

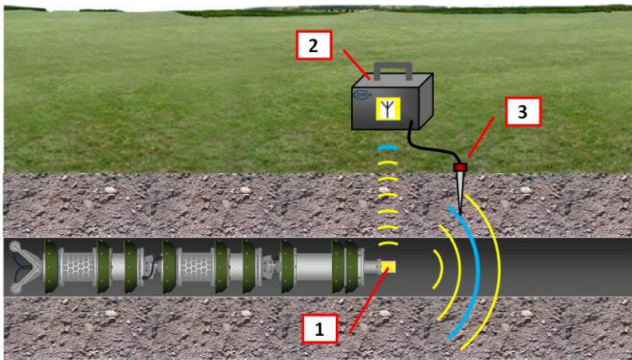
PIG TRACKING AND LOCATION SYSTEMS

SYSTEM DESCRIPTION

CDRiA Pipeline Services Ltd offers its own portable pig tracking and location system, dedicated to the detection of the pig passage and to the location of the pig stuck inside the pipeline.

In general, pig tracking and location system consist of:

- The transmitter (1) mounted at the front of a pig, emitting a low frequency electromagnetic signal,
- The receiver placed near the pipeline, above or under the ground, which records both; an electromagnetic signal (2) and sound vibrations (3) resulting from a pig movement in a pipeline.



1 – transmitter (antenna), 2 – receiver, 3 – vibration sensor

1. Transmitter

The transmitter is a fully autonomous device, consisting of power supply, electronic modules and a solenoid. The transmitter uses very low frequency signals to penetrate the pipe walls. The signal is picked up by a receiver thus pinpointing the position of a pig.

2. Receiver

Main features of receiver:

- both geophone and electromagnetic signals are recorded,
- recorded data are correlated with GPS system coordinates (for the receivers equipped with GPS unit),
- integrated nonvolatile memory allows to record several (above 20) pig tracking locations;
- continuous working time: 2 weeks;
- communication and data transmission to external host computer via radio or USB interface;
- multi-device synchronization for all receivers concurrently.

3. Types of receivers

The available receivers differ with functionality and field of application:

Pig tracking:

ROIC-09 - Receiver operated by an inspection crew (communicates with an external PC computer)

The receiver cooperates with an external PC computer for observation of received transmitter and geophone signals on the computer screen.



ARMF-09 - Autonomous receiver (maintenance-free)

The receiver is designed to be placed next to the pipeline (underground if possible) before pig's travel. It records signals from both sensors (geophone and antenna) with precise time stamps. The travel times' analysis is made after copying data to an external PC computer.



RSTT-09 - Receiver equipped only with a sound vibrations detector (geophone)

The receiver is equipped only with a geophone signal amplifier and an additional jack socket for external headphones. The receiver is used to verify the pig movement along the pipeline from the last location, where pig was detected to the next location.



Pig location:

RLPL-09 - Receiver for stuck pig location (equipped only with an electromagnetic signal detector)

Receiver uses only the transmitter of an electromagnetic signal coming out from the inside of the pipeline where the pig is stuck. Using hand-held receiver the tracking personnel traverse the pipeline route until the signal from the transmitter is received.

Additional features: external headphone



TECHNICAL SPECIFICATIONS

1. Transmitter



ANT-500
for pipeline diameters between 16" and 24"

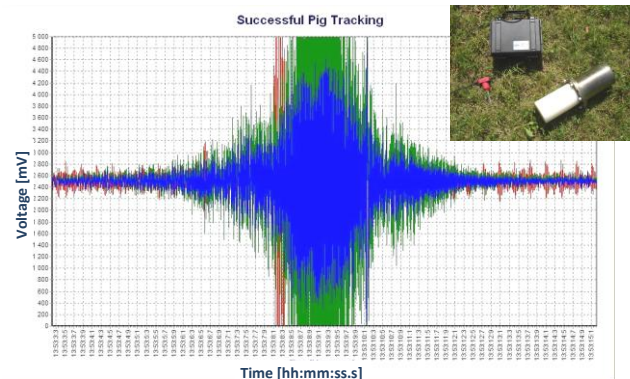
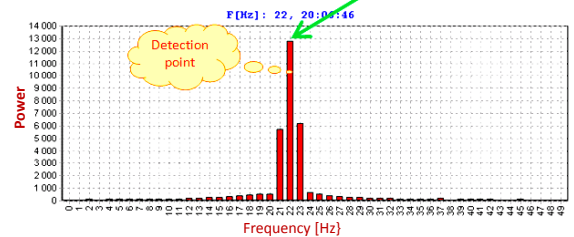
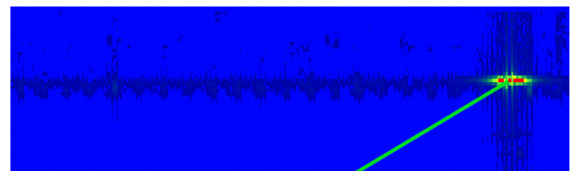
Range	7 m (in open air)
Work time	75 h (alkaline batts)
Working environment	water, crude oil, natural gas
Working temperature	-20°C - +70°C
Power supply	12 alkaline AA batts.
Transmitting conditions	continuous

ANT-800
for pipeline diameters between 27" and 47 "

Range	7 m (in open air)
Work time	200 h (alkaline batts)
Working environment	water, crude oil, natural gas
Working temperature	-20°C - +70°C
Power supply	12 alkaline C batts.
Transmitting conditions	continuous

2. Receiver (ROIC-09 i ARMF-09)

Power supply	4 D batts.
Work time	100 - 300 h
Built-in memory capacity	from 4 GB up to 16 GB
Acoustic signal bandwidth	< 200 Hz
Serial interface	USB 1.0
Dimensions	232 x 192 x 111 mm
Weight	2 kg
Housing airtightness class	IP 67



■	- Geophone signal (low amp. level)
■	- Geophone signal (high amp. level)
■	- Transmitter signal

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