Roland Aerophone AE-10 setup for use with the DynaSample XPression

As of software version 2.10 of the Roland AE-10 the Aerophone is not particularly known as the most convincing MIDI Wind Controller on the market.

Here are the problems:

1) Breath control does by default not cover the full range from 0 – 127 for the breath dynamics.

2) Sending the breath CC starts between 6 to 15 ms after sending the "note on" with "normal" dynamics. This means that samples will start being heard only after the crucial attack phase has been passed already silently.
   Same issue for synth sounds with pronounced attacks.

3) The threshold for triggering the note start is not synchronized with the breath CC level.
   If you start extremely soft notes the breath value might still be at "0" while the note is already playing.
   The behaviour changes with different breath curves without any influence for the user to adjust it.

4) The breath rate is very slow – only half the speed of the EWIs breath rate.
   This creates a high jitter (timing inaccuracy) of around 10 ms.

5) The default threshold as well as the note delay time is too low for creating a reliable velocity.
   Therefore you'll end up with a random velocity making it extremely difficult if not impossible controlling velocity sensitive instruments like pianos, mallets, etc.
   The XPression also needs an accurate velocity for controlling wind or string attacks.

6) The threshold behaviour and jitter lead to inaudible or missing notes since notes are not always stopped correctly before a new non legato note is started.

7) The pitchbend range covers only 50% from the joystick and even less than 50% from the reed controller. The reed also reacts very slow and sluggish in comparison to other wind controllers using reed bending like the WX5 or the Synthophone.

There are more unexplainable inconsistencies that lead with the above mentioned issues to a very sluggish response in comparison to established controllers like e.g. the EWI.

We have tried to create the missing information (not) coming from the Aerophone by two different approaches:

Option 1)

> Recreating the velocity and breath dynamics by waiting 20 ms (which is the build-up time the human body needs and therefore is the time reference for the maximum velocity that a player can create). However, due to the high jitter of 10 ms this latter number needs to be added – so 30 ms are actually needed.

> This leads to a very reliable velocity and dynamic response (after applying a breath multiplier of 175%) but obviously adds unnecessary latency that wouldn't be needed if the controller itself would handle this correctly. It also reduces the dynamic resolution from 7 bit to a little more than 6 bit.

Option 2)

> Using the (relatively imprecise) velocity of the AE-10 (after multiplying with a different factor than for the breath dynamics [!]) and creating a breath value from the velocity at the start of the note for covering the hole between the start of the note and the beginning of sending breath data.

> This option is obviously much faster as it doesn't need a note delay - but also less accurate!
> The multiplication that reduces the dynamic resolution is still needed in any case.

You should test both options and decide which one feels better or meets your needs the best. It is important to practice with the different options for more than just a few minutes in order to give your body and brain a chance to adjust to the different latencies.
While a longer latency might feel uncomfortable at first it might end up giving you a better result after becoming accustomed to playing like this for a certain amount of time.

We have also added an option for doubling the pitchbend range in order to achieve the maximum bend range possible over MIDI. Again at the cost of a reduced 6-bit resolution instead of the normal 7-bit resolution.

In order to set up both the Aerophone and the XPression to work as well as possible together please follow these setup instructions:

XPression:

- Go to [**Utility**] and to the right until you see "Internal Backup – all Settings & Maps"
- Go to the parameter on the right "restoreX"
- Use the data wheel on the right hand for selecting the Aerophone setup of your choice
- Press onto the joystick for [**OK**] and once more for confirmation

All settings are being applied automatically now for all MIDI / USB-MIDI inputs.

Aerophone (recommended settings):
(all other options are up to you)

-	Breath:	M	(only for keeping it as "standard" as possible)
-	Left (joystick):	CC1	(set up by the XPression for remapping to many functions)
-	Breath Adjust:	70	(keeps the AE-10 from "losing" notes and improves velocity)
-	Bite Adjust:	AUTO	
-	Bite Sense:	0 - 25	(Seems to be more responsive than "AUTO")
-	Breath Out 1:	CC2	(standard breath controller)
-	Breath Out 2:	OFF	(there's no need for a 2nd breath CC)

These are recommendations. You might want to experiment with these settings as a starting point.
After finding your preferred settings store these to a user preset and call it "XPression".

Check with a piano sound (F1-105 Grand Piano) if the resulting velocity outputs all (not almost all) notes with the exact dynamic that you intended while playing - both legato and non-legato.
Attack the same note staccato 8-12 times with a crescendo and repeat with a decrescendo.
You should not get any missing notes or notes that slip outside the intended crescendo / decrescendo.

Check with the MIDI-Monitor whether your reed pitchbend is perfectly centered to "64" at normal biting - without needing to force it. Your bottom pitchbend should show "32" which will then be brought down to "0" internally by the XPressions if pitchbend range doubling is activated.

(For limiting the MIDI-Monitor to show only pitchbend use the data wheel for soloing specific status types.)

We wish you much success with these settings!