functions – open/grip jaw, rotate wrist

Note: Specifications are subject to change.

MiniRover

Shipping Weights & Dimensions

	Dimensions	Weight
MiniROVER- in case	(in) 32 x 21 x 16 (cm) 81 x 53 x 42	75 lbs 34 kg
MiniROVER topside - in case	(in) 29 x 27 x 27 (cm) 74 x 69 x 69	150 lbs 68 kg
100 m tether (on a spool, no case - no slip ring)	(in) 21 x 16 x 21 (cm) 53 x 41 x 53	100 lbs 45 kg
120 m tether, reel in case with slip ring	(in) 33 x 21 x 28 (cm) 84 x 53 x 71	150 lbs 68
300 m tether (on wooden spool - no slip ring)	(in) 30 x 30 x 21 (cm) 76 x 76 x 53	180 lbs 82 kg
Tether and reel (300 m on Reel with slip ring/no pallet)	(in) 40 x 32 x 32 (cm) 102 x 81 x 81	275 lbs 125 kg
Tether and reel (300 m on Reel with slip ring/with pallet)	(in) 47 x 36 x 41 (cm) 119 x 91 x 104	300 lbs 136 kg



Terms & Conditions

Seller's Offer, and any order issued by Buyer to Seller for the goods and/or services specified herein, is strictly limited to Seller's Terms and Conditions of Sale, which can be found at www.benthos.com



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