A3000 Acquisition Specification (preliminary)

General

Operational time between charge	100 days @ 2 ms
Maximum deployment depth	3000 m
Operating temperature range	-10 to +55 °C

Data acquisition 1)

Number of channels	4
ADC resolution	24 bit
Sample interval	0.5, 1, 2 and 4 ms
Pre-amplifier gain, adjustable	0 to 36 dB in steps of 6 dB
Gain Relative uncertainty	0.5 %
Recording bandwidth (-3dB)	DC – 0.413 x fDATA
Anti-aliasing filter	206.5 Hz (82.6 % of Nyquist) @ 2ms 2)
	Sinc+FIR, Linear phase
High pass filter	Programmable 0.1 – 10 Hz, or disabled
High pass filter roll off	6 dB/octave
Maximum input signal	± 2500 mV @ 0 dB
	± 625 mV @ 12 dB
	± 156 mV @ 24 dB
	± 39 mV @ 36 dB
Equivalent Input Noise	0.87 µVrms @ 0 dB
	0.31 µVrms @ 12 db
	0.21 µVrms @ 24 dB
	0.20 µVrms @ 36 dB
Dynamic Range at 0dB gain	127 dB
Total harmonic distortion (THD)	- 122 dB
Crossfeed	TBD
Common mode rejection ratio (CMR)	> 90 dB (all channels)

Self-test, diagnostic, and calibration

Geophone impedance test	Yes
Geophone impulse test	Yes
Hydrophone impedance test	Yes
Internal noise (preamp input terminated)	Yes
Internal gain accuracy	Yes
Internal THD	Yes
Channel separation	Yes
Differential common-mode rejection ratio	Yes
Automatic offset calibration	Yes
Automatic gain calibration	Yes

Transponder (Optional)

Type (integrated design)	Kongsberg 26Khz

Geophone

Type	ION SM-6
Number of Geophones	3
Configuration	Orthogonal
Type	Omnidirectional
Resonance frequency	14 Hz
Sensitivity	28.8 V/m/s
Damping	0.7
Sensitivity after damping	20.2 V/m/

Hydrophone

Frequency response (-3dB)	2 Hz – 30 kHz
Sensitivity	- 201 dB re: 1V/µPa (8.9V/bar)
Equivalent Input self noise (1-1000Hz)	78 dB re: 1µPa, (0.08µBar)
Spectral:	54 dB re: 1µPa/√Hz @ 10 Hz
	42 dB re: 1µPa/√Hz @ 100 Hz
	42 dB re: 1µPa/√Hz @ 1000 H

Tilt Sensor

Directions	X,Y,Z
Range X and Y	± 90 °
Relative uncertainty	± 1 °
Magnetometer (azimuth angle)	
Range	0 - 360 °
Relative uncertainty	± 5 ° (< 55 ° from Equator)

Internal Powersupply and Charger

Charger operating voltage range	36–72 VDC
Charger insulation voltage, input/output	1500 VDC
Recharge time to 85% SOC (100 days)	16 h

Battery and Battery Management System

Chemistry	Li-Ion
BMS	Fuel gauging, diagnostic and protection
Certification	UN38.3

Precision clock

Clock type	Microsemi CSAC 3)
Synchronization	inApril's fast sync solution
Maximum theoretical error after 30 days	± 1.78 ms uncorrected
Maximum theoretical error after 100 days	± 4.0 ms uncorrected
Typical error after 100 days (corrected)	± 1,0 ms

Data capture memory

Storage capacity total	64 GByte

Communication link; data capture and diagnostic

Ethernet over copper	100 base-TX

Mechanical specification

Position of normal use	±180°
Weight	21 kg (10.5kg in seawater)
Dimensions	316 mm x 286 mm x 115 mm

Notes

1) @ 2ms sampling interval, 25°C, 31.25 Hz, internal test, unless otherwise noted.

2) Recording bandwidth = 0,413 x fDATA
fDATA= sampling frequency =1/SampleInterval (Hz)

3) Always powered for improved stability

inApril Seabed Seismic Solutions

Per Krohgs vei 4, 1065 Oslo, Norway
phone: +47 2230 3000, mail: post@inapril.com

www.inapril.com