



AXEL HI-TECH

High-Tech Downhole Telemetry

For Directional and Horizontal Drilling



Russian Developer and Manufacturer of High-Tech Telemetry

In-House Technology Stack — from Downhole Modules to Surface Software

2013

founded

200

operations daily
across 6 countries

TOP 5

Axel clients among the
TOP 5 DD companies

5 → 20

Rental fleet expansion in 2026

CAPABILITIES

- MWD/LWD engineering and manufacturing for directional and horizontal drilling
- Integration of diverse equipment into a unified telemetry BHA
- Assembly, operation and service of advanced telemetry systems

MISSION

Provide oil industry with **high-tech** measurement service for complex modular BHAs in horizontal drilling.

Axel Hi-Tech — Triple Combo + RSS BHAs, High-Speed Telemetry and Real-Time Remote Well Operations

SURFACE SYSTEM · AT THE RIG

ASU



10+ Telemetry
Protocols

UPU



DECODER



VISION



AXEL CLOUD

Remote Control of
Decoding and Data

One Workflow — at the Rig and Online

DOWNHOLE SYSTEM



Pulser

0.2 s PW



Generator

300 W



Core

12 bit/s



DirGamma



LWD Sensors



RSS Adapter



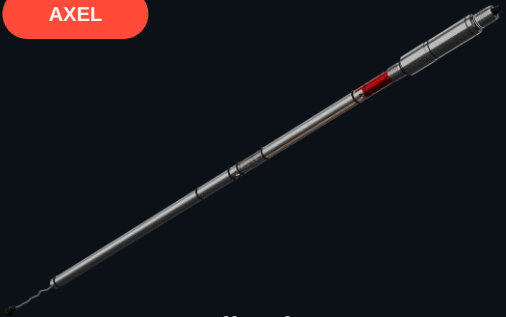
RSS

Multiple LWD Sensor and RSS Options

Axel and Third-Party MWD/LWD Modules Integrate into a Single BHA

Sensor Suite Configured for Each Well Objective

AXEL



Inclination & Gamma
Axel DirGamma MWD

THIRD-PARTY



Lithology & Density Logging
Connectable LWD Sensor

THIRD-PARTY



Resistivity & Imaging
Connectable LWD Sensor

THIRD-PARTY



Near-Bit Modules
Connectable LWD Sensor

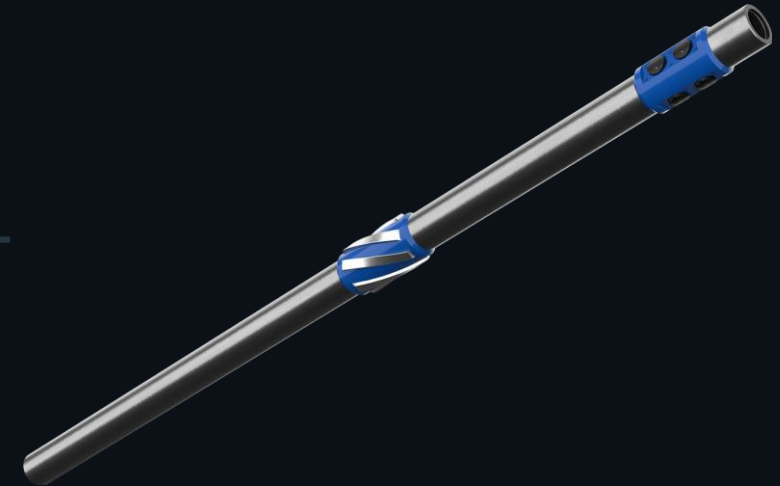
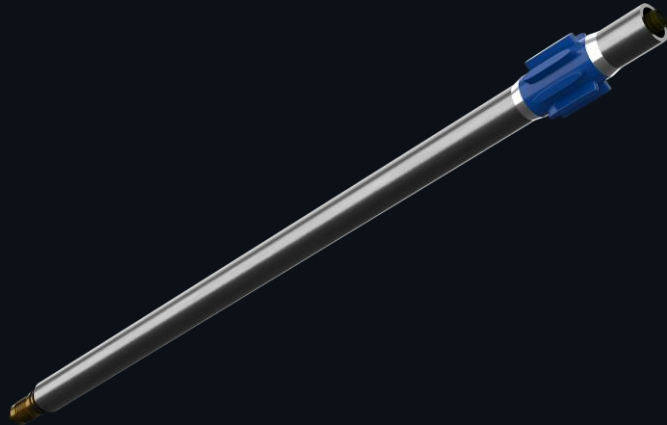
SUPPORTED PROTOCOLS

- RS485
- QBUS
- CAN
- Third-Party MLWD Module Integration

Axel Provides Two-Way Communication with RSS Tools from Multiple Manufacturers

AXEL

RSS Adapter



SUPPORTED RSS SYSTEMS

Hilong · D-Tech · Energia

• RSS Data and Command Link

Battery Independence for Complex Operations

Generator-Powered Triple Combo + RSS Telemetry. Only One Battery Remains for Static Surveys

AXEL GENERATOR



300 W

generator output

300 h

drilling without pulling out

4³/₄" / 6³/₄"

available sizes

ALTERNATIVE

Battery

One Battery Reserved
for Static Surveys

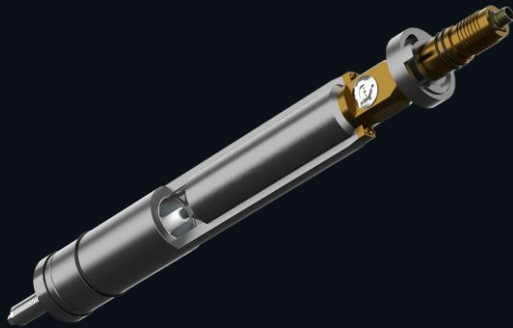
The Generator Powers a Pulser / EM,
Triple Combo and RSS BHA

Axel Integrates Mud-Pulse and Electromagnetic Telemetry in One BHA

The Communication Channel Is Selected for the Specific Well Conditions

MUD PULSE

Pulser



- Pulse Width from 0.2 s
- High Pulse Amplitude
- 4 $\frac{3}{4}$ " and 6 $\frac{3}{4}$ " Sizes

ELECTROMAGNETIC

EM



- Triple Combo over EM Telemetry
- Wide Operating Frequency Range
- Survey Transmission during Connections

DUAL CHANNEL

Combo (Pulser+EM)



- Switch Between Mud-Pulse and EM
- No Need to Pull the BHA to Surface
- One Tool — Two Channels

Axel Core Brings the Entire Technology Stack Together

Controls the Telemetry System, Acquires and Compresses Data, Manages Power and Drives the Pulser

AXEL

Axel Core



Control of Every Telemetry Component



Logging Data Compression up to 4×



Data Rate up to 12 bit/s



Noise-Resistant Transmission Protocol



COMPANY



ARCHITECTURE



DOWNHOLE



SURFACE SYSTEM



IMPACT

End-to-End Platform for Decoding, Processing and Remote Data Control

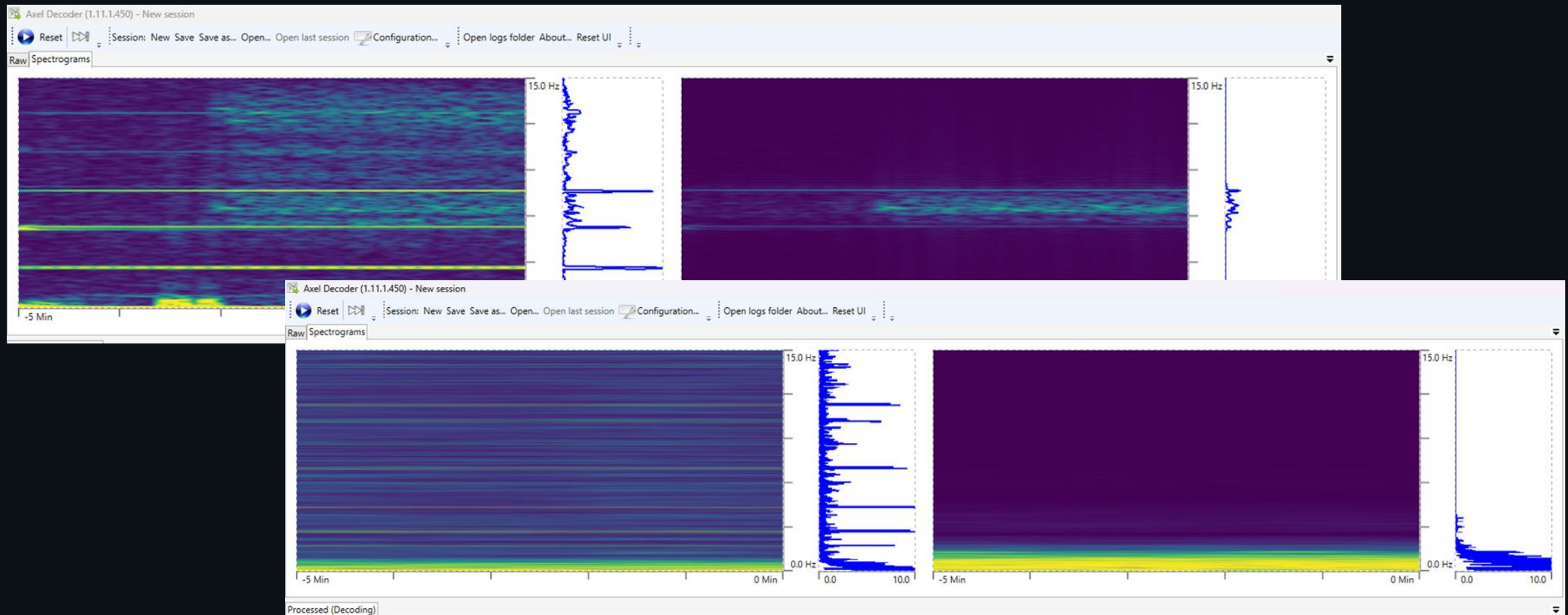
ASU, UPU, Decoder, Vision and Axel Cloud Form a Unified Hardware–Software Chain for Multiple Downhole Telemetry Systems



ASU	UPU	DECODER	VISION	AXEL CLOUD
EM + Mud-Pulse in One Unit Multiple Telemetry Systems with One Station	Downhole String Programming Pre-Run Test Battery Depassivation	Automatic Filter Selection Manual Decoding Setup	Images Survey Correction Relogging WITSML	Unified Rig and Online Workspace Drilling Mode and Decoding Control Survey Control and Relogging Data Processing and Reporting

Spectrogram Support Enables Advanced Noise Filtering

Improved Decoding in High-Noise Operations and When Using Drilling Oscillators



Axel Technologies Deliver Measurable Results

Benefits Translate into Drilling Time and Footage, Project Access and Data Control

up to 12 bit/s

Higher ROP → Shorter Well Construction Time

1 BHA

One BHA Adapted to Multiple Objectives

Reduced NPT Risk

Enabled by Remote Drilling Control

ACCESS TO HI-TECH

An RSS-Compatible BHA Unlocks Complex Wells and Tenders while Expanding Access to High-Tech Services

INDEPENDENCE

Proprietary Software, WITSML and Domestic Equipment Reduce Sanctions Exposure and Enable Custom Solutions

TECHNOLOGICAL ADVANTAGE

Data Compression Preserves Transmission Rate in Complex and Deep Wells

Result: Measurable Value for the End Customer and Technological Sovereignty for the Contractor



COMPANY



ARCHITECTURE



DOWNHOLE



SURFACE SYSTEM



IMPACT