MOBILE · UNDERGROUND OBSERVATION

Tunnel Observation System

L4 Layer · Ground & approaches

A mobile kit that places IR cameras inside tunnels and underground spaces, powered and controlled from outside, 24/7.



KEY BENEFITS

01 Eyes inside the tunnel
IR cameras see up to 300 m in total darkness, placed by hand or through a borehole.

02 Runs on its own
Solar panels and an 11 kWh battery system power the kit from outside the tunnel, 24/7.

03 Watch from a safe distance
A secure cellular or radio link feeds a rugged control case for live view, PTZ control and recording.

HOW IT WORKS

01 Insert
Place the IR camera in the tunnel by hand or through a borehole.

02 Power
The solar energy and control unit runs outside the tunnel.

03 Transmit
Data travels over a secure cellular or radio link.

04 Control
Watch, steer and record from the rugged control case.

SPECIFICATIONS

IR cameras	7, focused up to 300 m
Signal amplifiers	15
PTZ camera	1, remote-controlled
Recorder	Central DVR
Battery system	11 kWh
Solar	2 panels, 250 W total
Power conversion	Dedicated voltage converter
Connectivity	Cellular modem with 2 SIMs; secure cellular / radio transmission
Observation	360° internal observation, high resolution, 24/7
IR camera detail	Full HD 1080p, 360° rotation, autofocus, IP68, –20 °C to +60 °C, rugged aluminium body
Control case detail	10.1" screen, LiFePO4 battery with BMS, DVR, 4G/5G, IP67

TENDER SPECIFICATION TEXT

1. GENERAL

The system shall be Tunnel Observation System by D-FENCE Electronic Fencing and Security Systems Ltd. (ISO 9001:2015 certified quality management), or an approved equivalent that meets every requirement in this section.

2. FUNCTION

A mobile kit that places IR cameras inside tunnels and underground spaces, powered and controlled from outside, 24/7.

3. THE SYSTEM SHALL PROVIDE

- **IR cameras up to 300 m:** Seven IR cameras focused up to 300 m for 360° high-resolution observation inside the tunnel.
- **Manual or borehole insertion:** Place cameras by hand or lower them through a borehole.
- **Remote PTZ:** One PTZ camera with remote control.
- **Energy outside the tunnel:** Two solar panels (250 W total), an 11 kWh battery system and a dedicated voltage converter.
- **Secure link:** Cellular modem with two SIMs, or radio, with secure transmission.
- **Control case:** Rugged case with screen, central DVR and secure local recording.

4. TECHNICAL REQUIREMENTS

- **IR cameras:** 7, focused up to 300 m
- **Signal amplifiers:** 15
- **PTZ camera:** 1, remote-controlled
- **Recorder:** Central DVR
- **Battery system:** 11 kWh
- **Solar:** 2 panels, 250 W total
- **Power conversion:** Dedicated voltage converter
- **Connectivity:** Cellular modem with 2 SIMs; secure cellular / radio transmission
- **Observation:** 360° internal observation, high resolution, 24/7
- **IR camera detail:** Full HD 1080p, 360° rotation, autofocus, IP68, –20 °C to +60 °C, rugged aluminium body
- **Control case detail:** 10.1" screen, LiFePO4 battery with BMS, DVR, 4G/5G, IP67

5. DETECTION SEQUENCE

1. **Insert:** Place the IR camera in the tunnel by hand or through a borehole.
2. **Power:** The solar energy and control unit runs outside the tunnel.
3. **Transmit:** Data travels over a secure cellular or radio link.
4. **Control:** Watch, steer and record from the rugged control case.

6. SUBMITTALS

Before installation, the contractor shall submit the manufacturer's datasheet, the installation instructions and the zone layout for approval.