



Ultrasonic inspection system for power utility

# Drive by Inspection System, INDS-U2





# Drive by Inspection System, INDS·U2

## About INDS·U2

INDS-U2, the Drive-By Primary Distribution Overhead Inspection System, is the most advanced version of ultrasonic detection methods for power facility.

INDS-U2 is the only patented inspection system that uses the ultrasonic technology that allows users to detect degraded equipment in a moving vehicle that can travel as fast as 30 Km per hour. INDS-U2 captures ultrasound that is being emitted by faulty equipment with a pinpoint accuracy by using the state of art technology as far away as 30 meters or about 100 feet from the object.



The system enables distribution engineers to detect and replace faulty equipment before they fail, which offers utilities to proactively prevent any potential costly outages. The analytical diagnostic software provides engineers the level of degradation of faulty equipment that allows engineers to plan distribution asset management with ease.

Since the product and service offering in 2008, INDS·U2 and its predecessor Inspector 101 have been implemented and used by utilities in Korea (Having inspected 11,000,000 distribution poles for 192 KEPCO branches from Jan.2009 to Dec.2013) and other countries (Having inspected 162,500 distribution poles in U.S, Brazil, New Zealand, Mexico, Jamaica, Indonesia and Malaysia).

## Components

### Area detector

Area Detector is a durable and light weighted device. This device captures ultrasound emitted by faulty equipment with the state of art sensing technology. It is engineered to minimize the surrounding noises and capture the ultrasound being emitted by degrading apparatuses.



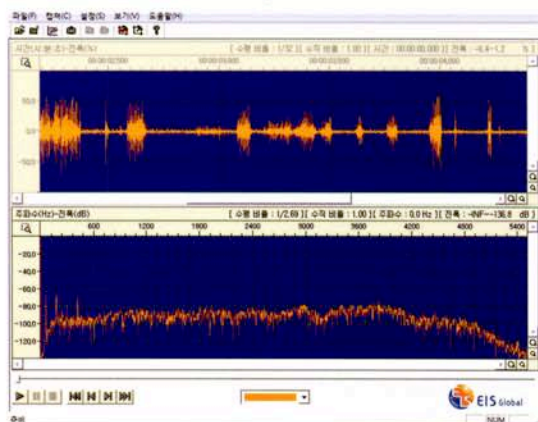
### The main unit

The Main Unit filters and converts input signals from the detector into audible frequency bands by operating its amplification and modulation circuit. While the Main Unit interprets and displays data in an easily readable format on the unit's display window, it records the sound and frequency wave form simultaneously.



## Analytical software

### Wave Form Analyser

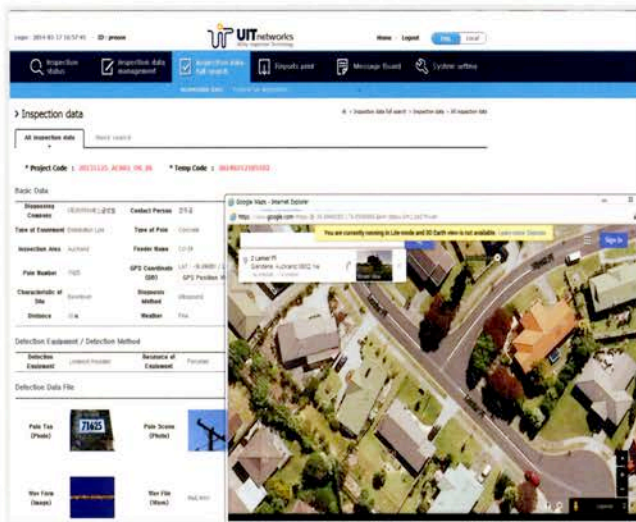


### Smart Diagnosis System



# Smart web management system

## Inspection data with GPS



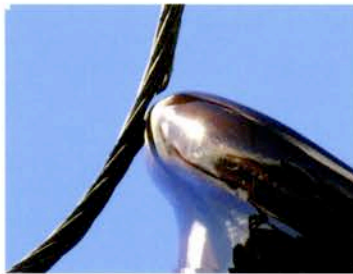
## Inspection report



# Case of defects detected by INDS-U2



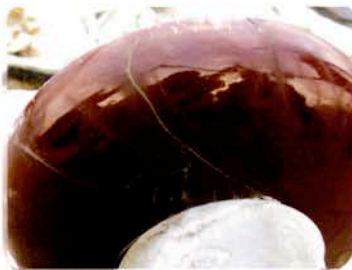
Crack and erosion  
Post insulator / conductor



Erosion  
Conductor



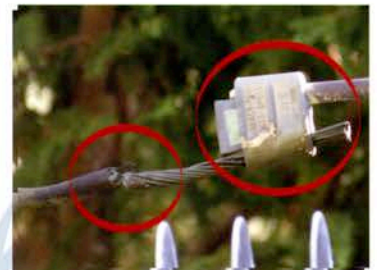
Overheating  
Cable riser



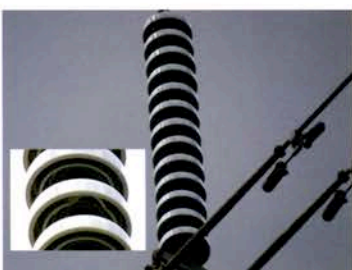
Crack  
Suspension insulator



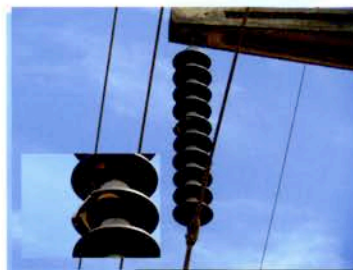
Vegetation  
Conductor



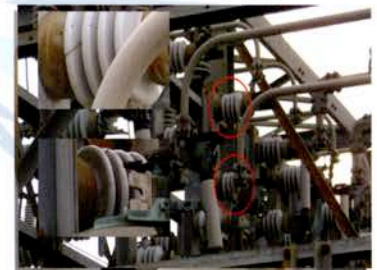
Damaged  
Conductor / Connector



Chipped  
Transmission



Crack  
Transmission



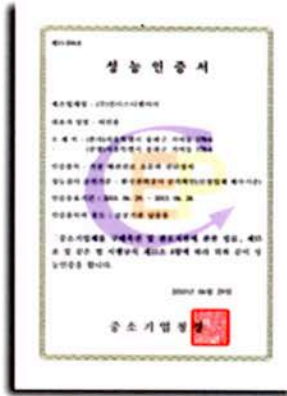
Crack on insulators  
Substation



# Certificate



- Certificate of New Excellent Technology
- Certified by the Ministry of Knowledge and Economy of Korean government



- Certificate of Excellent Performance
- Certified by Small & Medium Business Administration (SMBA) of Korean government



- Best of Invention Awards (South-Pacific Innovation Transfer Society Australia)
- Seoul International Invention Fair 2011. (SIIF)



- Certificate of Patent (Ultrasonic Inspection Equipment)
- Certified by Korean Intellectual Property Office

# Specification



Item	Specification
Transducer	Open type ultrasonic sensor Sensitivity: 57dB Frequency range: 40.1KHz(anti -Resonant Frequency)
Inspection Range	0-35dB Unit: 1dB / Accuracy: ±0.5dB
Measurement	Frequency range: 20 -150KHz Sensor range: 0 -140dB Frequency unit/ Sensor unit: 1KHz / 1dB
Output	Heterodyne audio output(8Ω speaker)
User Interface	File storing function: SD memory Wav recording File storing time: Max 30seconds Interface: RS232 (9600bps -8-N-1)
Display panel Indicator	Indication: dB, 40segment bar graph, inspecting mode, frequency, sensitivity Icons: Mute, Alarm, Battery level
Alarm Notification	Low battery level, SD memory file storing failure, Key-tone, when measured dB is greater than the set alarm level
Size	200W x 190L x 70H (mm)
Weight	Main unit: 1.35Kg Area Detector: 0.27Kg
Operating Temperature	Operation: (-10±2) °C ~ (55±2) °C (0~70%RH, No condensation) Storing: -25°C ~ 65°C (0~70%RH, No condensation)
Power supply	External power supply: DC16V~18V Internal battery: Lithium ion battery, 4x2cell(4400mAh) Max power consumption: 5.2Watt Battery life: More than 20 hours
Diagnosis Software CD	Diagnosis program with an algorithm reflecting factors including kind of equipment, conditions of equipment measured DB, distance, temperature and humidity. (Applicable for 20Kv ~ 27Kv)
Temperature and Humidity Sensor	Thermometer and hygrometer to input data of temperature and humidity simultaneous for Diagnosis program

Patent No.10-0900245 | Registered on May 25.2009



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