


# ELECTRICAL EQUIPMENT INSPECTION ROBOT | THERMAL INSPECTION ROBOTS S3.2 SERIES



THERMAL INSPECTION ROBOTS S3.2 SERIES ARE THE NEXT GENERATION OF INSPECTION ROBOTS EQUIPPED WITH A DUAL PTZ CAMERA CONSISTING OF A THERMAL MEASURING CAMERA AND A HIGH-RESOLUTION OPTICAL RANGE CAMERA.

SMP Robotics presents a new innovative solution in the field of automated thermography and infrared inspection.

These are the next generation of inspection robots series S3.2 that is equipped with a dual PTZ camera consisting of a thermal measuring camera and a high-resolution optical range camera.



The S3.2 robots can automatically move along a pre-programmed route, stop near electrical and other equipment subject to thermography, and aim a PTZ camera on it. Next, the manual remote control mode of the PTZ camera is turned on. The remote operator can inspect equipment by examining two video images, visible and infrared spectrum.

Upon completion of the inspection carried out under the operator's control, the robot will continue its automatic movement to the next piece of equipment. The 2022 model provides for installing three types of PTZ cameras from different manufacturers. This helps to avoid the export restrictions of several countries. Also, the list of additional equipment installed on the robot has been expanded. The multi-gas detector is available with the request and installation of a highly sensitive microphone, an ultraviolet camera, and weather sensors.

The robot is equipped with a metal fence detector as standard to operate on the territory of electrical substations. The robot has a body made of Fiberglass and has a coating that protects against strong electromagnetic fields, this allows you to use it close to high-voltage equipment and electrical lines. The robot is on standby with charged batteries for most of the day. This allows you to quickly start using it in an emergency with a complete blackout of electrical equipment. Due to its autonomy, the robot can transmit images from onboard cameras for a long time. Make automatic patrol through the territory for its detailed inspection with a PTZ camera if necessary.

## **THE DESIGN OF THE SECURITY ROBOT ENSURES ITS RELIABLE MOVEMENT ON AN UNEVEN SURFACE COVERED WITH RUBBLE OR STONES. THE INSPECTION ROBOT IS DESIGNED TO WORK IN AN OPEN AREA AND HAS AN EXTENDED RANGE OF OPERATING TEMPERATURES.**

### **SMP S3.2**

#### **Key features of Outdoor Electrical Inspection robots**

- **Automatic unmanned inspection of unattended facilities**
- **Data downloading capability**
- **API integration (TBD)\* approval required by SMP**
- **Temperature identification**
- **Remote camera control**
- **Autonomous movement on pre-programmed patrol routes**
- **Multi-robot (group) patrolling of the security area or single robot patrol**
- **Transmission of ONVIF videos and alarm events over 4G or WiFi**
- **Temperature ranges > -20°C – +55°C**
- **Automatic travel between pre-set inspection positions**
- **Tele-operation control mode for thermography inspection**
- **Autonomous movement by pre-programmed route for observation**
- **360-degree video surveillance and human detection by six HD cameras**
- **Transmission of ONVIF video and alarm events over 4G or Wi-Fi**
- **Sound notification, IP intercom, alarm button**
- **Automatic charging station for 24/7 autonomous operation**
- **Options: microphone, multi-gas detectors, UV camera**





### Electrical equipment inspection and video observation

They enable all models of robots manufactured by SMP Robotics continuously. The new model, S 3.2, can avoid obstacles automatically, stop when there is a significant deviation from the inspection route, and return to charging when the batteries are discharged. The inspection robot is charged automatically using the charging station included in the delivery package. The design of the security robot ensures its reliable movement on an uneven surface covered with rubble or stones. The inspection robot is designed to work in an open area and has an extended range of operating temperatures. To protect the robot against direct sunlight in hot climates, a shelter with an automatic charging station is offered for delivery. It has six circular video surveillance cameras to monitor the robot's work and conduct security patrols.

The cameras have high resolution and allow you to inspect the territory along the path of the inspection route. The image from these cameras is analyzed by a separate onboard computer of a panoramic video surveillance system for detecting people. If they are detected, two-way voice communication can be established by using the intercom integrated into the robot. Video transmission from the robot, information about its location, and operation of systems are carried out via 4G or Wi-Fi wireless channels. The status and location of robots on inspection routes are displayed in the web-based service for group monitoring of the operation of robots. Video from all robots cameras is stored on two removable HDDs. This allows you to keep records of inspections made by the robot for several weeks. Remove HDD for later copying without using wireless channels.

**THE DEPLOYMENT OF AUTONOMOUS AI-POWERED ROBOTS CAN SIGNIFICANTLY REDUCE THE OPERATIONAL COST OF DOING BUSINESS, IMPROVE THE QUALITY OF THE MONITORING AND MAINTENANCE OF COSTLY EQUIPMENT, AND REDUCE BUSINESS LIABILITIES AND INSURANCE PAYOUTS.**



### Deep Learning in Infrared Non-Destructive Testing

The security robot features a dual-spectrum PTZ camera with heat and visible radiation sensors.

Using photo and video materials obtained directly from the serviced facility will allow you to fine-tune diagnostic algorithms and detect signs of abnormal equipment operation at the earliest stages. Equipping the inspection robot with an additional microphone and UV camera will allow you to combine information from different types of sensors. Deep Learning in Infrared Non-Destructive Testing This approach allows us to identify complex patterns of the appearance of signs of equipment malfunction and localize them. Regular inspection of electrical equipment during the day allows you to collect information about operating modes at different degrees of load, which is especially.

The following model is already successfully operating in several countries worldwide, including North America, countries of the Persian Gulf, and Europe.

The deployment of these autonomous AI-powered robots can significantly reduce the operational cost of doing business, improve the quality of the monitoring and maintenance of costly equipment, and reduce business liabilities and insurance payouts.