EX ROBOTICS

ExR-2 INVESTIGATOR SPECIFICATIONS

Weight
100-120 kg
Depending on options

Dimensions
960 x 660 x 670mm
(L x W x H)

Operating time
Ops time: 3 hr
Standby time: 8 hr

Speed
2 km/hour

Ambient operating temperature
From -40°C to 55°C
Depending on options

ATEX/IECEx Zone 1 certified
T4 temperature classification.

ENVIRONMENTAL CONDITIONS

ExR-2 robot & docking station can be used in harsh environments:

- Marking II 2G Ex dbeb ib mb qb 11B T4 Gb
- Ambient operating temperature -40°C-55°C *(depending on options)*
- Equipment protection level Gb (Zone 1)
- Explosion group 11B (ethylene)
- Temperature class T4 (max surface temp 135°C)
- Ingress protection equivalent to IP57
- Designed for maritime environments.
- Operates in rain, light snow & standing water

ELECTRONICS BOX & COMMUNICATIONS MODULE

Ex enclosures containing a customised mother-board that integrates the robot's functions:

- NVIDIA Xavier NX AI Accelerator
- Intel Atom 4 cores, 8 Gb, 1,04 Ghz
- Dedicated MCUs for real-time control
- Battery charger system with battery over temperature protection
- Swappable sim-card

BATTERY PACK

Ex battery pack with replaceable batteries

- Ex enclosure containing three 14Ah lead crystal batteries for a combined 504Wh
- Operating time under normal operation 3 hours
- Operating time on standby 8 hours
- Battery charging time 8 hours (from 10%-90%)
- Autonomous charging with docking station *(optional)*

MOBILITY

Ex drive module containing motors and control electronics

- Centipede tracks
- Motor power 360W BLDC
- Speed 2 km/hour, range 2 km
- Spot steering around robot's central axis
- Drives up and down 30 degree slopes
- Drives up and down 10 cm ledges
- Ground clearance 60 mm
- Can drive over mixed hard surfaces, slabs, pebbles, metal gratings and grass

NAVIGATION AND LOCALIZATION

Integrated sensors including patent LiDAR module:

- XSens MTI-30-2A8G4 IMU and Velodyne VLP-16 LiDAR
- Gps antenna *(optional)*
- Mission editor to pre-define autonomous routes
- Awareness of surrounding environment
- Obstacle and gap detection and avoidance
- Mission report with mapping of measurements

INSPECTION MODULE

Integrated unit of high grade aluminum with:

- Hi-resolution 18.1 mega pixel camera point and click and high dynamic range imaging
- Integrated LED with 690 Lm
- Pan capabilities 360 degrees
- Glass window with nano coating for self cleaning
- Additional upwards facing inspection module *(optional)*

The robots of ExRobotics are distinguished by their:

Independence
they are self-charging and require no human intervention when stationed on unmanned facilities. without maintenance.

Reliability
they are designed to operate for months, or even years,

Ruggedness
they can operate in a wide range of climates.

EX ROBOTICS

DRIVE CAMERA MODULE
Integrated unit of high grade aluminum with:

- 1.3 mega pixel camera with digital zoom, point and click, aperture and exposure control
- Integrated LED with 690 Lm
- Glass window with nano coating for self cleaning
- Additional rear fairing camera module *(optional)*

OPTIONAL SOFTWARE
Comes with the advance software from Energy Robotics

- Autonomous docking
- Autonomous full 3D navigation
- 2D gas maps in mission report

MICROPHONE & SOUND MAPPING

- Standard front facing microphone
- Det-Tronics Acoustic Analyser Module *(optional)*

COMMUNICATION

- Dual band antennas to connect to 4G / LTE public or private networks
- WiFi antennas to connect to local WiFi access points *(optional)*
- VPN connection between robot and cloud software
- API for data transfer to customer systems.

INDUCTION CHARGER AND DOCKING STATION *(OPTIONAL)*
60W patented induction charger with:

- Foreign object detection system
- Inputs 110 to 240 VAC
- ATEX / IECEx zone 1 certified

GAS SENSOR MODULES *(OPTIONAL)*

- Ion Science Falco 1.1 for volatile organic compounds (VOCs)
- Honeywell 3000 Mk II for toxic gases
- Crowcon IR MAX for hydrocarbon gases
- Simtronics GD10-P00 for hydrocarbon gases

CONTROL & MANAGEMENT SOFTWARE
Comes with the advanced software from Energy Robotics

- Server software available in public or private cloud
- User and access management by customer
- Remote control interface
- Autonomous route repetition
- Mission report for evaluation of collected data
- Notification system to report anomalies

THERMAL CAMERA MODULE *(OPTIONAL)*
Integrated unit of high grade aluminum with:

- FLIR Boson longwave infrared (LWIR) thermal camera wavelength 7.5um – 13.5um
- 640 x 512 resolution with 12um pixel pitch
- Digital zoom to 8 times
- Can also integrate with the inspection module

AI DATA PROCESSING *(OPTIONAL)*

- Digitalisation of analogue gauge readings
- Object recognition
- Dynamic thermo image analysis
- Sound processing to extract historical anomalies

ENERGY ROBOTICS

The ExR-2 Investigator is brain-powered by Energy Robotics' OS and cloud-based software solutions. These enable customers to manage robot fleets, remotely control their robots, programme and launch autonomous missions, and analyse the data their robots collect.

Our Robots create a safer working environment for your operators whilst improving your financial performance.

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