

ITL-231A Mine Detector



Features and Benefit

- Detection of metallic and non-metallic mines with depth of penetration up to 70 cm
- Mine Field Mapping
- Unexploded Bombs Searches
- Police Searches
- Road Structures
- Bridge Structure
- Building Structure

Applications

- Security Investigation
- Archeological Searches
- Geological Surveying
- Runway Integrity Testing
- Secret transceivers
- Material Integrity and Production
- Treasures Searches
- Hazardous Waste Mapping

Product Description

General purpose

The ITL231A Mine Detector is convenient, compact, durable, portable equipment for effective detection of buried anti-personnel and anti-tank mines. Improve electronics provides automatic detection of mines in different soils. The ITL231A Mine Detector allows to detect metallic mines, non-metallic mines, also plastic mines with small metal pieces.

Principle

The ITL231A Mine Detector measures the travel time of electromagnetic impulses in subsurface materials. An impulse radar system radiates repetitive electromagnetic impulses into the earth. A broad bandwidth antenna is usually placed in close proximity and electromagnetically coupled to the ground surface. It is able to detect and measure the depth of reflecting discontinuities in subsurface soils and other earth materials to within a few centimeters depending upon the electromagnetic parameters of the earth medium, the depth to and size of the target and the frequency of operation.

Units

The ITL231A Mine Detector consists of the following units:

Control unit - Pentium-133 CPU or higher,

Display - Includes Planar 1/4 VGA.

Antenna unit - For radiating and receiving short pulses. Provides sampling conversion of receiving signals. Includes keyboard. Antenna's length 1.0 to 1.8 m.

Batteries - General power.

Charger - Provides battery charging.

Headphones - Audio tones.

Cables - For assembling of Mine Detector.

Operator Manual - User Documentation.

Identification procedure

Identification procedure includes the following steps:

Teaching. An acquired information describing behaviors of known mine in different medias (velocity) and on different depths stores into memory of the Mine Detector. An information about all points where mine was tested forms independent file in the Main Library of the Mine Detector. This file can be completed, erased or copied to the Working Library of the Mine Detector.

Detection. The Mine Detector identifies unknown underground objects and gives estimation how close these objects are to any known mine written into the Library.

Identification algorithms. The Mine Detector uses some algorithms for identification of the mine. They are: Linear Prediction Coding (LPC) algorithm, Fast Fourier Transforming (FFT) of LPC algorithm, FFT algorithm, Reflection algorithm, Auto Correlation algorithm, Square algorithm.

Specifications and Characteristics

Receiver

Central Frequency - 1 or 2 GHz.

Dynamic Range - 75 dB (w/o averaging), 100 dB (with averaging).

Detection Range - 100 or 50 cm.

Programmable Timing Window - 6,66 to 60 ns.

Programmable Sampling Interval - 26 to 234 ps.

Velocity - 1 to 9.

ADC Resolution - 12-Bits.

Record Length - 256.

Transmitter

Output Pulse Amplitude - 25 V into 50 Ohm.

Pulse Widths - 1 or 0.5 ns.

Pulse Repetition Rate - 50 kHz.

Antennas

Type - Horn.

Bandwidth - 0,4 to 2,4 GHz.

CPU

Type - Intel Pentium-133 or higher.

RAM - 8 Mbytes.

Flash disk - 10 Mbytes.

Solid State Data Drive - 4 Mbytes.

Display

Type - Electroluminescent.

Format - 320x240 pixels (1/4 VGA).

Display Area - 115.1x 86.3 mm.

Display Resolution - 0.26 mm.

Detection Capability

Anti-personnel mines - 8 cm Diameter on 10 cm Underground Depth.

Anti-tank mines - 30 cm Diameter on 70 cm Underground Depth.

Software

Amplification - Linear or Exponential.

Display Format - Scope, Gray scaling, Wiggle, Profile.

Graticule - Axis, Grid, Off.

Display Intensity - Variable.

Save/Recall - Up to 10 front-panel setups.

Beeping - Provides when detects dangerous.

Blinking - Provides when detects dangerous.

Power Requirements

Batteries - 10 pc D-size.

Typical Voltage - 12.6 V.

Range - 11 to 13.2 V.

Current - less than 2 A.

DC Power Supply

Voltage Range - 9 to 15 V.

Current - 2 A.

Power - less than 25 W.

Environmental

Operational Temperature - 25°C to +50°C.

Storage Temperature - -50°C to +60°C.

Humidity - 98% (RH).

Physical Dimensions and Weight

Control unit with batteries - 282x105x280 mm / 6,0 kg.

Display unit - 190x122x42 mm / 0,6 kg.

Antenna length - At smallest: 1 m,
Extended: 1.8 m, Base: 354x173
mm / 2.3 kg.

Headphones - 0.3 kg.

Mine Detector ITL231A (total) -
9.3 kg.

Ordering Information

P/N 890001 –

ITL231A Mine Detector

Includes Accessories:

AC/DC Power Supply, Charger,
Headphones, Under elbow.

Includes Cables:

N1 (Control Unit to Handle Tube),
N2 (Control Unit to Display Unit),
N3 (Control Unit to Transmitting
Antenna), N4 (Receiving Antenna to
Receiver), N5 (Charger), N6 (AC
Power Cable), N7 (DC Power Cable).

Documentation: User Manual.

Opt. 10: 3 years of customer
return repair service.

Opt. 11: 3 years of customer
return calibration service.

Opt. 12: Additional Battery Unit.