

## ER2-02 Ground Penetrating Radar



### Features and Benefit

- Available Antennas: 300 MHz; 1 GHz or 2 GHz
- 12 V Battery
- Semi-Automated Operation
- LCD Display
- Depth of penetration up to 3 m
- Stacking or Continuous Mode
- Distance Range up to 3 m
- Rugged Case
- Portable Trolley
- Lower Price
- One man portable

### Applications

- Building, Road & Bridge Structures
- Non-destructive testing
- Police Searches
- Security Investigation
- Geological Surveying
- Runway Integrity Testing
- Secret transceivers
- Material Integrity and Production
- Treasures Searches
- Hazardous Waste Mapping
- Pipe and cable detection

### Product Description

#### General

The ER2-02 Ground Penetrating Radar is a portable, field-rugged impulse radar system designed for detection of features or objects buried within horizontal or vertical surface. The system offers real-time data analysis by means of a purpose housed Intel Pentium-133 computer using an Electroluminescent 1/4 VGA monitor with full on screen menus for setup, data storage and data processing. Automated functions make it easy to operate, while manual overrides provide more flexibility for the experienced user. Data is stored internally for playback

or post-processing. The ER2-02 can operate in the continuous profiling mode or the stacking mode and can be used with two types of Antennas. Simplicity of set-up and operation coupled with field proven capabilities from both software and radar hardware makes this a tool which can be used to improve productivity in search and inspection operations.

#### Units

The ITL231A Mine Detector consists of the following units:

#### Control unit with Planar 1/4

**VGA Display** - Generates clock signals. Provides sampling conversion of acquired signals. Displays the reflectograms of underground layers. Pentium-133 CPU or higher.

**LF Antenna unit with Trolley** - For radiating and receiving impulses from the depth up to 3m.

**HF Antenna unit** - For radiating and receiving pulses. Antenna's length 1.0 to 1.8 m.

**Batteries** - General power.

**Charger** - Provides battery charging.

**Cables** - For assembling of Mine Detector.

**Operator Manual** - User Documentation.

#### Antennas

It is very important to select appropriate antenna frequency and measurement settings. The lower frequencies penetrate through the top-soil and down to the slightly dipping bedrock interface. Even structures deeper in the bedrock are visible here. However the higher frequencies reveal numerous shallow features including very shallow buried cables and water pipes, which are hardly distinguishable on the lower frequency data. The ER2-02 Ground Penetrating Radar can be ordered with one of two antennas.

The EA2-12 is the antenna which can be used with both two central frequencies: 1- and 2-GHz systems. Antenna has a high resolution at shallow penetration such as void detection and concrete thickness assessment. It also can identify moisture content and general condition of asphalt and concrete roadway materials, bridge investigations where resolution is critical.

The EA2-03 is a medium Resolution and Depth of penetration antenna which works with 300-MHz central frequency. This model used for moderately shallow investigations and is ideally suited

for utility detection, underground storage tank locating and void identification.

### Specifications and Characteristics

#### Receiver

**Bandwidth** - DC to 2.5 GHz.

**Central Frequency** –

**Antenna EA2-12:** 1 or 2 GHz,

**Antenna EA2-03:** 300 MHz

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

**Distance Range** - 400, 200, 100 or 50 cm.

**Programmable Timing Window** - 3.33 to 240 ns.

**Velocity** - 1 to 9.

**ADC Resolution** - 12-Bits.

**Record Length** – 256.

#### Transmitter

**Pulse Amplitude** -

**Antenna EA2-12:** 25 V/50 Ohm,

**Antenna EA2-03:** 200 V/50 Ohm.

**Pulse Width** –

**Antenna EA2-12:** 1 or 0.5 ns,

**Antenna EA2-03:** 3 ns.

**Max. Pulse Repetition Rate** –

**Antenna EA2-12:** 100 kHz,

**Antenna EA2-03:** 20 kHz.

#### Antennas

**Type** –

**Antenna EA2-12:** Horn;

**Antenna EA2-03:** Flat Biconical.

**Bandwidth** -

**Antenna EA2-12:** 0,4 GHz to 2,5 GHz;

**Antenna EA2-03:** 200 MHz to 800 MHz.

#### 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.

#### Software

**Data Collection Modes** -

Continuous profiling with manually distance marks (up to 10 points).

**Profile Memory** - Up to 20 underground profiles can be stored and then recalled to display.

**User Setups** - 20 Custom setups available to user for site-specific or application-specific needs.

**Amplification** - Linear or Exponential.

**Display Format** - Scope, Gray scaling, Wiggle, Profile.  
**Graticule** - Axis, Grid, Off.  
**Display Intensity** - Variable  
**Beeping** - Provides when detects dangerous.  
**Blinking** - Provides when detects dangerous.  
**Inputs/Outputs** - RS-232.

#### **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** - 228x104x294 mm / 5,0 kg.  
**LF Antenna with trolley** - 575x795x770 mm, handle is fully extended) / 12 kg.  
**HF Antenna** - At smallest: 1 m, Extended: 1.8 m, Base: 354x173 mm / 2.3 kg.

#### **Ordering Information**

**P/N 890002** –  
ER2-02 Ground Penetrating Radar  
**Includes:** AC/DC Power Supply, Charger, Cables (5 pcs).  
**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.