

SPEEDOHEALER V4A User Guide

Mfr. by HealTech Electronics / Blue Monkey Motorsports

1. Foreword

Congratulations on your purchase of a SpeedoHealer calibrator unit.

At HealTech Electronics Ltd. we are committed to produce the best calibrator devices available and we would like to thank you for choosing our product.

2. Features Explained

New User Interface: Easier to program, review and update the stored parameters.

Extended calibration range: -99.9% to +9999.9% in steps of 0.1%

Which means the signal can be adjusted from 1/1000 to x100, in increments of 0.001
This range is efficient even for the most radical custom applications.

Dual-Bank Memory: Allows storing two independent calibration values and switching among them is possible by the press of a button. There is a clear, visual confirmation of the active bank and value in use.

Perfect for areas where you have summer and winter tires of different sizes.

Km/h conversion: Change from Km/h to MPH by the press of a button.

Compact dimensions: Full SMD design. The smallest and lightest calibrator ever built.

High-speed CPU: 32-bit processing ensures high accuracy and immediate response to the input signal (no lag). Ultra low power consumption and auto stand-by.

Robust design: Every unit is fully tested, guaranteed to work. All leads are protected against reverse voltage, short circuits and high energy transients. Wide operating range: +3V to +19V at -40C to +80C (-40F to +176F)

100% weatherproof connectors & weather resistant control unit: Epoxy sealed unit is highly water resistant to water ingress under vehicle hood area (although we recommend REMOVING CONTROL UNIT during steam cleaning of engine bay). Harness uses sealed OEM connectors which are IP-68 rated (1 meter water immersion for 1 hour without failure). So if you're fording creeks, we've given the connectors water protection as good as Jeep did for their undercarriage components.

3. Setting and Using your SHV4J J01 Kit

3.1 Preparation

1. Determine the Calibration value needed for your application. Use either GPS or mile marker and stopwatch to calculate speedometer error at 60mph.
2. Turn ignition On.

3.2 Programming a calibration value

- Entering into programming mode does not clear the previous setting, so you can update a previously stored calibration value easily.
- All settings are stored in Flash memory. No need to repeat programming after the battery or the SH box has been disconnected.

1. Press **BOTH buttons** on the unit until [**L**] is indicated.
2. The Sign of the calibration value is blinking:
 - [-] : Negative
 - [P] : PositiveTo toggle the Sign, press the **SET** button.

- If the Sign you set is Negative, you will program 3 digits (max value: 99.9)
If Positive sign was selected, you need to enter 5 digits (max value: 9999.9)
- You need to enter all digits (including the leading zeros), so e.g. you would enter -07.5 if you wanted to program -7.5%

3. Press **SEL** to proceed to the first digit of the calibration value.
[n] (next) is shown momentarily, then the value of the first digit is blinking.
Press **SET** repeatedly until the desired value is shown.
Repeat this step until all digits are entered.
4. After the last digit has been entered, press **SEL** to exit from programming mode.
[o] (over) is shown momentarily, then the unit will display the programmed digits in order, just like any time ignition is turned on.

3.3 Reviewing the calibration value in use

Whenever the ignition key is turned on, the unit will show the following information in order:

- Memory bank in use: either [A] or [b]
- Sign of the Calibration value: [-]: Negative, [P]: Positive
- Calibration value without leading zeros
- Conversion mode active [C] or not (blank)

If you do not have a person to turn on the ignition key while you observe the SHV4A control box,, then turn ignition to ON, and disconnect/reconnect the 4p connector from the control box to cycle power to the unit and active the review process.

Examples:

- [A 0] means A memory bank is active with no calibration (factory default)
- [A - 7. 5] means A memory bank is active with -7.5% calibration
- [A - 1 2. 5 C] A bank is in use with -12.5% and Km/h conversion is enabled
- [A P 5. 0] means A memory bank is active with +5.0% calibration
- [b P 6 2 3 4. 5 C] B bank, +6234.5% and Km/h conversion is enabled

3.4 Reset

There is no need to clear the memory before programming a new calibration value. You can overwrite the previous setting easily.

However, if you wish to clear all settings and go back to defaults:

Press **BOTH** buttons on the unit and keep it depressed until [E] is indicated.

When the unit is powered up with default parameters, [A 0] is displayed.

It means A memory bank is active with no calibration. The unit will work in *Transparent mode*, i.e. the speedometer will read the same as with no SH installed.

3.5 Switching between A and B calibration value

Press **SET** until the active memory bank ([A] or [b]) is displayed and keep it depressed for one more sec, until the value toggles.

- When you program a calibration value (chapter 3.2), you can program the value in the active memory bank only.

3.6 Activating the Km/h to MPH conversion feature

Press **SEL** until the actual mode ([**C**] or [-]) is displayed and keep it depressed for one more sec, until the value toggles.

When Km/h to MPH conversion is active, the indicated speed and distance travelled will be converted, but the displayed units of measure (km/h and km) won't be changed.

→ It is possible to toggle on/off the Km/h to MPH conversion only.

If you wish to use MPH to Km/h conversion, you have to program +60.9% (1.609 multiplier) on top of the calibration value you need. However, keep in mind that your speedometer's maximum reading will not be changed. E.g. a speedo with 186 MPH highest reading will not be able to show over 186 Km/h after conversion.

4. Calculations

4.1 Precise method

If you have done a GPS check at 60mph to determine your actual-versus-indicated error, refer to the correction chart (last page of this document) for the correct programming value to use.

4.2 Calculated method

If you have issues with your speedometer error that do not allow you to do the 60mph test, use the following formula to get the calibration value you need:

$$SH \text{ Calibration value} = \left(\frac{\text{Actual}}{\text{Indicated}} - 1 \right) \times 100 \%$$

Example:

If your indicated speed was 66 mph at 60.0 mph actual (reference), the calibration value would be: -9.09% → -9.1%

5. Warranty

The SpeedoHealer is built to last: all leads are protected against reverse voltage, short circuits and high energy transients. Only high quality components have been used, and the epoxy layer construction gives extreme protection for the internal parts from shocks, vibrations and water. To ensure trouble-free operation from the start, all units have been extensively tested prior to shipment.

Should you not be entirely satisfied for any reason, we offer a 30-day money-back guarantee (*all parts must be returned in original condition for full refund*).

Furthermore the product is covered by our 2-year replacement warranty from the date of purchase (*the unit should not be damaged or subjected to over voltage*).

Please contact us in warranty issues directly at support@healtech-electronics.com regardless of the place of purchase.

Correction Value Chart

At 60mph on GPS, speedo mph reading shown below = correction factor needed

| | | |
|--------------|-------------|--------------|
| 10 = +500% | 51 = +17.6% | 93 = -35.5% |
| 11 = +445.5% | 52 = +15.4% | 94 = -36.2% |
| 12 = +400% | 53 = +13.2% | 95 = -36.8% |
| 13 = +361.5% | 54 = +11.1% | 96 = -37.5% |
| 14 = +328.6% | 55 = +9.1% | 97 = -38.1% |
| 15 = +300% | 56 = +7.1% | 98 = -38.8% |
| 16 = +275% | 57 = +5.3% | 99 = -39.4% |
| 17 = +252.9% | 58 = +3.4% | 100 = -40% |
| 18 = +233.3% | 59 = +1.7% | 101 = -40.6% |
| 19 = +215.8% | 61 = -1.6% | 102 = -41.2% |
| 20 = +200% | 62 = -3.2% | 103 = -41.7% |
| 21 = +185.7% | 63 = -4.8% | 104 = -42.3% |
| 22 = +172.7% | 64 = -6.2% | 105 = -42.9% |
| 23 = +160.9% | 65 = -7.7% | 106 = -43.4% |
| 24 = +150% | 66 = -9.1% | 107 = -43.9% |
| 25 = +140% | 67 = -10.4% | 108 = -44.4% |
| 26 = +130.8% | 68 = -11.8% | 109 = -45% |
| 27 = +122.2% | 69 = -13% | 110 = -45.5% |
| 28 = +114.3% | 70 = -14.3% | 111 = -45.9% |
| 29 = +106.9% | 71 = -15.5% | 112 = -46.4% |
| 30 = +100% | 72 = -16.7% | 113 = -46.9% |
| 31 = +93.5% | 73 = -17.8% | 114 = -47.4% |
| 32 = +87.5% | 74 = -18.9% | 115 = -47.8% |
| 33 = +81.8% | 75 = -20% | 116 = -48.3% |
| 34 = +76.5% | 76 = -21.1% | 117 = -48.7% |
| 35 = +71.4% | 77 = -22.1% | 118 = -49.2% |
| 36 = +66.7% | 78 = -23.1% | 119 = -49.6% |
| 37 = +62.2% | 79 = -24.1% | 120 = -50% |
| 38 = +57.9% | 80 = -25% | 121 = -50.4% |
| 39 = +53.8% | 81 = -25.9% | 122 = -50.8% |
| 40 = +50% | 82 = -26.8% | 123 = -51.2% |
| 41 = +46.3% | 83 = -27.7% | 124 = -51.6% |
| 42 = +42.9% | 84 = -28.6% | 125 = -52% |
| 43 = +39.5% | 85 = -29.4% | 126 = -52.4% |
| 44 = +36.4% | 86 = -30.2% | 127 = -52.8% |
| 45 = +33.3% | 87 = -31% | 128 = -53.1% |
| 46 = +30.4% | 88 = -31.8% | 129 = -53.5% |
| 47 = +27.7% | 89 = -32.6% | 130 = -53.8% |
| 48 = +25% | 90 = -33.3% | 131 = -54.2% |
| 49 = +22.4% | 91 = -34.1% | 132 = -54.5% |
| 50 = +20% | 92 = -34.8% | 133 = -54.9% |