**WPP QuickGuide**

**Hydrolab MS5 - Calibration**

SETUP

* Probe calibration requests will be emailed. Be sure to print request sheets and place in binder. Mark requests on calendar.
* Make sure all standards and DI are at room temperature
* Make sure Calibration check water has been sitting for at least 24 hours to degas.
* Always take out a new deployment checklist.
* Record sonde, surveryor (logger), cable length and project name in calibration book
* Plug logger into split cable to both power and sonde.
* Battery should be over 8.5 volts to deploy.
* Record battery percentage % in the calibration book.
* Read Barometer and record in calibration book.

ALLOWABLE THRESHOLDS: If beyond, troubleshoot.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Solution | | | | | | | |  |
| DIW | Low Ionic | 6.86 buffer | 4.01 buffer | 9.18 buffer | 718 SC (check) | 1413 SC | Na-sulfite Zero D.O. | Aerated Tap Water |
| pH (SU) | ~5.3-5.75 | ~6.8-7.1 | 6.7-7.0\* | 3.9-4.1\* | 9.05-9.3\* | --- | --- | --- |  |
| SC (uS/cm) | 0.2-1.3 | 72-82 | --- | --- | --- | 710-725 | 1400-1425 | --- |  |
| D.O. | --- | --- | --- | --- | --- | --- | +/- 0.1 of table value | 0.0-0.2 | +/- 0.1 of table value |

\* Temperature dependent

Annotate: Files > Sur4a > Annotate > Select file (there is only one to select)

Enter Project name under NEW followed by initial EG: “pre-cal MAP2L 307/294 Index – DM”

Press Done

Annotate: Files > Sur4a > Annotate > Select file (there is only one to select) > NEW

> SP Cond 1413 PH 4.01

Press Done

Check off in calibration book

Return to display screen

Leave clear cup over probes but remove black end cap

|  |
| --- |
| Rinse Protocol: Rinse probes with tap water a few times until specific conductance reads ~140  For first rinse fill cup with DI from Rinse jar, attach cap and rinse probes, then discard rinse water down drain.  For second rinse fill cup with DI from DI carboy, attach cap and rinse probes, then discard rinse water into Rinse jar.    For third rinse fill cup with DI from DI carboy, attach cap and rinse probes, then discard rinse water into Rinse jar. |

Sp Cond 1413: For first rinse fill cap from 1413 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For second rinse fill cap from 1413 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For third rinse fill cap from 1413 calibration standard solution jar, attach cap and rinse probes, then discard calibration standard into 1413 Rinse jar.

Mount sonde on stand with probes upward and calibration cup on.

Fill cal cup with 1413 calibration standard, submerging probes, but leaving just the end of the DO probe exposed.

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Initial reading: Hit the store button twice to record and initial reading.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as initial reading in calibration book .

Calibrate: Scroll back to start screen > SETUP/CAL > calibrate > sonde > sp cond us/cm > select > enter sp cond concentration (1413) > done > scroll back to display screen.

Record three readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Pour off 1413 standard into 1413 Rinse jar.

Repeat Rinse protocol

Sp Cond 718: For first rinse fill cap from 718 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For second rinse fill cap from 718 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For third fill cap from 718 calibration standard solution jar, attach cap and rinse probes, then discard calibration standard into 718 Rinse jar.

Mount sonde on stand with probes upward and calibration cup on.

Fill cal cup with 718 calibration standard, submerging probes, but leaving just the end of the DO probe exposed.

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Record three readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Pour off 718 standard into 718 Rinse jar.

Annotate: Files > Sur4a > Annotate > Select file > NEW

> Record Barometric Pressure “BP ###”

Record in calibration log book.

DO Saturated water: Rinse probe with tap water a few times.

Fill probe cap with aerated water and submerge probes. Rest sonde on ground with probes facing downward.

Calibrate: Scroll back to start screen > SETUP/CAL > calibrate > sonde > LDO% > select > enter barometric pressure > Done > scroll back to display screen.

Record three readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Use laminated table or go to USGS water tables online (water.usgs.gov) enter temperature, specific conductance, and barometric pressure to calculate DO.

Record in calibration log book.

Repeat Rinse Protocol

pH 6.86: For first rinse fill cap from 6.86 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For second rinse fill cap from 6.86 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For third rinse fill cap from 6.86 calibration standard solution jar, attach cap and rinse probes, then discard calibration standard into 6.86 Rinse jar.

Mount sonde on stand with probes upward and calibration cup on.

Fill cal cup with 6.86 calibration standard, submerging probes, but leaving just the end of the DO probe exposed.

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Initial reading: Hit the store button twice to record and initial reading.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as initial reading in calibration book .

Calibrate: Scroll back to start screen > SETUP/CAL > calibrate > sonde > pH > select > enter corrected pH concentration for 6.86 standard as calculated from laminated table > done > scroll back to display screen.

Record three readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Pour off 6.86 standard into 6.86 Rinse jar.

Repeat Rinse Protocol

pH 4.01: For first rinse fill cap from 4.01 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For second rinse fill cap from 4.01 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For third rinse fill cap from 4.01 calibration standard solution jar, attach cap and rinse probes, then discard calibration standard into 4.01 Rinse jar.

Mount sonde on stand with probes upward and calibration cup on.

Fill cal cup with 4.01 calibration standard, submerging probes, but leaving just the end of the DO probe exposed.

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Initial reading: Hit the store button twice to record and initial reading.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as initial reading in calibration book .

Calibrate: Scroll back to start screen > SETUP/CAL > calibrate > sonde > pH > select > enter corrected pH concentration for 4.01 standard as calculated from laminated table > done > scroll back to display screen.

Record three readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Pour off 4.01 standard into 4.01 Rinse jar.

Repeat Rinse Protocol

pH 9.18: For first rinse fill cap from 9.18 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For second rinse fill cap from 9.18 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For third rinse fill cap from 9.18 calibration standard solution jar, attach cap and rinse probes, then discard calibration standard into 9.18 Rinse jar.

Mount sonde on stand with probes upward and calibration cup on.

Fill cal cup with 9.18 calibration standard, submerging probes, but leaving just the end of the DO probe exposed.

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Record three readings one minute apart

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Enter calculated value for 9.18 Standard from laminated table

Annotate: Files > Sur4a > Annotate > Select file (there is only one to select) > NEW

> Pre Sur LIS BATCH DATE (IE: “061118”)

Press Done

Check off in calibration book

Repeat Rinse Protocol

Low Ionic Solution: For first rinse fill cap from LIS #1 Rinse jar, attach cap and rinse probes, then discard rinse standard down drain.

For second rinse fill cap from LIS #2 Rinse jar, attach cap and rinse probes, then discard rinse into from LIS #1 Rinse jar.

For first third fill cap from LIS calibration standard solution jar, attach cap and rinse probes, then discard calibration standard into LIS #2 Rinse jar.

Mount sonde on stand with probes upward and calibration cup on.

Fill cal cup with LIS calibration standard, submerging probes, but leaving just the end of the DO probe exposed.

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Record **four** readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Annotate: Files > Sur4a > Annotate > Select file (there is only one to select) > NEW

> Pre Sur CK DIW

Press Done

Check off in calibration book

Repeat Rinse Protocol

DI Water: Rinse once from final DIW check carboy

Fill cal cup with Final check DIW, submerging probes, but leaving just the end of the DO probe exposed.

Mount sonde on stand with probes upward

Blot DO probe with kim wipe to dry end.

Place cap on probe but do not tighten.

Allow 2-3 minutes to equilibrate and check for a stable temperature reading

Record **four** readings one minute apart.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Annotate: Files > Sur4a > Annotate > Select file (there is only one to select) > NEW

> ZERO DO CHECK

Press Done

Check off in calibration book

Repeat Rinse Protocol

ZERO DO Solution: Pour Sodium Sulfate zero dissolved oxygen solution into measuring jar.

Fill cal cup with Sodium Sulfate zero dissolved oxygen solution, submerging probes.

Wait for DO to drop below zero

Record one reading

Pour Sodium Sulfate zero dissolved oxygen solution back into smaller measuring jar.

Review and record reading: Files > Sur4a > Review > scroll up to review last reading and record as final reading in calibration book .

Once DO is below zero **one** reading

Repeat Rinse protocol

Cap with storage tap water to line

Rest capped end of probe on floor

Calibrate for depth: Scroll back to start screen > SETUP/CAL > calibrate > sonde > DEP 100 meters > select > enter 0.00 > done > scroll back to display screen.

Store probe in case with reference cell (Red line) out of water facing up.

Charge logger. Plug in, turn on and check volts, should be fully charged or at 8.5 volts in order to be deployed.

Fill out probe deploy checklist.