

Channel Statistics Checklist

This checklist is designed to assess the health of thermistor (FP07) and shear microstructure probes installed in Rockland instrumentation on a robotic platform while at sea. Expected values may change if the robotic platform is in the lab, or test probes are installed. A checklist to assess the pressure sensor and its circuitry in the main pressure tube, is also included. If necessary please contact Rockland support at support@rocklandscientific.com.

Please note that the document format has been optimized for Adobe Acrobat Reader

Conducted by: _____ Date: _____

Reviewed by: _____ Date: _____

Instrument Type: _____ SN: _____

Robotic Platform Type: _____

Notes: _____

Checklist instructions:

Channel Statistics are generated from 1 second of data from each channel. The following are possible channel statistics that may be available on your system. For an in-depth discussion of interpreting channel statistics see Technical Note - 048 available for download here: rocklandscientific.com/support/knowledge-base/technical-notes/

Channel Statistics Definitions:

STD	The mean absolute deviation value in raw counts of 1 second (s) of data from the average value over the same interval. Possible range of values is 32768 to 0. May appear as STDEV.
AVG	The average value in raw counts of 1 s of data. Possible range of values is ± 32768 . May appear as MEAN.
MIN	The minimum value in raw counts recorded within 1 s of data acquisition. Possible range of values is ± 32768 . This statistic may not be available in all applications.
MAX	The maximum value in raw counts recorded within 1 s of data acquisition. Possible range of values is ± 32768 . This statistic may not be available in all applications.

Surface Channel Statistics vs Mid Profile Channel Statistics

Channel statistics are typically acquired on the surface by remotely communicating directly to the Rockland instrument and issuing a query (i.e. `odas5ir -c` all for CF2 instruments, check manual for RDL instruments). MIN and MAX values will be available in this scenario.

For mid profile channel statistics, the platform manufacturer must provide a method to record these data (e.g. TWR Slocum MicroRider Proget). Mid profile MIN and MAX values may not be available.

Shear Probes Mid Profile

Instantaneous shear probe channel statistics may not be within the expected range of values described in this checklist if there is a source of vibration present such as glider battery movement or wave action on the surface. Look for consistent trends over time when using this checklist.

ID = 8: Shear 1

- ☐ Sh1 STD is less than 250? *If consistently higher contact Rockland support. Value: _____*
- ☐ Sh1 AVG is near zero? *This is not used to assess probe health. Value: _____*
- ☐ Sh1 MIN value greater than -10,000? *If no, contact Rockland support. Value: _____*
- ☐ Sh1 MAX value less than +10,000? *If no, contact Rockland support. Value: _____*

ID = 9: Shear 2

- ☐ Sh2 STD is less than 250? *If consistently higher contact Rockland support. Value: _____*
- ☐ Sh2 AVG is near zero? *This is not used to assess probe health. Value: _____*
- ☐ Sh2 MIN value greater than -10,000? *If no, contact Rockland support. Value: _____*
- ☐ Sh2 MAX value less than +10,000? *If no, contact Rockland support. Value: _____*

Notes:

Shear Probes on the Surface

There are limitations to how well shear probes can be assessed on the surface due to the presence of strong vibrations. Instantaneous shear probe channel statistics may not be within the expected range of values described in this checklist if there is a source of vibration present such as glider battery movement or wave action on the surface. Look for consistent trends over time when using this checklist.

ID = 8: Shear 1

- ☐ Sh1 STD is less than 5000? *If consistently higher contact Rockland support. Value: _____*
- ☐ Sh1 AVG is near zero? *This is not used to assess probe health. Value: _____*
- ☐ Sh1 MIN value greater than -20,000? *If no, contact Rockland support. Value: _____*
- ☐ Sh1 MAX value less than +20,000? *If no, contact Rockland support. Value: _____*

ID = 9: Shear 2

- ☐ Sh2 STD is less than 5000? *If consistently higher contact Rockland support. Value: _____*
- ☐ Sh2 AVG is near zero? *This is not used to assess probe health. Value: _____*
- ☐ Sh2 MIN value greater than -20,000? *If no, contact Rockland support. Value: _____*
- ☐ Sh2 MAX value less than +20,000? *If no, contact Rockland support. Value: _____*

Notes:

FP07 Temperature Probes Mid Profile or on Surface

Values will change with temperature, look for consistent trends between multiple profiles when using this checklist. NOTE: MIN and MAX values may not be available for all applications.

ID = 4: Temperature 1

- ☐ T1 STD is less than 50? *If consistently higher contact Rockland support. Value: _____*
- ☐ T1 AVG value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T1 AVG changes are within 3000 counts compared with changes in T2 AVG. *If no, contact Rockland support. Change in value: _____*
- ☐ T1 MIN value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T1 MAX value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*

ID = 5: Pre-emphasised Temperature 1

- ☐ T1_dT1 STD is less than 500? *If consistently higher contact Rockland support. Value: _____*
- ☐ T1_dT1 AVG value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T1_dT1 MIN value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T1_dT1 MAX value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*

ID = 6: Temperature 2

- ☐ T2 STD is less than 50? *If consistently higher contact Rockland support. Value: _____*
- ☐ T2 AVG value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T2 AVG changes are within 3000 counts compared with changes in T2 AVG. *If no, contact Rockland support. Change in value: _____*
- ☐ T2 MIN value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T2 MAX value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*

ID = 7: Pre-emphasised Temperature 2

- ☐ T2_dT2 STD is less than 500? *If consistently higher contact Rockland support. Value: _____*
- ☐ T2_dT2 AVG value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T2_dT2 MIN value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ T2_dT2 MAX value is within $\pm 10,000$ range? *If no, contact Rockland support. Value: _____*

Notes:

Pressure Sensor on Surface

Values will change with depth, look for consistent trends between multiple profiles when using this checklist.

NOTE: MIN and MAX values may not be available for all applications.

ID = 10: Pressure Sensor

- ☐ P STD is less than 10? *If consistently higher contact Rockland support. Value: _____*
- ☐ P AVG value is within ± 250 range? *If no, contact Rockland support. Value: _____*
- ☐ P MIN value is within ± 250 range? *If no, contact Rockland support. Value: _____*
- ☐ P MAX value is within ± 250 range? *If no, contact Rockland support. Value: _____*

Pressure Sensor Mid Profile

Values will change with depth, look for consistent trends between multiple profiles when using this checklist.

NOTE: MIN and MAX values may not be available for all applications.

ID = 10: Pressure Sensor

- ☐ P STD is less than 500? *If consistently higher contact Rockland support. Value: _____*
- ☐ P AVG value is within $\pm 30,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ P MIN value is within $\pm 30,000$ range? *If no, contact Rockland support. Value: _____*
- ☐ P MAX value is within $\pm 30,000$ range? *If no, contact Rockland support. Value: _____*

Notes:

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