

MODEL AP400P

POPPET PULSER SYSTEM

FEATURES

- Proven design with high reliability, MTBF over 2500 hours
- Data transmission from depths of 14,000+ feet (4200+ meters) in favorable conditions
- Real time annular pressure, bore pressure, rotation sensing and gamma
- Proven industry leading pulser assembly
- Telemetry encoding system that does not require re-sync. Tools sync per packet.
- Electrical downlink capable

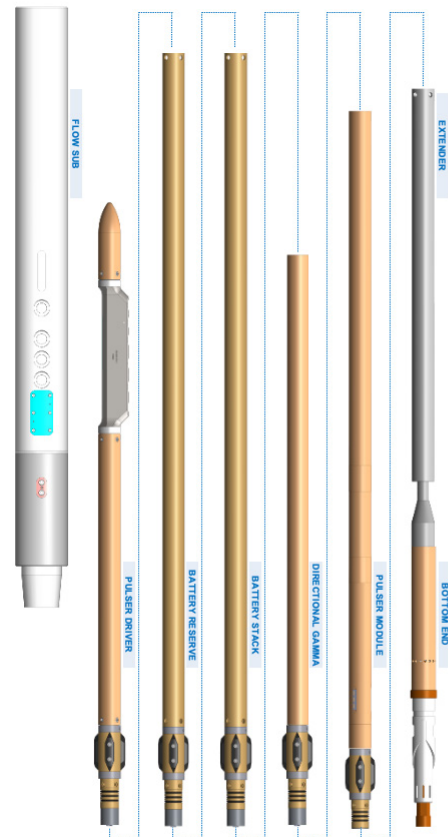
APPLICATIONS

- MWD/LWD systems
- Real time survey measurements, annular pressure, bore pressure, RPM, vibration and gamma

The AP400P Mud Pulse System provides a downhole-to-surface pressure pulse-based communication system (Mud Pulse) designed for simplicity, reliability, and ease of maintenance.

The AP400P Pulse System incorporates a Driver Assembly that manages the communications and acquisition of data for transmission via a Poppet Pulser Assembly to generate the mud pulse signal to the surface. The AP400P Pulse System utilizes a servo-motor to control a poppet orifice bottom end assembly. This is a commonly used method and industry recognized system for pulse telemetry.

- Data transmission from depths of 14,000+ feet (4200+ meters) in favorable conditions
- Compatible with our AP1250 Dual Telemetry System and AP600 Near Bit System
- Extra features like Model 751AZ Azimuthal Gamma and Model 760 Inc While Drilling System can be added



ELECTRICAL

Data Transmission Type	Positive Mud Pulse (Poppet)
Pulse Height Avg	30-600 psi Avg -Adjustable 200-4135 kPa Avg - Adjustable
Power Requirements	Lithium (8 cells) 15-30 VDC - same as AP250 Pack
Battery Consumption (continuous 1 sec pulse width)	150-200 hours on one medium-rate battery

PHYSICAL

Tool Outside Diameter (OD)	1.875" (47.626 mm)
Overall Length (2 batteries)	27 feet (7.2 meters)
Assembly	Rig Floor Assembly
Retrievable	Collar mounted Non-retrievable
Fixed Mounting	Yes
Flow Sub OD	4.75" (121 mm) 6.75" (171 mm) 8.00" (203 mm)

OPERATING RANGE

Operating Temperature Range	32 to +300°F 0 to +150°C
Shock Limit	1000 G 1 ms half sine wave
Rotation	0 - 300 RPM
Vibration Limit	5-30 Hz @ 1" double amplitude 30-500 Hz @ 20 g all axes
Maximum Pressure	20,000 psi (137,895 kPa)
Pressure Drop (max flow)	150 psi @ 600 GPM (900 kPa @ 2.25 m ³)
Flow Ranges	4.75" 150 to 300 gpm (120 mm 0.560 to 1.2m ²) 6.75" 300 to 750 gpm (171 mm 1.2 to 2.5m ²) 8.00" 750 to 1100 gpm (203 mm 2.5 to 4.2m ²)
Sand Content	< 1-3% by volume maximum
LCM Tolerance	50 lbs per bbl medium nut plug (143 kg/m ³ medium nut plug)
Velocity Rate (max)	40 ft/sec (13 m/sec)
Operating Pulse Width	1 second
Typical Baud Rate	0.50, 0.60, 0.75, 1.50 baud

Specifications are subject to change without notice.

UPHOLE SYSTEM MODEL 560R RECEIVER	
Power	115 V @ 1 A 220 V @ 0.5 A
Size	19" (482.6 mm) W x 3.5" (88.9 mm) H x 13" (330.2 mm) D (rack mountable)

MODEL 574 DOWNLINK SYSTEM	
Main Power	115 V @ 10 A 220 V @ 2.5 A
Size	16" (406.4 mm) W x 7.5" (190.5 mm) H x 12" (304.8 mm) D

OPERATIONAL GUIDANCE

SHOCK AND VIBRATION LEVELS		
LEVEL	SHOCK	VIBRATION
GREEN	< 17 g	< 4 g
YELLOW	17 to <26 g	4 to <6 g
ORANGE	26 to <36 g	6 to <5 g
RED	+35 g	+ 8 g

DATA RATES	MP (0.75 BAUD)
Survey	5 minutes
Toolfaces	10-20 seconds
Gamma	10-20 seconds
Near Bit Up/Down	10-20 seconds
Near Bit Left/Right	10-20 seconds
Pressure	10-20 seconds
Average Packet	3-4 minutes

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