G3i HD®

GROUND EQUIPMENT
RAM (REMOTE ACQUISITION MODULE)

FEATURES

- 24-bit Delta-Sigma A/D Conversion
- 4 channels per RAM
- Low distortion test oscillator
- Supports SMT compatible phone testing
- Automatic error-free data transmission
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions
- In-field programmable firmware
- RAMs are powered by the FTUs or PSUs

SPECIFICATIONS

Sample Rates:	4 ms, 2 ms, 1 ms, 1/2 ms, 1/4 ms
Gains:	0 dB, 12 dB, 24 dB
Maximum Input (RMS):	1.768 V @ 0 dB gain 0.442 V @ 12 dB gain 0.110 V @24 dB gain
Equivalent Input Noise* (RMS):	0.790 uV @ 0 dB gain 0.220 uV @ 12 dB gain 0.098 uV @ 24 dB gain
Instantaneous Dynamic Range*:	127 dB @ 0 dB gain 126 dB @ 12 dB gain 121 dB @ 24 dB gain
System Dynamic Range*:	145 dB
Input Impedance:	20 KΩ (differential mode)
Total Harmonic Distortion*:	<0.0001%
Channel Matching:	Better than 1%
Common Mode Rejection*:	>110 dB
Crossfeed Isolation*:	>130 dB
Phase Accuracy:	+/- 10 us
Frequency Response:	0 Hz to 1652 Hz
Anti-alias Filters:	-3 dB @ .826 *f*N (Nyquist)
Rejection:	130 dB @ *f*N (Nyquist)
Distance between RAMs:	Up to 440 m (1444 ft) maximum
Operating Voltage:	PDL input of 24 V to 65 V
RAM Power Consumption*:	0.775 W max in full test mode 0.715 W typical in acquisition mode

PHYSICAL

Packaging:	Aluminum
Connectors:	Aluminum
Size:	25.0 cm (L) x 8.5 cm (W) x 6 cm (H) (9.8" (L) x 3.3" (W) x 2.4" (H))
Weight:	1.31 kg (2.88 lb)
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C
Water Depth:	5 m fully operational (fresh water)

*Typical specifications @ 2 ms sampling @ 25 °C

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G3i HD® GROUND EQUIPMENT

DRAM (DIGITAL REMOTE ACQUISITION MODULE)

FEATURES

- Support for 4 digital 3C sensors or up to 12 digital 1C sensors per DRAM
- Automatic error-free data transmission
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions
- In-field programmable firmware
- DRAMs are powered by the DFTUs and DPSUs

SPECIFICATIONS

Sample Rates:	4 ms, 2 ms, 1 ms
Distance between DRAMs:	Up to 440 m (1444 ft) maximum
Operating Voltage:	PDL input of 24 V to 65 V
DRAM Power Consumption*:	0.77 W max in full test mode (without sensors) 0.77 W typical in acquisition mode (without sensors)

PHYSICAL

Packaging:	Aluminum
Connectors:	Aluminum
Size:	25.0 cm (L) x 8.5 cm (W) x 6 cm (H) (9.8" (L) x 3.3" (W) x 2.4" (H))
Weight:	1.31 kg (2.88 lb)
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C
Water Depth:	5 m fully operational (fresh water)

*Typical specifications @ 2 ms sampling @ 25 °C

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G3i HD® GROUND EQUIPMENT

PSU (POWER SUPPLY UNIT)

FEATURES

- Incorporates 4 x G3i analog channels
- Hot-swappable dual battery ports
- Automatic error-free data transmission
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions
- In-field programmable firmware
- Provides PDL power to the RAMs

SPECIFICATIONS

Operating Voltage:	10.5 V to 18 V (12 V nominal)
PDL Support:	Up to 22 RAMs @ 13.75 m takeout interval
Power Consumption*:	Standby = 0.72 W Active = 1.65 W + PDL Power For 22 RAMs Active = 1.65 W + 20.43 W
Distance to next RAM:	Up to 440 m (1444 ft) maximum

PHYSICAL

Packaging:	Aluminum
Connectors:	Aluminum
Size:	31.0 cm (L) x 17.0 cm (W) x 8.6 cm (H) (13.8" (L) x 7.0" (W) x 3.5" (H))
Weight:	3.9 kg (9.1 lb)
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C
Water Depth:	5 m fully operational (fresh water)

*Typical specifications @ 2 ms sampling @ 25 °C . Power consumption values include all components.

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G3i HD® GROUND EQUIPMENT

DPSU (DIGITAL POWER SUPPLY UNIT)

FEATURES

- Support for 4 digital 3C sensors or up to 12 digital 1C sensors per DPSU
- Hot-swappable dual battery ports
- Automatic error-free data transmission
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions
- In-field programmable firmware
- Provides PDL power to the DRAMs

SPECIFICATIONS

Operating Voltage:	10.5 V to 18 V (12 V nominal)
PDL Support:	Up to 7 DRAMs @ 13.75 m takeout interval
Power Consumption*:	Standby = 0.71 W Active = 1.79 W + PDL For 7 DRAMs Active = 1.79 W + 20.1 W (96 SL11s)
Distance to next DRAM:	Up to 440 m (1444 ft) maximum

PHYSICAL

Packaging:	Aluminum
Connectors:	Aluminum
Size:	31.0 cm (L) x 17.0 cm (W) x 8.6 cm (H) (12.2" (L) x 6.7" (W) x 3.4" (H))
Weight:	4.1 kg (9.1 lb)
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C
Water Depth:	5 m fully operational (fresh water)

*Typical specifications @ 2 ms sampling @ 25 °C . Power consumption values include all components.

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G3i HD® GROUND EQUIPMENT

FTU (FIBER TAP UNIT)

FEATURES

- Provides connection between receiver line(s) and cross lines
- Incorporates 4 x G3i analog channels
- Hot-swappable dual battery ports
- Automatic error-free data transmission
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions
- In-field programmable firmware
- Provides PDL power to the RAMs

CAPABILITIES

Receiver Line Capacity:	3,000 channels @ 2 ms, uncompressed 25 m interval (one side of FTU)
Base Line Capacity:	75,000 channel @ 2 ms, uncompressed

SPECIFICATIONS

Operating Voltage:	10.5 V to 18 V (12 V nominal)
PDL Support:	Up to 44 RAMs @ 13.75 m takeout interval (22 per side)
Power Consumption*:	Standby = 0.91 W Active = 3.78 W + PDL Power For 44 RAMs Active = 3.78 W + 40.86 W
Distance to next RAM:	Up to 440 m (1444 ft) maximum
Distance between FTUs:	7 km single cable maximum 2 km full baseline capacity Standard cables are 250 m or 500 m

PHYSICAL

Packaging:	Aluminum
Connectors:	Aluminum
Size:	31.0 cm (L) x 17.0 cm (W) x 14.0 cm (H) (12.2" (L) x 6.7" (W) x 5.5" (H))
Weight:	4.35 kg (9.6 lb)
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C
Water Depth:	5 m fully operational (fresh water)

*Typical specifications @ 2 ms sampling @ 25 °C .

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G3i HD® GROUND EQUIPMENT

DFTU (DIGITAL FIBER TAP UNIT)

FEATURES

- Provides connection between receiver line (s) and cross lines
- Support for 4 digital 3C sensors or up to 12 digital 1C sensors per DFTU
- Hot-swappable dual battery ports
- Automatic error-free data transmission
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions
- In-field programmable firmware
- Provides PDL power to the DRAMs

CAPABILITIES

Receiver Line Capacity:	3,300 channels @ 2 ms, uncompressed 13.75 m interval (one side of DFTU)
Base Line Capacity:	75,000 channel @ 2 ms, uncompressed

SPECIFICATIONS

Operating Voltage:	10.5 V to 18 V (12 V nominal)
PDL Support:	Up to 14 DRAMs @ 13.75 m takeout interval (7 per side)
Power Consumption*:	Standby = 0.91 W Active = 3.92 W + PDL For 14 DRAMs (or 7 per side) Active = 3.92 W + 40.14 W (180 SL11s)
Distance to next DRAM:	Up to 440 m (1444 ft) maximum
Distance between DFTUs:	7 km single cable maximum 2 km full baseline capacity Standard cables are 250 m or 500 m

PHYSICAL

Packaging:	Aluminum
Connectors:	Aluminum
Size:	31.0 cm (L) x 17.0 cm (W) x 14.0 cm(H) (12.2" (L) x 6.7" (W) x 5.5" (H))
Weight:	4.35 kg (9.59 lb)
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C
Water Depth:	5 m fully operational (fresh water)

*Typical specifications @ 2 ms sampling @ 25 °C . Power consumption values include all components.

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G3i HD® GROUND EQUIPMENT

G3i HD LAND ANALOG CHANNEL CAPACITIES

Takeout Interval	Takeouts per Cable	Stations per Takeout	Cable Length (M)	Max RAMs powered per PSU	Max Stations powered PSU	Max RAMs powered per FTU	Max Stations powered per FTU	Tx Rate** (Mbps)	Sample Rate (ms)	Channel Capacity (per side of FTU)
13.75	4	1	55	22	92	44	180	18	2	3000
27.5	4	1	110	16	68	32	132	18	2	3000
55	4	1	220	12	52	24	100	10	2	1800
75	4	1	300	10	44	20	84	6	2	1000

G3i HD LAND ACCUSEIS SL11 CHANNEL CAPACITIES

Station Interval (up to)	Takeout Interval	Takeouts per Cable	Stations per Takeout	Cable Length (M)	Max DRAMs per DPSU	Max Stations per DPSU	Max DRAMs per DFTU	Max Stations per DFTU	Tx Rate** (Mbps)	Sample Rate (ms)	Channel Capacity (per side of DFTU)
13.75	41.25	4	3	165	7	96	14	204	20	2	3300
18.33	55	4	3	220	7	96	14	180	10	2	1800

G3i HD LAND VECTORSEIS ML21 CHANNEL CAPACITIES

Station Interval (up to)	Takeout Interval	Takeouts per Cable	Stations per Takeout	Cable Length (M)	Max DRAMs per DPSU	Max Stations per DPSU	Max DRAMs per DFTU	Max Stations per DFTU	Tx Rate** (Mbps)	Sample Rate (ms)	Channel Capacity (per side of DFTU)
10	13.75	4	1	55	7	32	14	60	20	2	3300
25	27.5	4	1	110	6	28	12	52	20	2	3300
50	55	4	1	220	5	24	10	44	10	2	1800

**TRANSMISSION RATE IS PER DATA PAIR.

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G3i HD® GROUND EQUIPMENT

RECEIVER LINE CABLE

Standard and water blocked cable

FEATURES

- Designed and manufactured to the highest specifications
- Offers the highest strength-to-weight ratio in the industry
- Multiple takeout options are available
- Multiple cable lengths and takeout intervals available
- Standard and water blocked cables available
- All cables are manufactured with 12-pin "Quick Lock Connector" cable heads

PHYSICAL SPECIFICATIONS

Receiver Line Cables with 55 m Takeout

Length:	220 m cable with 4 inline screw on ,
	5515 female takeouts at 55 m
Weight:	16.0 kg (35.3 lb), standard cable
	19.1 kg (42.0 lb), water blocked cable
OD:	8.3 mm (0.325"), standard cable
	9.3 mm (0.365"), water blocked cable

All Receiver Line Cables

Tensile:	273 kg (600 lb), typical
Water Blocked:	Cable heads and takeouts (standard cable)
	Cable, cable heads and takeouts (water blocked cable)
Operating Temperature:	-40 °C to +70 °C
Water Depth:	Fully operational at 5 m (16.4 ft) dependent on takeouts

TAKEOUT CONNECTORS

5515 (KCK compatible) - Male

5515 (KCK compatible) - Female

KCM – Male

KCM – Female

G3i HD® GROUND EQUIPMENT

FIBER BASELINE CABLE

FEATURES

- Designed and manufactured to the highest specifications
- Hermaphroditic fiber optic connector design
- Fiber optic cables provide greater bandwidth than copper cables
- Connects FTUs and FRUs together and to the Central Recording System

SPECIFICATIONS

Length:	500 m
Weight:	15.0 kg (33.0 lb)
Tensile:	61.18 kg (134.9 lb), typical
Jacket:	Single
OD:	5.8 mm (.23")
Operating Temperature:	-40 °C to +70 °C
Water Depth:	5 m fully operational

FIBER BASELINE CABLE TESTER

FEATURES

- Verifies 2 way communication through fiber cables
- Can be used to power up baseline and activate positive indicator lights on baseline and receiver line ground electronics

SPECIFICATIONS

Size (Fiber Baseline Cable Tester):	21.86 cm (L) x 8.56cm (W) x 6.01cm (H) (8.61 in. (L) x 3.37 in. (W) x 2.37 in. (H))
Weight:	2 kg (4.41 lb)
Operating Temperature:	-40 °C to +70 °C
Size (Loopback Plug):	17.5 cm (L) x 10.9 cm (Ø) (6.9 in. (L) x 4.3 in. (Ø))

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G3i HD® ADDITIONAL EQUIPMENT

TRANSITION ZONE (TZ) CASES

FEATURES

- RAM, FTU, PSU, and Battery equipment are packaged for use in marine environments up to 125m water depth
- TZ sleeve encloses standard land RAM and dedicated TZ units are used for FTU, PSU and Battery
- Seamless integration from land to transition zone
- State of the art solution for ocean and freshwater 2D and 3D TZ projects in water depths to 125m
- Simple and reliable add on to G3i HD for today's land 2D and 3D projects to overcome challenging river, lake, and bay crossings

G3i HD Transition Zone PSU

G3i HD Transition Zone FTU

SPECIFICATIONS

RAM Sleeve

Size:	10.16 cm x 7.62 cm x 42.92 cm (4" x 3" x 16.9")
Weight:	5.5 kg loaded with RAM (12.13 lb)
Packaging:	Aluminum
Coating:	Type III, Class I Hard Anodizing
Connectors:	Aluminum
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C

FTU and PSU

Size:	16.89 cm x 7.62 cm x 41.35 (6.65" x 3" x 16.28")
Weight:	5.7kg FTU(12.56 lb), 5.5kg PSU (12.12)
Packaging:	Aluminum
Coating:	Type III, Class I and Class II Hard Anodizing
Operating Temperature:	-40 °C to +70 °C
Storage Temperature:	-45 °C to +85 °C

Battery

Size:	10.66 cm x 46.73 cm (4.2" x 18.4")
Weight:	9.0 kg (19.84 lb)
Packaging:	Aluminum
Coating:	Type III, Class I and Class II Hard Anodizing
Operating Temperature:	-20 °C to +60 °C
Charging Temperature:	0°C to +40 °C
Storage Temperature:	-40 °C to +60 °C

Cable

Cable OD:	16 mm (0.63")
Cable Tensile:	680 kg (1500 lb)
Connector Tensile:	453 kg (1000 lb)
Weight @ 110M Length:	29 kg (63.93 lb)
Jacket Material:	Polyurethane
End Connector Material:	Aluminum
End Connector Coating:	Type III, Class I Hard Anodizing
Operating Temp:	-40°C to +70°C
Storage Temp:	-40°C to +70°C

G3i HD® ADDITIONAL EQUIPMENT

G3i HD NETLINK™

- Provides wireless link for telemetry signals
- Worldwide license-free radio operation
- Supports full G3i HD receiver line capacity
- 3km line of sight range
- Configurable RF channels to avoid local interference
- Intuitive, rapid in situ configuration, link planning, and alignment through local Wi-Fi link
- Link can be easily established in minimal time
- Hot-swappable dual battery ports
- In-field programmable firmware
- Positive operation LEDs provide instant verification of connectivity, power and telemetry functions

SPECIFICATIONS

Operating Frequency:	5725-6200 MHz. (Subject to local regulations)
Modulation:	Configurable from 1/4 rate QPSK to 1024 QAM, with forward error correction
Output Power:	20dBm-50dBm (Subject to local regulations)
Receive Sensitivity:	As low as -95dBm,module dependent
Power Consumption:	50 W* (typical)
Maximum Radio Module Height:	2m without guywires in standard configuration

PHYSICAL

Mast with transport case

Size***:	137.2 cm x 38.1 cm x 38.1 cm (54" x 15" x 15")
Weight***:	42.6 kg (94 lb)

Ground electronics with transport case (Est.)

Size***:	1.36m x 84.6 cm x 67.3 cm (53.6" x 34" x 26.5")
Weight***:	57 kg (125 lb)
Operating Temperature:	-40 °C to +55 °C
Storage Temperature:	-45 °C to +85 °C
Humidity:	0% - 95% condensing

***Per each of 2 NetLink units that comprise a "link"

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G3i HD® ADDITIONAL EQUIPMENT

NETWORK TEST UNIT (NTU)

FEATURES

- Integrates seismic line interface
  - Single G3i HD fiber baseline support
- Supports limited G3i HD software features
  - Does not support acquisition
  - Supports all line and sensor testing

SPECIFICATIONS

Connectivity: Serial, USB2, LAN, G3i HD Line Interface

OPTIONS

iSys Plotter (LAN)

PHYSICAL

Size:

45.7 cm (W) x 34.3 cm (H) x 14.0 cm (D)

(18.0" (W) x 13.5" (H) x 5.5" (D))

Weight:

10.5 kg (23.1 lb)

Operating Temperature:

+10 °C to +40 °C

Storage Temperature:

-10 °C to +60 °C

Humidity:

Operating 10% to 80% non-condensing

Storage 10% to 90% non-condensing

Power (12VDC)

Nominal 75 W

6.2 Amps

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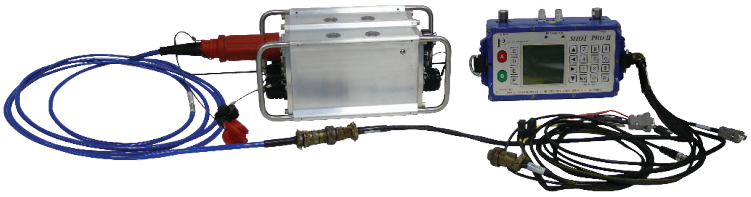
G3i HD® ADDITIONAL EQUIPMENT

REMOTE ENCODER

FEATURES

- Remote Encoder option allows crews to perform wireline shooting in areas with poor radio communications between G3i CRS and Shot Pro II or Shot Pro HD decoders
- Can be connected to G3i HD's PSU/DPSU or FTU/DFTU
- Supports radio communications between Shot Pro II or HD Remote Encoder(s) and the Shot Pro II or HD decoders, as terrain allows
- Multiple Remote Encoders can be used on the spread
- Provides communication and fire closure commands from the recording truck
- Rugged design for durability in all climates and environments
- Standard Shot Pro II**** or Shot Pro HD**** decoder can be easily programmed as a remote encoder as needed
- Encrypted fire commands to prevent firing non-selected decoder units
- Digital-coded transmission provides error detection and correction for more reliable communications
- Precise synchronization and detonation detection with QC data transmission



Shot Pro II Remote Encoder connected to FTU

****Refer to the Shot Pro II and Shot Pro HD datasheets for full specfications.

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G3i HD® ADDITIONAL EQUIPMENT

SOLAR PANEL

FEATURES

- Solar battery charger made from sunlight resistant polyester film and fiberglass laminate
- Light-weight, high durability and impact resistant design for optimal portability
- Quick-connect, 12 volt connection to G3i HD compatible battery
- Water resistant and rust proof

SPECIFICATIONS

Power:	20 Watts (40 Watts available)
Peak Voltage:	15 V

PHYSICAL

Size:	622 mm (W) x 508 mm (H) (24.5" (W) x 20" (H))
Weight:	2.09 kg (4.6 lb)

SERVICE AND REPAIR KITS

FEATURES

The Repair and Test Station (RTS) provides a PC-based test station capable of performing all system tests on G3i HD ground equipment, as well as tools, test fixtures and equipment needed to perform periodic maintenance and repairs.

G3i HD® ADDITIONAL EQUIPMENT

G3i HD LASER LINK

FEATURES

- Provides wireless link for telemetry signals
- Supports G3i HD baseline up to 65,000 channels @ 2ms
- Supports Rline with support from Fiber Tap Units (FTU'S)
- Up to 1 km line of sight (LoS) range
- Link connectivity can be established in minimal time

SPECIFICATIONS

Power Consumption:	25 W*(typical)
Maximum link distance:	< 1 km LoS
Maximum operational height:	1.52 m (60")

PHYSICAL

Typical dimensions when unit is operational:

Size**:	1.23 m x 1.23 m x 1.23 m (48" x 48" x 48")
Weight**:	42.6 kg (94 lbs)

Ground electronics with transport case (Est.)

Size**:	0.35 m x 0.81 m x 0.51 m (12" x 32" x 20")
Weight**:	30 kg (66 lbs.)
Operating Temperature:	-30 °C to +60 °C
Storage Temperature:	-40°C to +70 °C

*Typical specifications @ 25 °C

**Dimensions, weight and power consumption are per each of 2 NetLink units that comprise a "link"

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