



Solafact 9200



Solafact 9400

Comparison

1. Solafact 9200 Chemical and Radiation Reconnaissance Robot

Application Scenarios

- ✓ **Designed for Nuclear and Chemical Pollution Detection:** This robot is tailored for tasks like reconnaissance, sampling, and decontamination in nuclear and chemical polluted environments. It is suitable for:
- ✓ **Military battlefield applications:** Detecting chemical contamination zones and ensuring safe evacuation or rescue.
- ✓ **Nuclear industry environments:** Radiation monitoring and chemical leak detection in nuclear facilities.
- ✓ **Urban counter-terrorism and emergency response:** Counter-terrorism operations and public safety inspections.
- ✓ **Oil and chemical industries:** Chemical leak detection and fire scene monitoring.

Technical Features

Mobility:

- ✓ Equipped with a **crawler-type chassis**, allowing it to handle **complex terrains** and perform off-road operations. It has a maximum speed of **20 km/h**, a maximum slope climbing angle of **38°**, and can cross water with a depth of **300mm**.
- ✓ Excellent **obstacle-crossing ability**, capable of overcoming obstacles like **650mm-wide ditches**.

Detection and Sampling Capabilities:

- ✓ Equipped with **multiple radiation detection instruments**, including gamma-ray detectors, nuclide identifiers, and neutron detectors, to monitor radiation doses and perform material identification simultaneously.

- ✓ **Chemical reconnaissance:** Capable of detecting a wide range of toxic chemicals, such as sarin, VX, ammonia, chlorine gas, and more, with quick response time and high accuracy.
- ✓ Sampling capabilities include a **1L gas sampling bag**, **200mL liquid sampling bag**, and a **300g solid sample holder** to adapt to various sampling needs.

Environmental Adaptability:

- ✓ **Radiation resistance:** It can withstand high radiation environments with a resistance of **≥1000Gy/h**, making it suitable for nuclear power plants and other high-radiation environments.
- ✓ **Temperature range:** Can operate in extreme temperatures from **-40°C to 50°C**, suitable for a wide range of environmental conditions.
- ✓ **Altitude tolerance:** It can operate at altitudes of up to **4500m**, making it suitable for mountainous regions.

Decontamination Functionality:

- ✓ Equipped with a **large capacity decontamination liquid (100L)**, capable of performing **large-area decontamination** tasks in post-nuclear/chemical disaster scenarios.

Control and Communication:

- ✓ Supports both wired and wireless control, with a wireless range of **3 km** and a wired control range of **1.5 km**, providing flexibility for various operational environments.
- ✓ **User interface** is intuitive, making it easy for operators to quickly learn and control.

Drawbacks:

- ✓ **Lightweight** compared to some other robots, and while compact in size, it is more suitable for small to medium-scale operations rather than extremely tight or challenging terrains.
 - ✓ **Protection level** is not as high as some explosion-proof robots, making it less suited for extremely dangerous environments (such as explosive gas environments).
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2. Solafact 9400 Explosion-Proof Reconnaissance Robot

Application Scenarios

- ✓ **Specialized for Hazardous Chemical Environments:** Designed for the detection and sampling of chemical agents, toxic gases, and chemical warfare agents. It is particularly suitable for environments with **explosion risks**. Primary application areas include:
- ✓ **Reconnaissance in suspected contaminated areas:** Widely used for chemical contamination detection in hazardous environments.
- ✓ **Chemical warfare agent detection:** Detects agents like sarin, VX, mustard gas, etc., ensuring the containment and neutralization of chemical agents.
- ✓ **Explosion-prone environments:** Performs operations in areas with explosive risks, such as chemical plants, oil refineries, and hazardous materials warehouses.

Technical Features

Mobility:

- ✓ Equipped with a **crawler-type chassis**, capable of adapting to complex environments with a maximum slope angle of **45°** and a maximum water-crossing depth of **≥300mm**.
- ✓ Can cross obstacles of **≥300mm** and navigate through challenging terrains, ensuring versatility for different operational conditions.
- ✓ **360° horizontal rotation** and **vertical angle adjustment** for greater flexibility and range during monitoring tasks.

Detection and Sampling Capabilities:

- ✓ Equipped with a **gamma-ray detector**, capable of detecting radiation in the range of **0.1μGy/h to 10Gy/h**. It also includes the ability to detect toxic gases like sarin, VX, chlorine, hydrogen cyanide, sulfur dioxide, and many others.
- ✓ It can detect over **300 types of toxic and harmful gases**, including chemical warfare agents (nerve agents, blister agents, asphyxiating agents), with fast response times and high detection accuracy.
- ✓ Gas sampling capacity is **≥2000mL**, with a sampling speed of **≥5L/min**. This allows for quick and efficient gas sampling from contaminated environments.

Explosion-Proof Design and Safety:

- ✓ **Explosion-proof rating** of **Ex db ib IIB T5 Gb**, ensuring safe operation in explosive environments like chemical plants and hazardous areas.
- ✓ Equipped with **explosion-proof cameras** and **mechanical arms**, making it suitable for high-risk environments where potential ignition could be fatal.

Video Monitoring and Control:

- ✓ **360° panoramic camera** for full environmental awareness, with **infrared night vision** functionality, ensuring operation in low-light or dark environments.
- ✓ **4G data transmission** allows for remote video and detection data feedback to the controller, with a range of **1000m**.
- ✓ Equipped with a **talkback function**, allowing the operator to communicate with personnel on the ground for enhanced safety during operations.

Mechanical Arm and Sampling:

- ✓ Features a **6-degree-of-freedom mechanical arm**, capable of performing various sampling tasks, such as using pipettes for solid and liquid samples.
- ✓ The arm can handle objects weighing **≥3kg**, ensuring flexibility in complex tasks.

Protection and Durability:

- ✓ The robot has an **IP65 protection rating**, offering robust dust and water resistance.
- ✓ **Battery life** is **≥3 hours**, with a **fast recharge time of ≤2.5 hours**, ensuring extended operational capability.
- ✓ Built with high-quality materials that allow it to withstand the rigors of hazardous environments for extended periods.

Drawbacks:

- ✓ **Heavyweight:** With a total weight of **≤500kg**, this robot may be less suitable for extremely narrow or challenging terrains, as its bulk may limit mobility in confined spaces.
 - ✓ **Slower speed:** The maximum speed is **10 km/h**, which is slower compared to the Solafact 9200, making it less suited for rapid movement or fast-response scenarios.
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Detailed Comparison Summary

Aspect	SOLAFACT 9200	SOLAFACT 9400
Application	Nuclear/chemical pollution, radiation monitoring, decontamination	Chemical agents, toxic gases, and explosion-prone environments
Mobility & Slope	Crawler chassis, max slope 38° , cross-water depth 300mm	Crawler chassis, max slope 45° , cross-water depth ≥300mm
Gas Detection	Detects sarin, ammonia, chlorine, and more, high accuracy	Detects 300+ toxic gases, including chemical warfare agents
Sampling	Gas, liquid, solid samples	Fast sampling speed, large gas sampling capacity (≥2000mL)
Radiation Detection	Gamma radiation, nuclide identification, high radiation resistance (≥1000Gy/h)	Gamma radiation detection, lower radiation resistance
Explosion-Proof	Not explosion-proof	Explosion-proof rating Ex db ib T B 5 Gb
Video Monitoring	Radiation-tolerant cameras, wired & wireless control	360° panoramic camera, night vision, 4G data transmission
Mechanical Arm	N/A	6-DOF arm, handles ≥3kg , solid and liquid sampling
Battery & Protection	≥4 hours	IP65 protection, ≥3 hours battery , fast recharge
Weight & Size	Lightweight, compact	Heavier (≤500kg), suited for more complex environments

Conclusion:

Solafact 9200 is best suited for **nuclear and chemical pollution** detection, with strong **radiation resistance** and mobility for complex terrains. It's ideal for **military** and **emergency** situations.

SOLAFACT 9400 is specialized for **hazardous chemical environments**, capable of handling **explosive atmospheres** and **chemical warfare agents**, with a focus on **toxic gas detection** and **explosion-proof design** for high-risk industrial applications.

