

Gordon Technologies'

GT-MWD

THE INDUSTRY'S PREFERRED SOLUTION FOR INNOVATION, PERFORMANCE, AND RELIABILITY

OVERVIEW

Gordon Technologies' MWD is a faster, more robust, and more reliable MWD system than any other on the market. GT-MWD and GT-Shock Miser were specifically designed to address the most common points of MWD failure in today's unconventional drilling environments, namely failures due to extreme drilling conditions, shock and vibration. The combination of Gordon's patented pulser and patented shock and vibration mitigation system creates a faster, more robust, and more reliable MWD system that is achieving industry-leading performance.

FEATURES

SHOCK MISER™ TECHNOLOGY

- ▶ Decades of MWD research and development, combined with precision engineering, yield a fully inclusive solution to dampen shock and vibration from a broad band of damaging harmonics and frequencies. Lowering shock and vibration transmissibility allows operators to have less restrictive drilling parameters, ensuring the GT-MWD system is not a limiting factor.
- ▶ Shock Miser isolation technology is incorporated notably in the MWD UBHO and distributed throughout the string with Shock Miser influence of component design and proprietary inner barrel suspension packaging of PCBs and control modules.

DATA TRANSMISSION

- ▶ GT-MWD contains a fully re-designed and patented pulser and mud pulse transmission assembly generating an industry leading pulse amplitude providing faster and more dense data with confidence at deeper depths than the typical MWD systems.
- ▶ Flow configurations are flexible and work across a wide range of flowrates.
- ▶ Proprietary data compression algorithms and dual transducer decoding for high-speed logging

REAL-TIME DATA ACQUISITION

- ▶ Drilling dynamics; environmental sensors include axial and lateral shock and vibration, high speed RPM monitoring stick slip, SSI, and torsional acceleration.
- ▶ 6-axis, 6-decimal place raw survey capability for survey management

ADVANCED MECHANICAL DESIGN

- ▶ Retrievable MWD options
- ▶ Innovative module packaging allows a shorter and easier MWD tool to build and service
- ▶ Proprietary MWD centralizers and internal shock mounting for improved life of electronic components

OPTIONAL ADVANCED SERVICES AVAILABLE

- ▶ Heat Miser™ : Extreme Temperatures Package
- ▶ GT-Tracker™ : RSS Compatible MWD
- ▶ Azimuthal Gamma : Geological and Reservoir Awareness
- ▶ GT-PWD : Pressure While Drilling
- ▶ GT-Seeker : Reduced EOU for Precision Wellbore Placement
- ▶ Remote Operations : Increased Safety and Reduced Costs

For more information, contact us at www.gordontechnologiesllc.com

Sales of Gordon Technologies' products and services will be in accord solely with the terms and conditions contained in the contract between Gordon Technologies and the customer that is applicable to the sale. GT-MKT-BRO-003 © 2021 Gordon Technologies. All Rights Reserved.



Gordon Technologies'

GT-MWD

THE INDUSTRY'S PREFERRED SOLUTION FOR INNOVATION, PERFORMANCE, AND RELIABILITY

Directional Sensor			
Parameters	Accuracy	Repeatability	Resolution
Azimuth (Degree)	+/-0.5 min	+/- 0.5	0.1
Inclination (Degree)	+/- 0.1 min	+/- 0.05	0.1
Temperature (°C)	+/- 2.0	+/- 1.0	0.1
Local Magnetic Field (Total Magnetic Field, microTeslas)	+/- 0.1 mT	+/- 0.1 mT	0.05 mT
Gravitational Position- front of the unit (Highside Toolface, Degrees)	+/- 0.5	+/-n 0.5	0.1
Magnetic Position- front of the unit (Magnetic Toolface referenced to Grid or True North, Degrees)	+/- 1.0	+/- 1.0	0.1
Azimuth position- front of the unit (Magnetic Toolface referenced to Grid or True North, Degrees)	+/- 1.0	+/- 1.0	0.1

Directional Sensor Specifications	
Operating Temperature	-20 ° C to 160° C
Vibration	20 Grms, 10Hz- 500 Hz
Operating Shock	500 G
Operating Voltage Range	18-31 VDC
Current (@28 Volts)	125 mA max
Memory (logging environmental data)	36 MB
Service time	2 Hours

Pulser Specifications	
Battery Life @ 1.5 DR	500 hours
Average Power	1.04 watts
Longevity	= 3,000 hours
EM Interference	Low
Service time	2 Hours
Operating Temperature	175°C
MTBF	>6,000 hours

For more information, contact us at www.gordontechnologiesllc.com

Sales of Gordon Technologies' products and services will be in accord solely with the terms and conditions contained in the contract between Gordon Technologies and the customer that is applicable to the sale. GT-MKT-SS-001 © 2021 Gordon Technologies. All Rights Reserved.



Gordon Technologies'

GT-MWD

THE INDUSTRY'S PREFERRED SOLUTION FOR INNOVATION, PERFORMANCE, AND RELIABILITY

Gamma Ray Sensor			
Parameters	Accuracy	Repeatability	Resolution
Gamma Ray Real Time	1.4 CPS per API	Average 14 seconds (with Dynamic Sequence enabled and .5 sec pulse Width)	.5 FT @ 50 ft/hr ROP 1.0 FT @ 100 ft/hr ROP 1.5 FT @ 150 ft/hr ROP

Gamma Ray Sensor Parameters	
Accuracy	+/- 2% to 300°F (150°C), +/- 5% to 356°F (180°C)
Vertical Resolution	Gamma ray sensor: 6.8"
Shock: Z- Axis	500g/ 0.5 milliseconds
Vibration	20g RMS

Directional Only Transmission Rates (Sliding/Rotating)					
Data Rate	Raw Survey from Pumps On	Tool Face	Sliding XYS Shock/Temp	Rotating XYZ Shock	Rotating Temp/ Dynamic Inclinations
.375	1 min 54 sec	5 seconds	3.5 minutes	7 seconds	2 min 49 sec
.5	2 min 17 sec	7 seconds	5 minutes	9 seconds	3 min 45 sec
.6	2 mi 35 sec	8 second	6 minutes	1 seconds	4 min 30 sec
.8	3 min 12 sec	11 seconds	8 minutes	14 seconds	6 min
1.0	3 min 49 sec	14 seconds	10 min	18 seconds	7 min 30 sec

Gamma/ Directional Transmission Rates								
Data Rate	Raw Survey from Pumps On	Tool Face	Gamma Sliding	Gamma Rotating	Sliding XYS Shock	Rotating XYZ Shock	Dynamic Inclinations	Dynamic Azimuth
.375	1 min 54 sec	5 seconds	16 sec	5 sec	2 min 56 sec	17 seconds	4 min 9 sec	4 min 32 sec
.5	2 min 17 sec	7 seconds	21 sec	7 sec	3 min 55 sec	23 Seconds	5 min 32 sec	6 min 3 sec
.6	2 mi 35 sec	8 second	25 sec	8 sec	4 min 50 sec	28 seconds	6 min 38 sec	7 min 16 sec
.8	3 min 12 sec	11 seconds	34 sec	11 sec	6 min 27 sec	37 seconds	8 min 51 sec	9 min 41 sec
1.0	3 min 49 sec	14 seconds	42 sec	14 sec	8 min 0.4 sec	46 seconds	11 min 4 sec	12 min 6 sec

For more information, contact us at www.gordontechnologiesllc.com

Sales of Gordon Technologies' products and services will be in accord solely with the terms and conditions contained in the contract between Gordon Technologies and the customer that is applicable to the sale. GT-MKT-SS-001 © 2021 Gordon Technologies. All Rights Reserved.



Gordon Technologies'

GT-MWD

THE INDUSTRY'S PREFERRED SOLUTION FOR
INNOVATION, PERFORMANCE, AND RELIABILITY

Gordon MWD System Tool Size & Flow Rate Ranges (Transmission Rates)

Tool Size	Flow Rate Range [gpm]	Dog Leg Severity Rotating/Sliding	LCM Restrictions (Med/Fine Nut Plug)[lb/bbl]	AVG/MAX Pressure Drop [psi]	Tool Length Dir-Gam [ft/ft]
3-1/2" O.D.	60 -180	40/60 °/100 ft	20	350/500	19/23
4-3/4" & 5" O.D.	140 – 350	30/40 °/100 ft	40	250/350	19/23
5-1/2" O.D.	250 – 425	30/40 °/100 ft	40	250/350	19/23
6-1/2" O.D.	200 – 900	DS Dependent	40	250/350	19/23
8" O.D.	300 – 1200	DS Dependent	40	250/350	19/23
9-1/2" O.D.	300 – 1200	DS Dependent	40	250/350	19/23

Sub Size	Flow Range (WBM) [gpm]	Flow Range (OBM) [gpm]	TFAOpen [in ²]	ΔP @ Min Flow 9 / 14 ppg mud [psi]	ΔP @ Max Flow 9 / 14 ppg mud [psi]
4-3/4 & 5 ULF	150 – 230	150 – 250	0.695	100/150	150/210
4-3/4 & 5 LF	180 – 250	180 – 280	0.787	100/130	150/190
4-3/4 & 5 SF	220 – 280	220 – 320	0.831	120/150	180/220
4-3/4 & 5 HF	250 – 350	250 – 350	0.976	110/140	180/220
5-1/4 HF	280 – 375	280 – 375	0.976	140/170	200/280
5-1/4 XF	300 – 425	300 - 425	1.073	140/180	210/290
6-1/2 & 6-3/4 ULF	250 -500	250 - 550	0.976	150/180	180/220
6-1/2 & 6-3/4 LF	250 – 500	250 – 600	1.072	140/170	210/280
6-1/2 & 6-3/4 SF	350 – 650	350 - 650	1.261	160/200	260/280
6-1/2 & 6-3/4 HF	550 – 800	700 - 800	1.498	180/230	300/400
6-3/4 HF SUPER	550 – 800	700 – 800	1.498	180/230	300/400
6-3/4 XF SUPER	700 - 1000	700 - 1200	1.749	160/220	320/470
8 LF	350 – 550	350 – 690	1.072	150/200	210/280
8 SF	450 – 600	450 – 750	1.261	150/200	260/350
8 HF	550 – 750	550 – 940	1.498	180/230	300/400
8 XF	700 – 1200	700 – 1500	1.749	160/220	320/420
8 MF	1000 – 1300	1000 – 1625	1.98	210/330	360/560

For more information, contact us at www.gordontechnologiesllc.com

Sales of Gordon Technologies' products and services will be in accord solely with the terms and conditions contained in the contract between Gordon Technologies and the customer that is applicable to the sale. GT-MKT-SS-001 © 2021 Gordon Technologies. All Rights Reserved.

