

|                          |                   |
|--------------------------|-------------------|
| Instrument type          | miniSVS - SV only |
| Serial number            | 63351             |
| Path Length, mm          | 50                |
| Baud rate set ex factory | 19200             |

| Calibration History: | Certificate | Date              |
|----------------------|-------------|-------------------|
|                      | 52760       | 14 February 2018  |
|                      | 61592       | 23 December 2019  |
|                      | 68420       | 07 September 2021 |
|                      | 77154       | 22 May 2023       |
|                      |             |                   |
|                      |             |                   |

| System Components | As Received       |     |               |                  | Modification |     |               |                  | Modification |     |               |                  | Modification |     |               |                  |  |
|-------------------|-------------------|-----|---------------|------------------|--------------|-----|---------------|------------------|--------------|-----|---------------|------------------|--------------|-----|---------------|------------------|--|
|                   | Part              | Iss | Serial Number | Range / Firmware | Part         | Iss | Serial Number | Range / Firmware | Part         | Iss | Serial Number | Range / Firmware | Part         | Iss | Serial Number | Range / Firmware |  |
| Main Board        | 0650505           | F4  | 142979        | 0650713B6        |              |     |               | 0650713C6        |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               | 0650714C         |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
| SV Sensor         |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
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|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   | Bootloader Fitted |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
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|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
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|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |
|                   |                   |     |               |                  |              |     |               |                  |              |     |               |                  |              |     |               |                  |  |

|                            |           |
|----------------------------|-----------|
| Instrument Serial Number   | 63351     |
| Transducer Type, mm        | 50        |
| Transducer Ser No          | 142983    |
| PCB Part No                | 0650505F4 |
| PCB Ser No                 | 142979    |
| Processor Firmware Version | 0650713C6 |
| FPGA Firmware Version      | 0650714C  |
| Certificate Number         | 77154     |

| Calibration Equipment used |             |           |
|----------------------------|-------------|-----------|
| Instrument                 | Type        | Serial No |
| Temp Bridge                | Micro K 250 | 33492/1   |
| PRT                        | 909M        | 381       |

As Received Spot Check

|        | SOS from unit | SOS from Standard | Error   |
|--------|---------------|-------------------|---------|
| Fresh  | 1414.626      | 1414.691          | -0.065  |
| Saline | #             | #                 | #VALUE! |

## Stage 1: First order fit

| Temp<br>°C90 | SoS from<br>Bilaniuk &<br>Wong<br>m/s | Measured ToF<br>nsec*100 | Coefficients | Calc SoS from<br>coefficients<br>m/s | Error<br>(Calc - True)<br>m/s | Acceptable<br>Error<br>m/s | Pass/Fail |
|--------------|---------------------------------------|--------------------------|--------------|--------------------------------------|-------------------------------|----------------------------|-----------|
| 2.5116       | 1414.680                              | 7437499                  | 3.869080E+05 | 1414.680                             | 0.000                         | ±0.001                     | Pass      |
| 15.9683      | 1469.292                              | 7175439                  | 1.002573E+07 | 1469.292                             | 0.000                         | ±0.001                     | Pass      |

## Stage 2: Enter calibration string

#022;10025733;386908

## Stage 3: Check point

| Temp<br>°C90 | Actual SoS<br>m/s | Measured SoS<br>m/s | Error SoS Reading<br>Actual<br>m/s | Acceptable<br>Error<br>m/s | Pass/Fail |
|--------------|-------------------|---------------------|------------------------------------|----------------------------|-----------|
| 15.9690      | 1469.294          | 1469.293            | -0.001                             | ±0.005                     | Pass      |

|            |                                                                                       |
|------------|---------------------------------------------------------------------------------------|
| Name:      | N.Paddon                                                                              |
| Date:      | 19 May 2023                                                                           |
| Signature: |  |