

WITS TRACES ON EDR

PD_INC (AT BIT)	Real Time Inclination from the RSS 2.05m back of the bit box. Updates every 3 minutes and the RSS uses this to calculate its steering decisions.
CINC	The continuous inclination reading is produced using the previous survey data as a reference point and only sampling the x axis (tool axis) to produce a valid inclination value during sliding or rotating. Accuracy is +/- 0.1° at inclinations above 30°.
SVY INCLINATION	The inclination at the most recent accepted survey.
SVY AZIMUTH	The azimuth at the most recent accepted survey.
PD_IH_TRGT	The inclination the RSS is set to hold.
CAZM	The continuous azimuth from the MWD tool referencing the z axis (tool axis).
GAMMA	Gamma sensor detects natural radioactive elements in the subsurface formations. The sensor measures in CPS (counts per second) and is later converted to API via a manufactured supplied calibration factor. There is also a gamma scale factor applied to the API value to account for the collar thickness and mud weight.
PD_GAMMA (AT BIT)	PD Gamma is an add on feature that can be integrated into the control unit. Azimuthal data is only available when the tool is in neutral mode. The sensor processor calculates the current quadrant to which the gamma window is pointing and sets two bits accordingly. The gamma readings are averaged over 30 seconds
PD_TFHI	The actual tool face the RSS is getting while steering over its 3 min drill cycle. Updates every 3 minutes. Stick slip and down hole conditions can affect this.
PD_TFDS	The calculated tool face where the RSS wants to hold while steering over its 3 min drill cycle. Updates every 3 minutes and is determined by the RSS's location from its desired inc and azm set points.
PD_STEER	A confirmation code that is sent up every time the DD's talk to the tool. Every command has a specific Pd Steer code.
PD_TEMP	Temperature from the RSS.
PD_IH TURN	The current right or left turn rate that has been set to the RSS in Inc Hold mode. The max turn rate that can be applied to the RSS in this setting is 50% right or left.
PD_PROPEFF	The actual amount of the time the RSS wants to steer for the 3- minute drill cycle.
PD_PRDS	The calculated amount of the time the RSS wants to steer for the 3- minute drill cycle. Updates every 3 minute and is determined by the RSS's location from its desired inc and azm set points. If this number is 100% the RSS will steer for the entire 3-minute drill cycle, if it is 50% the RSS will steer for 1.5 minutes then go to neutral for mode for 1.5 minutes.
PD_CCRPM	The control collar RPM from the RSS.

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WITS TRACES ON EDR CONTINUED

DNMX_DRPM	The string rotation RPM is measured over a 1-minute period. During the one-minute period the value of the RPM can change considerably so is necessary to provide an instantaneous RPM updated every second. The 2 Magnetometers in the Dynamx module are offset at 90° so plotting the responses from the values from the Y and Z magnetometer over time results in a circle. The angle difference between the 2 points in 1 second gives the instantaneous RPM. To minimize noise weighted averaging is taken from 4 points to compute the instantaneous RPM.
DNMX_DREV	The instantaneous RPM is used to detect “negative rotation” events (i.e., when the tool, likely in a stick-slip situation, has turned so much forward that it turns in reverse). This can result in backed-off tool joints and PDC bit cutter loss. If the instantaneous value falls below a threshold set by the user (normally set at - 5 rpm) it is considered negative rotation and sends a flag.
PD_UTRPM	The RPM of the upper torquer on the RSS control unit. We should see this in the range of 2000 to 2600 at the proper flow rate. We monitor this to ensure torquer jamming does not occur.
PD_LTRPM	The RPM of the lower torquer on the RSS control unit. We should see this in the range of 1000 to 1600 at the proper flow rate. We monitor this to ensure torquer jamming does not occur.
PD_SHK AMPL	Shock see by the RSS in meters/second 2. It currently says it's in G's, but we are working with Pason to get it switched to M/S2. We manually convert it to G by dividing the raw data by 9.8. We like this number to stay under 1500m/s2.
PD_SHK RSK	Shock risk level 1-3 from the RSS.
PD_SS AMPL	The stick slip amplitude from the RSS.
DNMX_SHKL	Maximum lateral shock during a 15 second interval in G's
DNMX_SHKA	Maximum axial shock during a 15 second interval in G's
DNMX_RPM MIN	Minimum Collar RPM recorded over a 25sec period by the MWD tool.
DNMX_RPM MAX	Maximum Collar RPM recorded over a 25sec period by the MWD tool. The delta between DNMX RPM MIN and DNMX RPM MAX needs to be monitored and mitigated as needed to keep the delta <125rpm.