

Axel Surface Unit receives and decodes data from multiple telemetry systems

ASU 2100 / 2200 / 2320 · mud-pulse and EM · unified hardware and software platform

Axel Surface Unit

One station for a mixed MWD fleet

ASU receives raw signal data from surface sensors at the rig or via WITS0. Axel Decoder demodulates and decodes the signal and, when necessary, reprocesses the selected interval.



01 ACQUISITION

raw signal + surface sensors

02 DEMODULATION

protocol-specific algorithm

03 DECODING

MPT table + quality control

04 OUTPUT

Vision · report · TCP/IP

SUPPORTED SENSORS

Pressure · depth · hookload



One ASU supports 12 telemetry system families

The raw signal is acquired, demodulated according to the protocol, and decoded using the MPT table

12 telemetry system families

PROTOCOLS AND MANUFACTURERS

APS Time Base 2 · Time Base 3 · RLL · Combinatorial	Vector Time Base 3 · RLL	Sperry Sun Manchester 2
Tensor Tensor clone · Original · TolTeq · KeyDrill	iPulse Time Base 3 · RLL	Velocity Velocity
SIB BPSK · QPSK	Axel Axel Turbo	Baker Baker
Geolink Corvet · Original	Liu He TimeBase	TEC TEC

Filtering and manual recovery maintain decoding in noisy conditions

The processing chain is selected for the modulation method and the type of signal distortion

AUTOMATIC FILTER SELECTION

Smart algorithms automatically select the filters that deliver the best decoding quality, reducing the level of specialist expertise required.

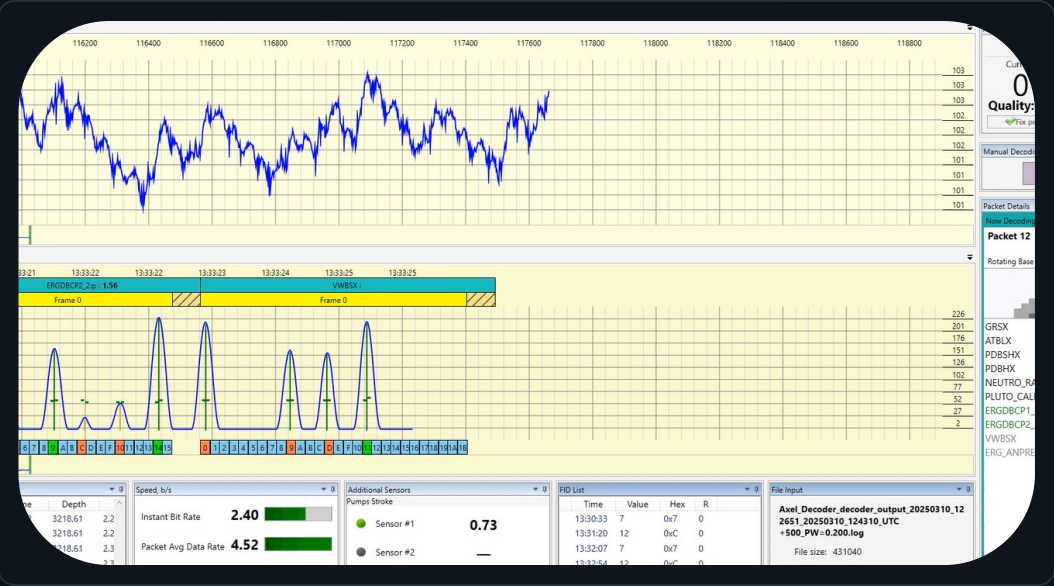
FILTERS

Axel correlation	Axel smoothing	Trend Off
Lowpass / Highpass	Gain	Two pumps stroke
Bandpass / Notch	Inversion	Designs: Bessel, Butterworth, Chebyshev, Elliptic, Inverse Chebyshev
Slope detector	Pumps Stroke	

MANUAL DECODING

Set or remove a sync sequence · change the pulse slot · disable a false pulse or restore a rejected pulse · restart decoding from the selected sync sequence

Recover data without restarting the pumps



Axel Decoder · raw and processed signal monitoring

Axel Surface Unit model comparison

ASU 2100, 2200 and 2300 series (model 2320)

Capability	ASU 2100	ASU 2200	ASU 2300 / 2320
Multiple MWD protocols			
High-speed decoding			
Pump-stroke sensor and two pressure sensors			
Electromagnetic channel			
Advantage	Compatibility with different telemetry systems	Signal decoding for Triple Combo	Equipment and personnel fleet optimization

Based on the supplied surface station comparison.