

# P-THEM

## TIME DOMAIN HELICOPTER-BORNE ELECTROMAGNETIC SYSTEMS



### Applications:

- base & precious metals exploration
- kimberlite exploration
- groundwater exploration
- regional mapping
- geothermal mapping
- contamination mapping
- permafrost mapping



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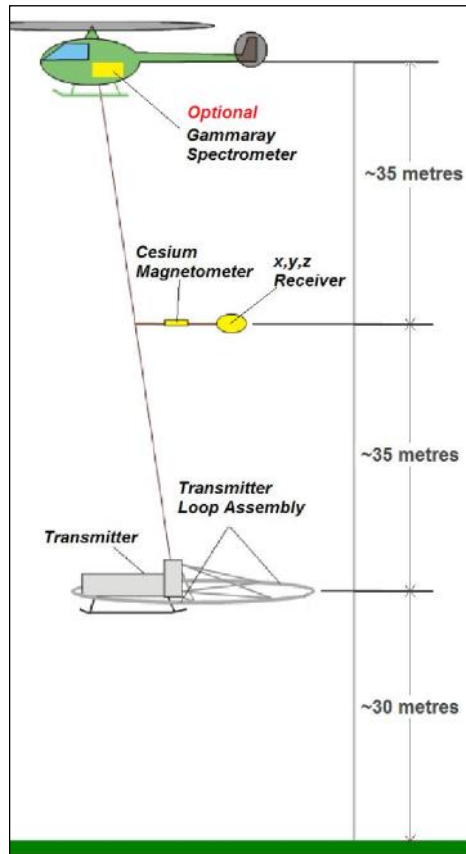
[www.mcpharinternational.com](http://www.mcpharinternational.com)

**P-THEM** is a versatile state-of-the-art time-domain helicopter-borne electromagnetic system. It features a powerful transmitter, an upgraded state of the art PC-based receiver and an advanced digital signal processing software package. It is adaptable, well suited for shallow soil mapping, ground water and/or ore-body exploration.

**P-THEM** comprises an 8.5 metres diameter (57 m<sup>2</sup>) transmitter loop assembly and a 3-axis receiver suspended on the tow-cable midway between the transmitter assembly and the helicopter. Power for the P-THEM system is provided by a motor generator mounted on the transmitter assembly.

**P-THEM** transmits a half sine wave 4ms pulse with a 400+ KNIA peak moment. It is easily transportable and rapidly deployed; typically in half-a-day.

The survey system also includes a high-sensitivity cesium magnetometer, a real-time OmniSTAR/DGPS differential navigation system, radar and barometric altimeters and an optional gammaray spectrometer with up to 16.8 litres of sensor.

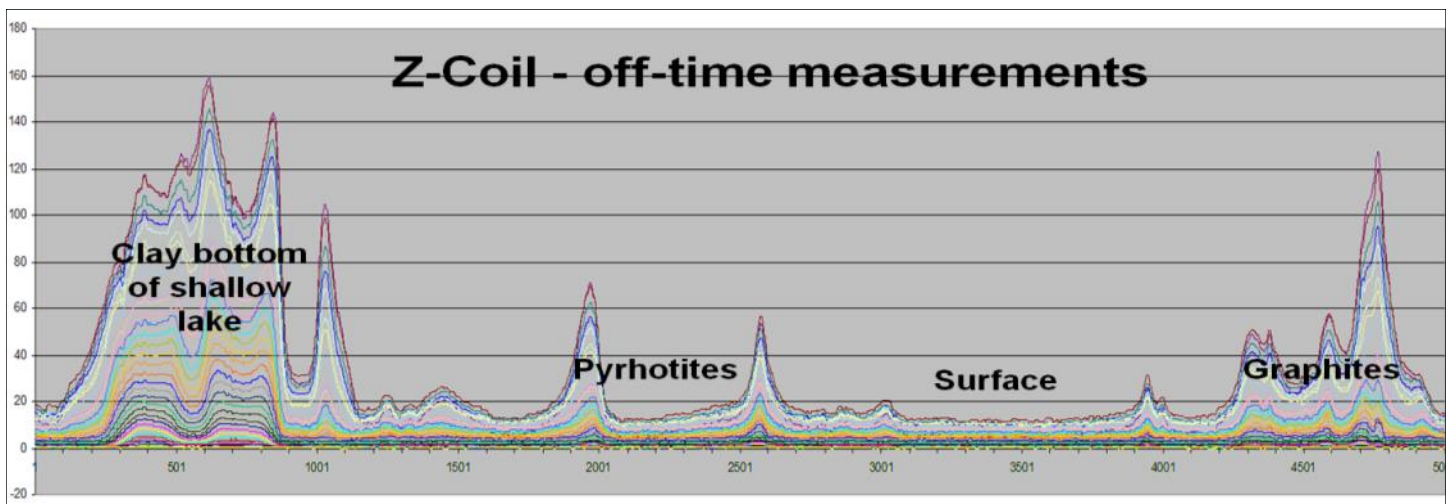


## Features:

- Compact, focused, rigid transmitter with high spatial resolution
- 4-turns, 8.5m diameter (57 m<sup>2</sup> area) transmitter loop
- 3-axis receiver midway between the transmitter assembly and the helicopter
- Depth of penetration from 400m to 450 metres in low to moderate resistive conditions
- Both ON-TIME and OFF-TIME measurements
- 400,000 NIA dipole moment
- Powered by a motor generator mounted on the transmitter assembly
- Slow speed and good contouring, transmitter altitude of 30 metres
- Coaxial system with symmetrical and accurate anomaly positioning (+/-1 m)
- Full waveform recording and processing (1,500 samples per channel per half cycle)
- 10Hz stacking integration
- Unlimited customized time-channels



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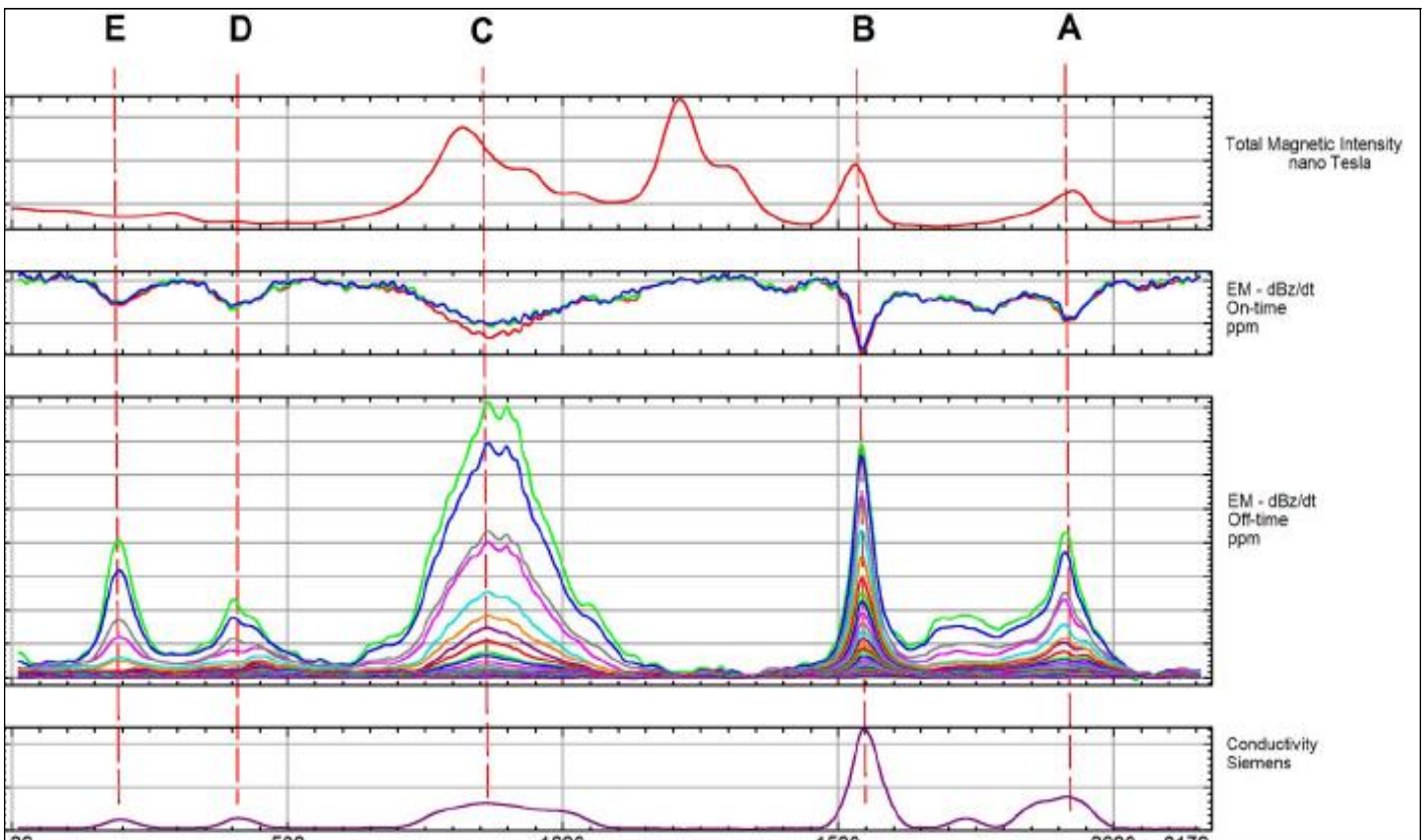
## P-THEM Specifications

### Transmitter:

Loop Diameter:	8.5 meters
Loop Axis:	Vertical
Current Waveform:	Half-Sine
Turns:	4
Pulse Length	4ms
Base Frequency	30 Hz (optional 25 Hz)
Dipole Moment	400,000 NIA
Loop Area	57 m <sup>2</sup>
Peak Current	4T, 1900A
Tow Cable Length	70 meters
System Weight	Approx. 320 kg (704 lb)

### Receiver:

Coils axis	Horizontal and vertical
Four channels	Current, X, Y and Z
Survey sampling rate	1500 per half cycle at 30Hz
Sampling	Full waveform
Time Channels	Unlimited
Gates number	Programmable (max 256)
Gates positions	Programmable
Gates width	Programmable
Off time	Start 75 $\mu$ s from pulse
On time signal	Recorded and processed



*Stacked profile of a survey line showing picked anomalies, Total Magnetic Intensity trace, dBz/dt trace of both on-time and off-time EM data, and calculated conductivity trace*