

MWD Directional Detector Module (MWD-DGDM)

Titan Division | Instruments



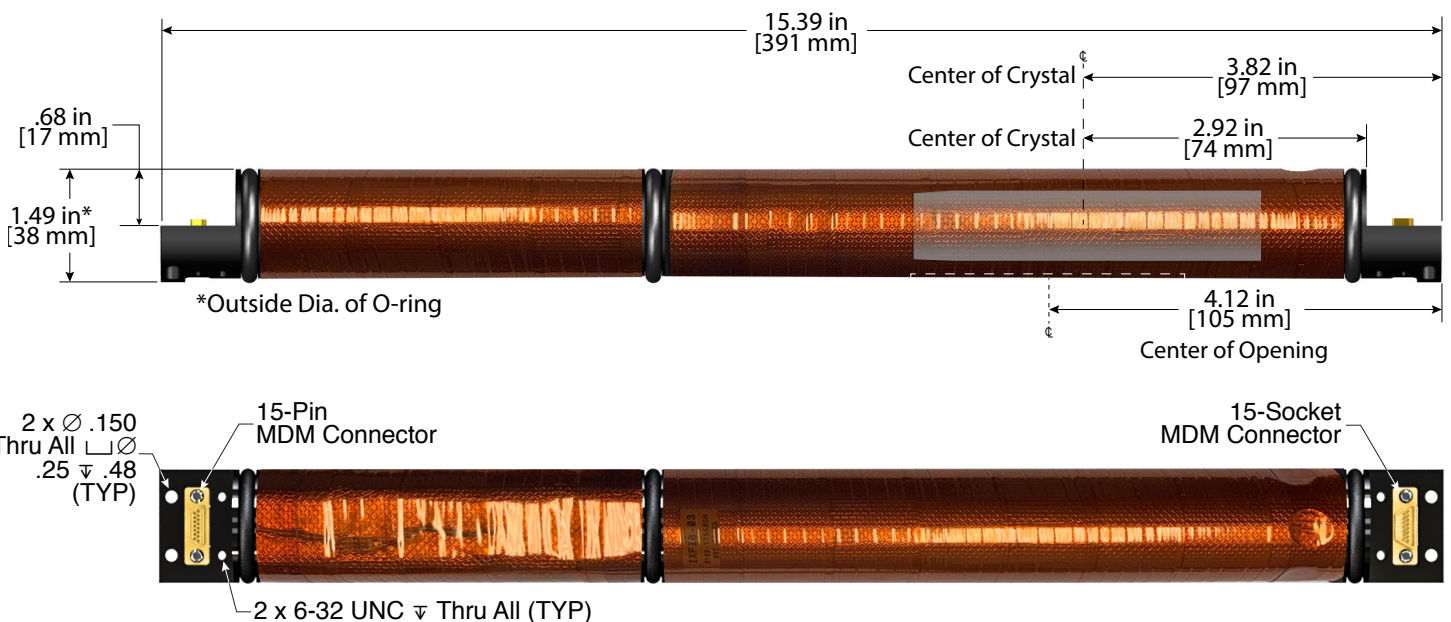
Features

- Proprietary shock and vibration technology
- Continuous operation at 347°F (175°C)
- High front to back sensitivity ratio
- Optimized for Geosteering
- Low power operations, optimized for battery operations to maximize battery life
- MDM 15-pin connectors with industry standard through wiring allow drop-in replacement in most MWD systems
- Compact and rugged. High survivability in underbalanced and air drilling environments
- Unaffected by MWD pulser or EM transmitter electrical noise
- Detector design minimizes vibration and shock induced false counts
- Optional grounded or ungrounded (floating) chassis for EM applications

Hunting’s ruggedized MWD Gamma Detector Module has been field proven in both conventional MWD and EM-MWD Geosteering applications

The tool’s scintillation crystals and integral PMT assemblies are manufactured using Hunting’s proprietary assembly and shock-mounting technology. This technology provides outstanding protection against damage under higher shock and vibration drilling conditions.

Low dead time for optimal pulse per angular degree detection



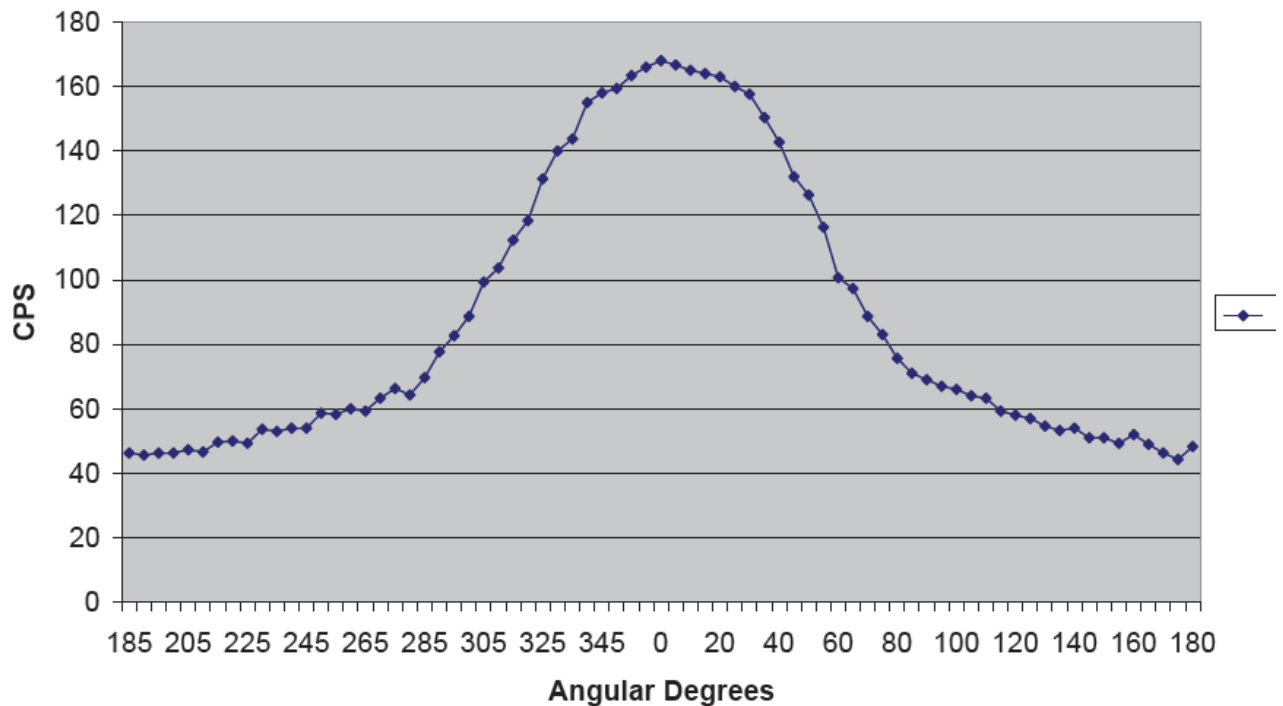
Directional Gamma Detector Assembly

Designed especially for MWD Geosteering, the NaL(Tl) Crystal's sensitivity is directional optimized utilizing a proprietary Tungsten chassis.



- PTM & Crystal mounting is extreme shock, impact and vibration resistance
- The PMT and Crystal assembly is protected by patented shock and vibration mounting technology†
- Can be qualified for up to 200°C (392°F) [Hamamatsu R3991AH required]
- Patented self-healing optical coupler reduces interface light loss to improve output pulse height
- Excellent front to back attenuation ratio.

Directional Gamma Angular Response Using Radium 226 Source at 6 inches



†US patents: 7,115,873 7,381,957 7,485,865 7,485,851

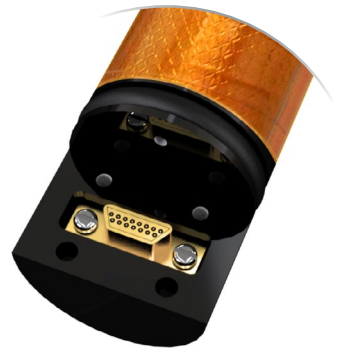
Specifications (MWD-DGDM)

Part Number Series	
MWD Directional MWD	8100-17558DG087-04-XX-A
Measurements	
Thin Bed Resolution 8 in. hole diameter @ 50% points	6.8 in (173 mm)
Maximum Count Rate	>10,000 cps
Count Rate Stability over Temperature	±10% 0°C to 175°C (32°F to 347°F)
Sensitivity (beryllium copper housing)	2.3 +/-0.2 API/cps
Effective Angular Window	±60°
Front/Back Count Ratio	3.5
Active NaI Crystal Size	0.84 x 4.18 in (21.3 x 106.2 mm)
Maximum Pulses/Angular Degree	Approximately 28 cps/angular degree @ 60 RPM
Environmental	
Operating Temperature Rating	-40 to 175°C (-40 to 347°F)
Maximum Temperature Gradient	3°C/min (5.4°F/min)
Total Vibration (3 Axis)	20 G RMS (50 – 1000 Hz)
Shock (X-Y Axis)	1000 G (0.5 ms)
Shock (Z Axis)	1000 G (0.5 ms)
Mechanical	
O.D. with O-Rings (outside of o-ring)	1.485 in (37.7 mm)
Length	15.39 in (391 mm)
Electrical Connections	MDM 15-pin male/female
Weight	4.84 lbs. (2.2 kg)
Back Shielding	Tungsten
Electrical	
Operating Voltage Range	18-38 VDC
Maximum Operating Voltage	40 VDC
Operating Current (constant power)	13 ±5 mA
Output Pulse TTL or CMOS	Negative (+5VDC to 0VDC), Positive (0VDC to +5VDC)
Output Pulse Width	2 to 5 microseconds
Photomultiplier Tube Type	Hamamatsu
Overall Dead Time	Approximately 6 microseconds

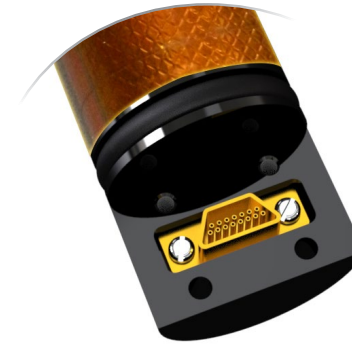
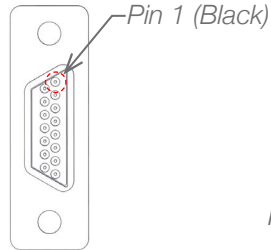
• MWD Directional Gamma Detector Module_Tool Specifications
• October 7, 2019

About Hunting's Titan Division

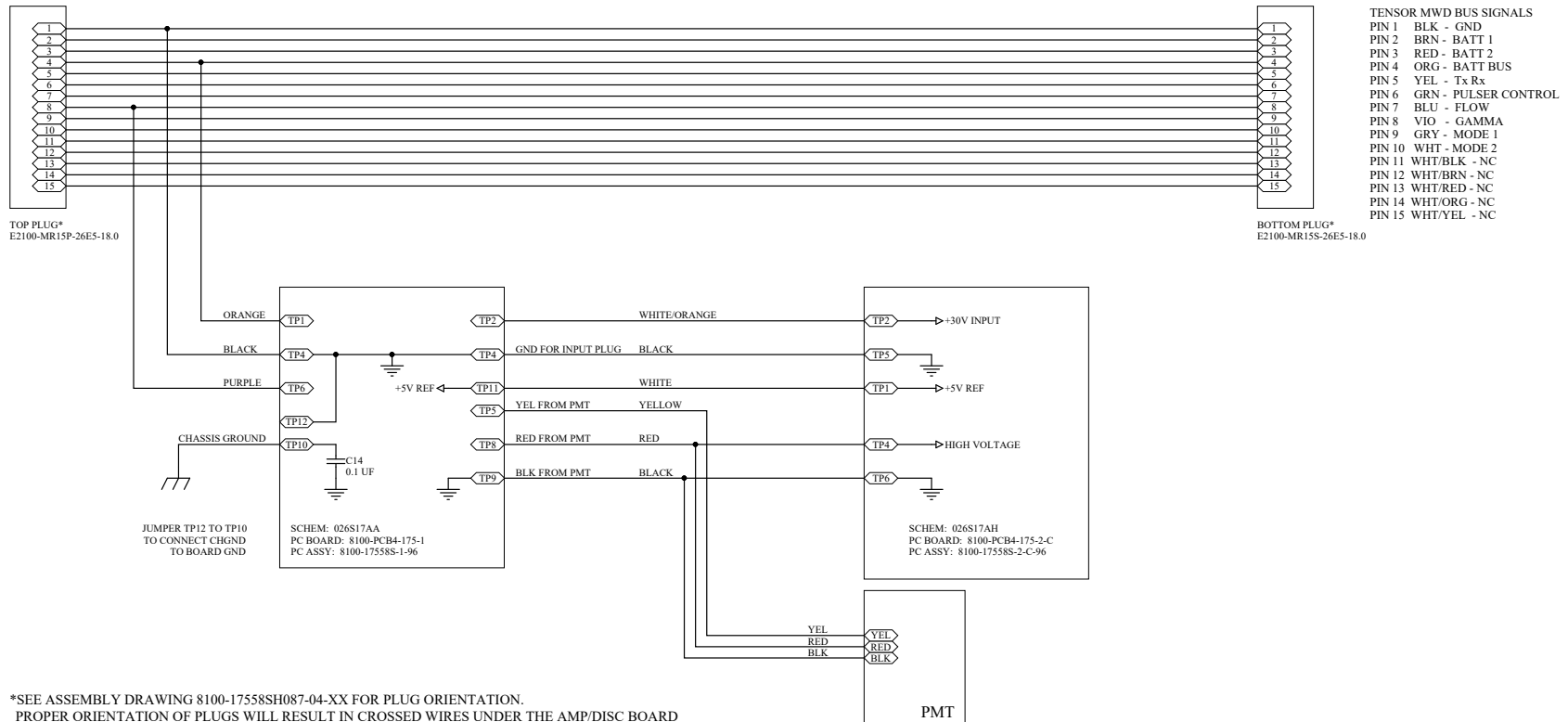
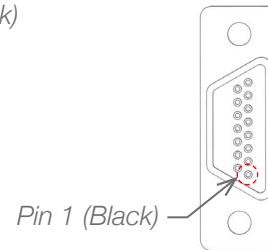
For successful cased hole logging and perforating services, tool reliability, availability, and time line of delivery are essential. Hunting supplies customers worldwide with the right tools to get the job done. Our product lines include state of the art, high quality wireline and tubing conveyed perforating (TCP) gun systems, hardware and accessories, shaped charges, and electronic logging tools.



Top End MDM Connection



Bottom End MDM Connection



*SEE ASSEMBLY DRAWING 8100-17558SH087-04-XX FOR PLUG ORIENTATION.
PROPER ORIENTATION OF PLUGS WILL RESULT IN CROSSED WIRES UNDER THE AMP/DISC BOARD