

Temperature Sensitivity - Part 2 Managing it in Devices & Software By Doc Beech

As a refresher here are a couple bullet points before we get started:

1. Chronographs generally measure velocity at their location, not Muzzle Velocity. A couple of exceptions do exist, nearly all of which are RADAR systems like the Lab Radar. True Muzzle Velocity needs to be properly calculated using the bullets BC, and atmospheric information. To read more on this see here: <https://bpranch.com/Documents/Velocity-Decay-between-Muzzle-and-Chronograph.pdf>
2. You should have at least 4 data points from your current lot of powder that are 30 Deg/F (15 Deg/C) apart. It is always best to have data points for the coldest, and warmest points that you normally shoot in.
3. Powder Temperature Sensitivity is non-linear, and will be more stable at certain temperatures than at others. No two powders will act the same.

AB Mobile – First we will go over how to use this in AB Mobile. In AB Mobile you use fps per Degree. Which means how many feet per second the MV shifts per degree of temperature change. This is fairly simple to use, and most powders fall between 0.3 – 3.0 fps/deg shift. For example, let's use the following data. 3010 fps @ 100 deg/F, 2970 fps @ 70 deg/F, 2935 fps @ 40 deg/F & 2895 fps @ 10 deg/F. So we would take the total change in MV and divide by the total change in temp. In this case 105 fps shift / over a 90-degree span. (105/90) = 1.28 fps per degree. So I would enter it into the AB Mobile App as such:

Muzzle Velocity = 3010 FPS (917.4 m/s)

Powder Temp = 100 deg/F (37.8 deg/C)

MV Variation = 1.28 fps (0.39 m/s)

MV Variation IS NOT your SD! Please do not enter your Muzzle Velocity SD in as the variation.

For most other devices, software, and apps you will find a Temp-Table. This is a very simple feature to use. You simply input the Calculated Muzzle Velocity (remember chronographs measure velocity at its location, not MV) and the temperature at the time you tested it. For example, let's use 3000 fps @ 100 deg/F, 2985 fps @ 70 deg/F, 2968 fps @ 40 deg/F & 2950 fps @ 10 deg/F. You would input this data like this:

100 deg/F (37.8 deg/C) - 3000 fps (914.4 m/s)

70 deg/F (21.1 deg/C) - 2985 fps (909.8 m/s)

40 deg/F (4.4 deg/C) - 2968 fps (904.7 m/s)

10 deg/F (-12.2 deg/C) - 2950 fps (899.2 m/s)

Side Note: When using the MV-Temp table, you will not be able to adjust muzzle velocity on your device. This is by design. The MV-Temp table is calibrating the MV based on the current temperature. If you want to be able to adjust this, then you need to turn the Temp-Table off. This is easily done, and I show you how in the video below. If you notice you need to input a velocity, because it's not following the trend. Say at 87 degrees in the above example you have a velocity of 2998, then you can do this by simply adding that to the table, and it will then adjust how it calculates the MV-Temp Table. If you want to do a MV Calibration, on the device then you must hand input that variable in to the table, or turn the table off. Doing a MV Calibration and trying to save, will not change the MV. Don't worry, I will show you how to properly do this in the video below. Just know that you cannot do a MV Calibration or adjust the MV the normal way, when you are using a Temp-Table.

Sorting Temp-Table Inputs. The proper way to input them in to the software and apps, is in order from hottest to coldest temperature.

After having viewed multiple "how to guides" from instructors on YouTube and Facebook. Please be careful who's advice you follow. I have seen multiple instances of incorrect instructions/information/teaching in these videos and posts. Always double check the source, and if you have any questions you can always come to us. Even some well-known online names have posted incorrect information regarding this kind of stuff. Best advice, trust only the source that is trusted by the professionals. - Doc