SUPPORT SYSTEM (UR): TYPES OF SENSORS AND CHARACTERISTICS, ALTERNATIVE POWER, HUMAN MACHINE INTERFACE.

SAAB SEAEYE FALCON

Types of Sensors & Characteristics

Sensor Type	Function	Characteristics
Depth Sensor	Measures underwater pressure	High accuracy, real-time pressure conversion
Sonar (Imaging/Scanning)	Obstacle avoidance, mapping	Multi-frequency, high-res, low-latency
Camera (HD)	Live video feed, inspection	Low-light optimized, wide FOV
Gyroscope & IMU	Orientation & stability control	High-speed feedback, ±0.1° accuracy
USBL Transponder	Underwater positioning	Acoustic based, good for tracking

SAAB SEAEYE FALCON

Alternative Power Options

- Primary: Tethered via surface control pod (continuous power)
- Alternative: Optional on-board lithium battery (limited mission)
- Backup: Fail-safe battery for emergency retrieval

Human-Machine Interface

- Control via surface control unit (joystick + touchscreen)
- GUI shows sonar imaging, depth, compass, and camera feed
- Advanced diagnostics interface for thruster status and load

BLUEROV2

Types of Sensors & Characteristics

Sensor Type	Function	Characteristics
Bar30 Pressure Sensor	Depth measurement	±2 cm resolution, absolute pressure
IMU (Gyroscope + Accel)	Orientation and tilt	Stabilization and autopilot feedback
HD Camera	Video capture and navigation	Wide-angle, 1080p, low-light performance
Optional: Sonar	Target tracking, navigation	Add-on, forward-looking, various ranges
Temperature Sensor	Environmental monitoring	Real-time updates

BLUEROV2

BLUEROV2

Alternative Power Options

- Primary: Surface power via tether (ESC + Battery at surface)
- Alternative: Internal battery (4S–6S Li-ion), ~3-hour mission
- Customizable battery configuration (open-source hardware)

Human-Machine Interface

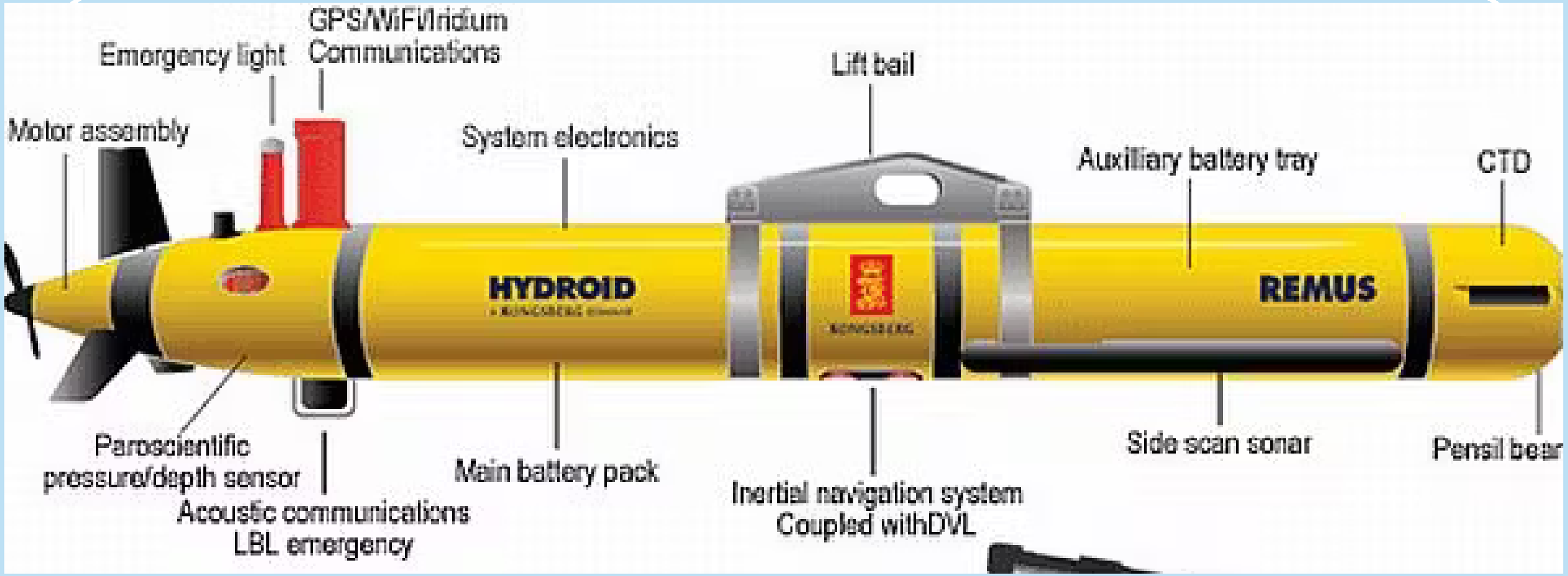
- QGroundControl or BlueOS (via web or desktop)
- Real-time sensor data visualization
- PID tuning, motor test, joystick/gamepad support
- Open-source codebase for full custom HMI modifications

REMUS 600 (HYDROID/KONGSBERG)

Types of Sensors & Characteristics

Sensor Type	Function	Characteristics
Doppler Velocity Log (DVL)	Velocity over bottom	mm/s accuracy, essential for dead reckoning
INS (Inertial Nav System)	Navigation in GPS-denied areas	High-precision, low drift
CTD Sensor	Oceanographic profiling	Conductivity, Temperature, Depth combo
Acoustic Modem	Data transfer and command	Two-way, low-bandwidth, long-range
Sonar (Side-scan)	Seafloor mapping	Wide coverage, multi-beam options

REMUS 600 (HYDROID/KONGSBERG)



REMUS 600 (HYDROID/KONGSBERG)

Alternative Power Options

- Primary: Onboard Lithium-polymer battery packs
- Mission duration: Up to 24 hours depending on configuration
- Rechargeable & hot-swappable modules

Human-Machine Interface

- REMUS Vehicle Interface Program (VIP)
  - Mission planner, data logger, diagnostics
- Map-based GUI with waypoint editing
- Acoustic communications via USBL or modem for mid-mission updates

HUGIN (KONGSBERG/OCEAN INFINITY)

Types of Sensors & Characteristics

Sensor Type	Function	Characteristics
Doppler Velocity Log (DVL)	Velocity over bottom	mm/s accuracy, essential for dead reckoning
INS (Inertial Nav System)	Navigation in GPS-denied areas	High-precision, low drift
CTD Sensor	Oceanographic profiling	Conductivity, Temperature, Depth combo
Acoustic Modem	Data transfer and command	Two-way, low-bandwidth, long-range
Sonar (Side-scan)	Seafloor mapping	Wide coverage, multi-beam options

HUGIN (KONGSBERG/OCEAN INFINITY)

HUGIN (KONGSBERG/OCEAN INFINITY)

Alternative Power Options

- Primary: High-density Li-ion battery modules
- Endurance: Up to 60 hours
- Customizable battery packs for deep-sea and long-range missions

Human-Machine Interface

- Kongsberg HiPAP/NavLab system
- Full mission planning GUI with onboard autonomy scripting
- Real-time control and diagnostics interface over RF/acoustic
- Modular control — one operator can manage multiple AUVs

DEEP TREKKER DTG3

Types of Sensors & Characteristics

Sensor Type	Function	Characteristics
HD Camera (4K option)	Visual inspection	Low-light LED ring, pan & tilt
IMU (Gyro + Compass)	Orientation & directional control	Good for stability in confined environments
Depth Sensor	Vertical positioning	±0.1 m resolution
Optional: Sonar, Laser Scaler, Temp Sensor	Add-ons	Modular plug-in architecture

DEEP TREKKER DTG3

DEEP TREKKER DTG3

Alternative Power Options

- Primary: Internal NiMH or Li-ion battery
- Endurance: 4–8 hours per charge
- Fully sealed system — plug-and-play recharge

Human-Machine Interface

- Handheld controller (Xbox-style) with built-in screen
- Live video feed + control data on the screen
- Simple button-based command interface for arm, lights, tilt

CONCLUSION

ROV/AUV	Sensors	Alt. Power	HMI
Seaeye Falcon	Depth, sonar, camera, IMU	Onboard battery (optional)	Surface control pod w/ GUI
BlueROV2	Pressure, IMU, camera, sonar (add-on)	Battery (customizable)	QGroundControl / BlueOS
REMUS 600	DVL, INS, sonar, CTD, modem	Li-polymer battery	VIP + acoustic modem
HUGIN	SAS, INS, sonar, profiler, magnetometer	Custom Li-ion battery	HiPAP/NavLab GUI
DTG3	Camera, IMU, sonar (add-on)	Internal battery	Handheld controller

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THANK YOU