



# IMPAC

## INTEGRATED MULTI-PARAMETER AIRBORNE CONSOLE

A real-time data acquisition and navigation system designed for airborne (fixed wing and helicopter) geophysical exploration, environmental science, and monitoring application. IMPAC is integrated in a single rack-mountable enclosure that meets aviation requirements.

The IMPAC follows Pico Envirotec's modular design structure producing highly flexible and easily reconfigurable instruments for Airborne surveys. Wide variety of proprietary "intelligent" instruments and third party sensors and instruments (e.g. magnetometer sensors, radiation detectors, airborne gravity-meter) can be quickly and easily interfaced.

The IMPAC system eliminates the need to interconnect wires, creating a user friendly and robust product. All acquired data is synchronized with GPS time and position and recorded to solid state memory. Recorded data can be extracted to USB flash drive.

The IMPAC system can be assembled featuring following configurations:

- ANAV – Survey navigation with drape profile option; Recorded position and time can be synchronized with third party data.
- IMPAC – Survey navigation with drape profile option; Data acquisition for variety of sensors.
- IMPAC-M – Survey navigation with drape profile option; Data acquisition; support of up to 8 Cs magnetic sensors with Magnetic compensation option.



Typical rack installation

### IMPAC-M

The IMPAC-M is a multi-sensor data acquisition system with embedded survey navigation and integrated magnetometer processor. The IMPAC-M can support multiple cesium magnetometer sensors, providing real-time compensation (optional). The system can also be set with Time Domain EM equipment, synchronizing magnetometer sensor reading with Electromagnetic field pulsation.

### MAGNETOMETER BOARD SPECIFICATIONS

INPUT	Up to 8 cesium Mag sensors
Resolution	0.2 pT (Limited only by sensor)
Sampling rate (internal)	1200 Hz
OUTPUT	5-120 Hz
Analog inputs	8 differential simultaneous sampled, 16 bit resolution
Dynamic range	15000 – 100000 nT (Limited only by sensor)
Synchronization	GPS-PPS @ 1 $\mu$ s
Compensation (Optional)	Fluxgate magnetometers or Attitude reference

### ANAV Option

An advanced navigation system designed for airborne geophysical survey tasks. The ANAV provides guidance for a pilot to a preplanned survey grid: survey and tie lines, way points, special lines, etc. Preplanned drape surface can be displayed for consistent and safe AGL altitude. The ANAV system can support high brightness LCD screen – PGU (Pilot Guidance Unit) and an additional operator navigation screen. The operator navigation screen offers map-navigation features: selecting and switching between survey lines, measuring points, etc. The PGU screen displays cross-track and additional survey information for pilot. If there is not on-board operator, the ANAV will allow the pilot to easily start or end the survey, select between survey lines with a simple touch-screen option. The survey can be prepared using Pico Envirotec's supporting software or widely used applications such as Geosoft, GoogleEarth, etc. The drape profile visualization is available. The drape profile should be prepared in advance using appropriate software.