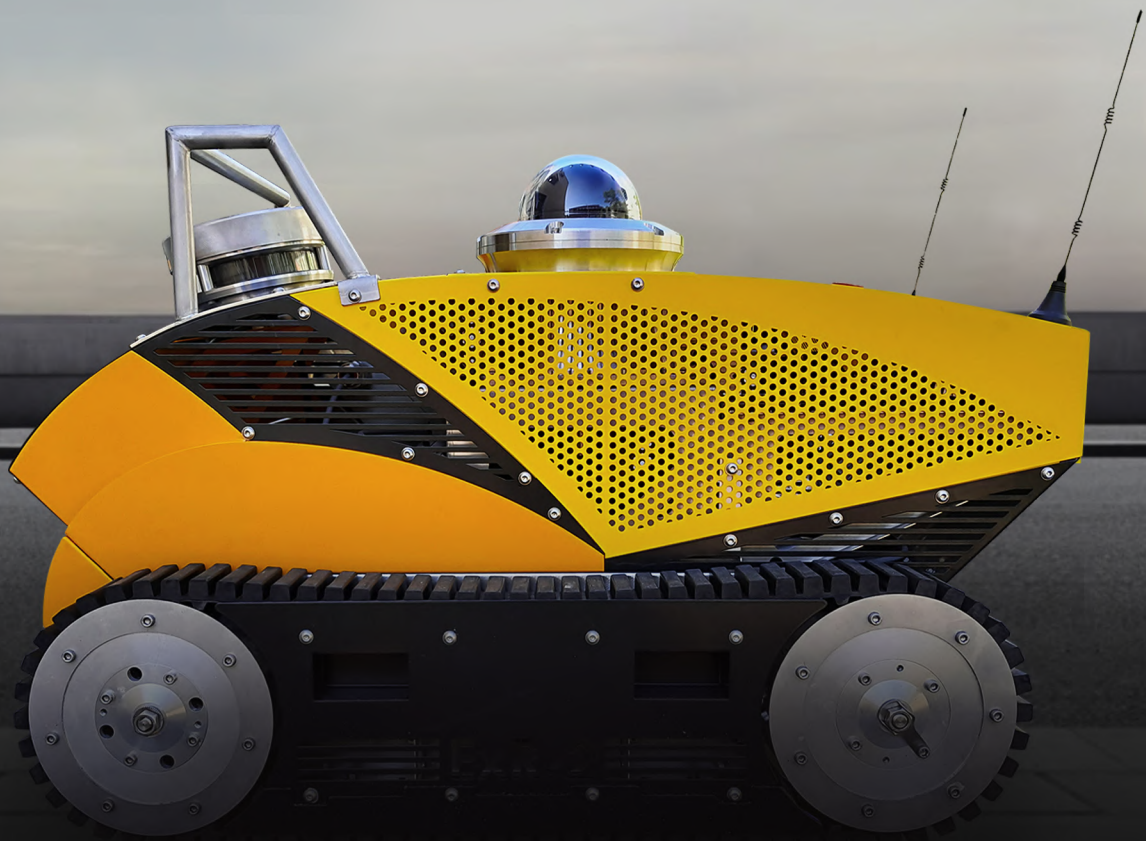




OUR FLAGSHIP,
FULLY AUTONOMOUS

ExR-2.5



RUGGED, RELIABLE, ROBOTS

for *Extreme* Environments



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THE ExR-2.5 RANGE OF ROBOTS

RUGGED, RELIABLE ROBOTS THAT

- > Remove human operators from harsh and hazardous locations.
- > Reduce global warming by detecting emissions and leaks sooner and reducing travel.
- > Perform mundane tasks more repeatably than humans and support operator rounds.
- > Reduce downtime when stationed on remote, normally-unmanned facilities.

TERRAIN & MANOUVERABILITY

Navigate:

- > 1 meter wide corridors – 969mm(L) 673mm(W) 751mm(H)
- > Sharp corners – robots spot turn around their central axis.
- > Autonomously – robots undock, navigate and dock without tags or other markers.
- > Without collisions – robots use their LiDAR to detect obstacles.

Drive:

- > Over mixed hard surfaces, slabs, metal gratings, grass and ice (40mm ground clearance).
- > Through 10cm deep standing water.
- > Up and down 10cm ledges.
- > Up and down 35° ramps.
- > For 2km at speeds up to 2km/hour.

ROBOTS AND DOCKING STATIONS FOR REMOTE, HARSH, HAZARDOUS CONDITIONS

ENVIRONMENT

- > IECEx & ATEX Zone 1 certified for potentially explosive hydrocarbon gas atmospheres and ambient temperatures from -40°C to +55°C (see modular design for limitations).
- > Suitable for tropical, arctic and desert climates (ingress protection equivalent to IP55).
- > Operate in high winds (robots weigh between 110 and 140kg depending on payload).
- > Resist corrosion by salt water, hydrocarbons, hydrogen sulphide and acidic liquids.

AVAILABILITY

- > Perform missions lasting between 2 and 6 hours depending on the tasks.
- > Self-charge on docking stations in 8 hours (from 10% to 90% battery charge).
Patented in many countries around the World.
- > Require no maintenance for 6 months or longer.

COMMUNICATIONS

- > 5G, 4G LTE and/or WiFi.



THE **ExR-2.5** RANGE OF ROBOTS

MODULAR DESIGN FOR MULTIPLE ROLES

[PREDICTIVE MAINTENANCE, OPERATOR ROUNDS, EMISSIONS DETECTION, FIRST RESPONSE]

*Multifunction-PTZ with NVIDIA Xavier processor, 30x optical zoom Sony camera, FLIR Boson thermal IR camera, and high-intensity spotlight (motion amplification and OGI cameras also available)

LiDAR module for localisation, and collision avoidance. Patent applied for.

Fixed forwards facing inspection module with FLIR Boson thermal IR camera and/or 18.1MP optical/video camera.

Microphone.

*OR dome PTZ
*OR panning inspection module with 18.1MP optical/video camera, and FLIR Boson thermal IR camera.
*OR infrared leak detection module with FLIR G620a OGI camera.



Communications module with NVIDIA Xavier processor and user-swappable SIM card.

Fixed upwards facing inspection module with FLIR Boson thermal IR camera and / or 18.1MP optical / video camera.

Power socket supplied with quick charger and plug.

Drive camera module with 2MP optical / video camera, and 390 Lm LED.

Up to 2 gas detectors & accessories located inside hull. Choices include:
> Ion science Falco 2.1 for VOC's
> Honeywell 3000 Mk II for toxic gases.
> Simtronics GD10-P00 for hydrocarbon gases.
> Speaker

CERTIFIED AMBIENT TEMPERATURE RANGES

- > Basic ExR-2.5 robot is rated for **-40°C to 50°C** or **-40°C to 55°C** if alternative switches are fitted.
- > Ion Science Falco 1.1 is rated for **-40°C to 50°C**
- > Honeywell 3000 Mk II is rated for **-20°C to 55°C**
- > Infrared leak detection module is rated for **-40°C to 50°C**
- > Microphone is rated for **-40°C to 50°C** if Dome PTZ is installed.
- > Microphone is rated for **-40°C to 45°C** if Multifunction-PTZ is installed.



THE ExR-2.5 RANGE OF ROBOTS



The ExR-2.5 is brain-powered by Energy Robotics' OS and cloud-based software solutions.

FULLY AUTONOMOUS INSPECTION ROUNDS

- > Fully autonomous missions. No digital twin required, robots create their own, ever-green twins.
- > Remote control of robots and onboard sensors for ad-hoc inspections and teaching autonomous missions.
- > Worldwide access to robots via an intuitive, web-based User Interface.

ARTIFICIAL INTELLIGENCE POWERED DETECTION

- > Detect gauges and digitise their readings.
- > Detect valves and their positions.
- > Frame points of interest and add annotations to thermal IR camera images.
- > Detect fluid puddles and changes over time.
- > Detect fire extinguishers.
- > Detect people and blur their faces.
- > Analyse motor and pump sounds to detect abnormal patterns.

EXTENSIVE API AND REPORTING OPTIONS

- > API interface to transfer data to and from customer's systems.
- > Mission report for evaluation of and access to historical mission data.
- > Localised inspection data on a map of the mission.
- > Pre-set alarms.

SECURE COMMUNICATION AND CLOUD HOSTING

- > All communications between the robot and the cloud are encrypted.
- > Cloud is hosted on AWS or Azure depending on the world region and customer's preference.
- > Private cloud hosting and on-premise servers with (virtual) hosts available as an alternative.

We offer a range of robot accessories:

- > Docking stations that are IECEx and ATEX certified for charging in Zone 1 locations.
- > Rain/sun shields for docking stations.
- > Robot ladders for accessing different levels.
- > Flight cases for transporting robots and their docking stations.
- > Starter kits of tools and consumables.

All of our products are complimented by a range of service offerings including:

- > Robot as a service.
- > Mission as a service.
- > Deployment support.
- > Premium robot availability.