

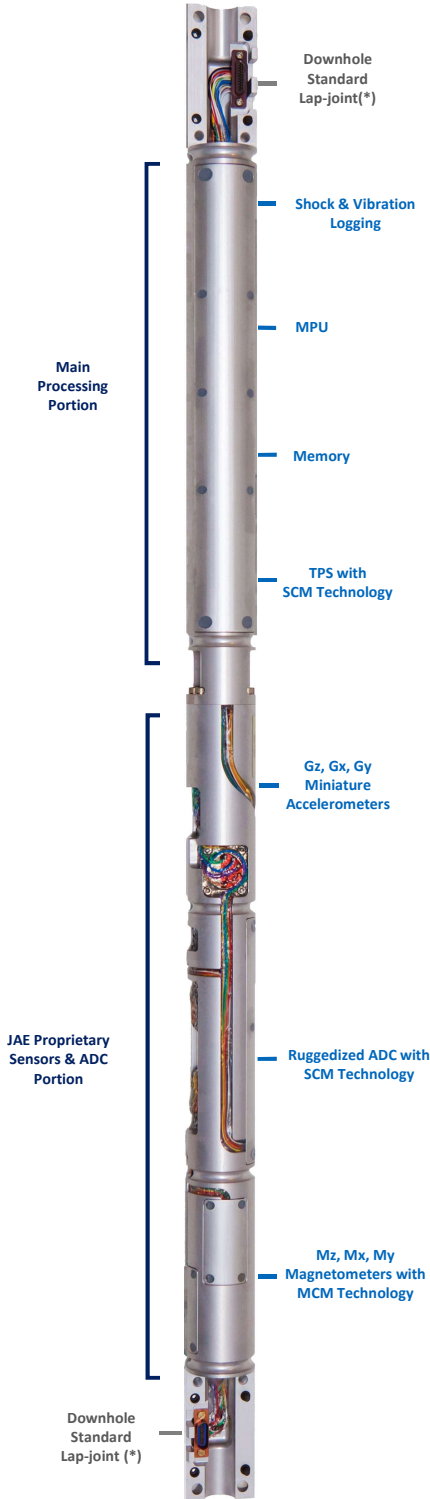


-Technology to Inspire Innovation-

JAE SMART DM 185°C

-Leading Customers in the Right Direction-

JAE's SMART DM is a ruggedized directional module designed for continuous downhole operation. Engineered for utmost quality & reliability, using JAE's proprietary sensor technology, the SMART DM is a full-featured system. It has the ability to measure dynamic inclination and azimuth, multi-axis shock and vibration, and downhole RPM for optimized drilling performance. With the addition of an optional integrated Azimuthal Gamma Controller feature, the SMART DM is a "plug & play" solution for most current & legacy Directional Modules, while incorporating the latest technology.



(*) End connections can be customized as requested

SMART DM Common Features

- Integrated Azimuthal Gamma Controller
- Dynamic Inclination and Dynamic Azimuth
- Digital Directional Module
 - MWD microcontroller/microprocessor
 - 24-bit ADC for precise 6-axis surveys
 - Calibration coefficients stored on-board
- M-ary Telemetry protocol
- Real-time shock and vibration
- Dynamic sequences (ability to send rotating/sliding frames)
- RPM measurement
- Flow & Rotation downlink
- Smart power management, Efficient battery switching
- Multiple communication protocols supported: CAN, UART & Q-bus
- Control MWD tool string: Pulsar, Gamma, Resistivity
- Internal Logging Memory
 - Operational time and environmental history
 - Lifetime Environmental history

185°C SMART DM Key Features

- 185°C Operating Temp and 190°C Survival
 - ≈20% reduction in power consumption vs existing model
- Robust accelerometers (> 30 Grms vibs/2,000 G shock rated)
- Same external dimensions and pin-outs as 175°C SMART DM

Contact Us https://www.jae.com/en/Motion_Sensor_Control/

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JAE SMART DM 185°C

	Parameter	Specification	Typical
Performance Specifications	Inclination:	$\pm 0.10^\circ$	$\pm 0.01^\circ$
	Azimuth:		
	@ 90° INC	$\pm 0.25^\circ$	$\pm 0.02^\circ$
	@ 10° INC	$\pm 0.50^\circ$	$\pm 0.10^\circ$
	@ 5° INC	$\pm 1.00^\circ$	$\pm 0.20^\circ$
	Dip Angle	$\pm 0.20^\circ$	$\pm 0.02^\circ$
	Total Gravity Field	$\pm 1.25 \text{ mG}$	$\pm 0.25 \text{ mG}$
Total Magnetic Field	$\pm 125 \text{ nT}$	$\pm 20 \text{ nT}$	
Toolface	$\pm 0.20^\circ$		
Electrical, Mechanical Environmental Specifications	Length:	29.2"	
	Diameter:	1.36"	
	Operating Temperature:	-20C to +185C	
	Survival Temperature:	-40C to +190C	
	Vibration, Random:	20G RMS, 10-500 Hz	
	Shock:	500G, 1mSec, half-sine	
	Operating voltage range:	18V-32V	
	Current @ 28V:	80 mA typical	
Memory:	24MB		



Every SMART DM is calibrated in JAE's state of the art Total Field Calibration facility (TFC) for maximum accuracy.

SMART DM SERIES

JAE's SMART DM incorporates the most-advanced, highly-reliable downhole-ready electronics. Includes advanced environmental logging features for analysis of data up-hole.

Description	SMART DM Plus	SMART DM One
	Raw/Calculated Values; Slave MPU	SMART Directional Module, Triple Power Supply & MPU
Features	SMART DM + TPS	SMART DM + TPS + MPU
Mud Pulse Encoding (M-ary)		✓
Communicates w/: Resistivity, custom sensors		✓
Azimuthal Gamma Controller	✓	✓
Communication Protocols		
CAN	✓	✓
UART	✓ Optional	
Q-bus		✓
Drilling Dynamics		
Axial & Lateral Vibration and Shock	✓	✓
Temperature	✓	✓
Rotation Detection		✓
RPM & Stick/Slip	✓	✓
Downlinking		✓
Continuous Inclination	✓	✓
Continuous Azimuth	✓	✓
Life Time Logging	✓	✓