SPECIAL EDITION

USER MANUAL

Information in this manual is subject to change without notice and does not represent a commitment on the part of Applied Acoustics Systems DVM Inc. The software described in this manual is furnished under a license agreement. The software may be used only in accordance of the terms of this license agreement. It is against the law to copy this software on any medium except as specifically allowed in the license agreement. No part of this manual may be copied, photocopied, reproduced, translated or converted to any electronic or machine-readable form in whole or in part without prior written approval of Applied Acoustics Systems DVM Inc.

Copyright © 2001 Applied Acoustics Systems DVM Inc. All rights reserved.

Program Copyright © 2001 Applied Acoustics Systems, Inc. All right reserved.

Tassman is a Trademark of Applied Acoustics Systems DVM Inc.

Visit Applied Acoustics Systems DVM Inc. on the World Wide Web at
www.applied-acoustics.com

1 Introduction 4
2 Front Panel Description 5
3 Module connections 11
4 License agreement 12

1 Introduction

1.1 TASSMAN SE synthesizer by Applied Acoustics Systems

Applied Acoustics System is proud to introduce the **Tassman SE** to Cakewalk users. This instrument is a monophonic analog synthesizer with two oscillators, a lowpass filter, a VCA, a LFO, an envelope generator and a highpass filter. This synthesizer has been patched to provide a great variety of classic analog sounds as well as more experimental sounds. It is an extremely versatile and effective instrument for virtually any project. We hope you will have as much fun playing with as we had designing it!

The **Tassman SE** is a pre-patched synthesizer based on the physical modeling technology developed by Applied Acoustics System. It constitutes an example of vintage synthesizers one can reproduce with the modular software synthesizer **Tassman**. With the full version one can patch, a wide variety of analog and acoustic modules to create an infinite number of analog, acoustic or hybrid instruments. If you are interested to learn more about the Tassman, or try a free demo, please visit us at our web site: www.applied-acoustics.com.

1.2 Presets an programs

You can scroll through the presets in the window at the right of the upper tool bar. You can edit the presets and save them as new ones, or create your own by tweaking the knobs. To save a preset, click on the *Save Preset or Save Preset As* button located in the lower left corner of the **Tassman SE** window. You can also save the settings of a single module in order to reuse it in other presets. To do so click on the small arrow at the bottom left of the module you want to save. To reload the settings, click on the upper small arrow.

You can arrange your presets in a program. A program is a group of different presets that you can load at the same time in the preset window and then scroll through them. To create a program, start by loading a preset with the *Load Preset* button at the bottom left of the screen, this will be the first preset of your program. Then click on the *New Preset* button at the left of the preset window and load another preset, this one will be the second preset of your program. Repeat this operation as many times as the number of presets you want to include in your program. When you have finished, click on the *Save Program As* button in the lower left corner of the synth window and choose a name for it. You can save different programs for different projects or live shows.

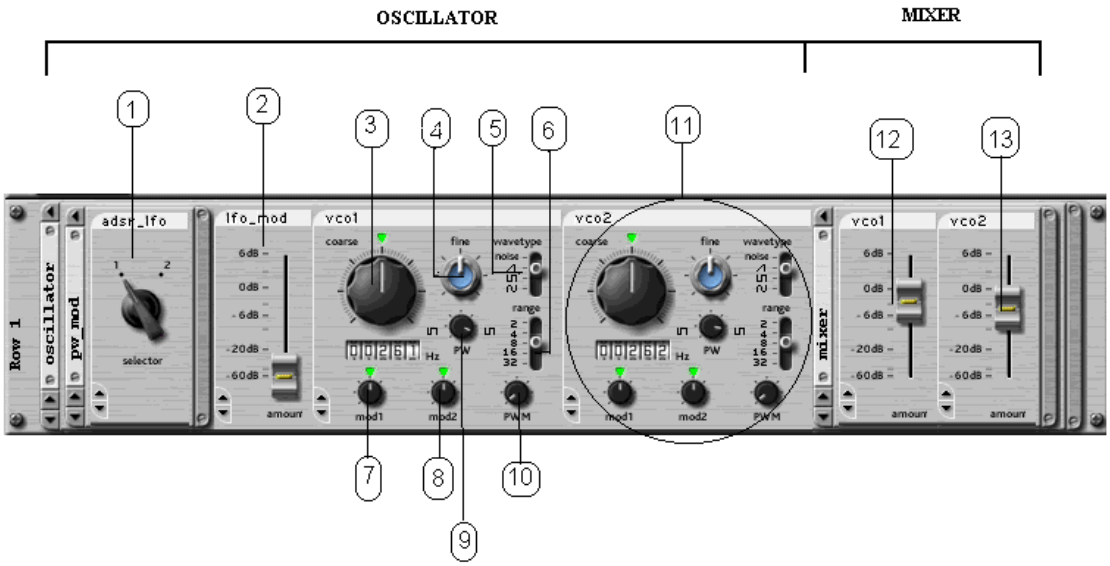
1.3 MIDI links

Some of the modules in the **Tassma SE** have MIDI controllers linked to them, here is the list:

Mod wheel:	controller 1	Attack:	controller 20 and 73
Cutoff frequency:	controller 2 and 74	Decay:	controller 21
Resonance:	controller 3 and 71	Sustain:	controller 22
Portamento:	controller 5	Release:	controller 23 and 72
Master volume:	controller 7		

2 Front Panel Description

2.1 Row 1



Oscillator

The **Oscillator** section of the Tassman SE is based on two **VCO** modules and constitutes the main sound source of the instrument.

1. This **Selector** module is used to choose the modulation source for the pulse width of the pulse wave on both oscillators. You can choose either the output from the ADSR (first position) or the LFO (second position) module as a source.

2. This **Slider** module controls the amount of modulation from the LFO module on the *mod2* input of both oscillators (VCO1 and VCO2).

The two **VCO** (Voltage Controlled Oscillator) modules are oscillators used to generate signals of different frequencies and waveforms.

3. The **Coarse** knob controls the global frequency of the output signal from the VCO. The value of this frequency is displayed in the counter below this knob.
4. The **Fine** knob is used to fine tune the frequency of the VCO (3 semitones , up or down).
5. The **Wavetype** selector is used to choose the waveform of the output signal from the VCO. Waveforms include noise, sawtooth, pulse or sine.
6. The **Range** selector switches the output frequency of the VCO by octave jumps (2’ to 32’) for a total range of 4 octaves.
7. The **Mod1** knob is used to control the amount of frequency modulation from the keyboard and the pitch wheel.

8. The **Mod2** knob is used to control the amount of frequency modulation from the LFO and the modulation wheel.
9. The **PW** knob is used to control the shape of a pulse wave. In its right position the waveform is square and only includes odd harmonics.
10. The **PWM** controls the amount of pulse width modulation. When this knob is in the left position, there is no modulation applied to the pulse width while when it is in the right position, the amplitude of the modulation is almost equal to the width of the pulse. This input is connected to the output of the adsr_lfo **Selector** module (see 1).

Note on tuning

When the **Coarse** and **Fine** knobs are in their center position (green LEDs on for the **Coarse** knob), the **Range** switch is set to 8 and there is no modulation signal, the playing frequency has a value of 261.6 Hz, which corresponds to the C3 key on a piano (middle C).

Note on the modulation inputs

Frequency modulation is relative to the settings of the **Coarse**, **Fine** and **Range** controls. The amount of variation of the playing frequency obtained with the modulation inputs depends on the adjustment of the **Mod1** and **Mod2** gain knobs. The total modulation signal is the sum of the two modulation signals each multiplied by the gain corresponding to its respective **Mod** knob. When the knobs are in the center position (green LEDs on), the gain equals 1 and the pitch variation is 1 Volt/octave. This position is used to play an equal temperament scale. The frequency variation with the modulation signal can be increased or decreased by turning the modulation knobs clockwise or anti-clockwise.

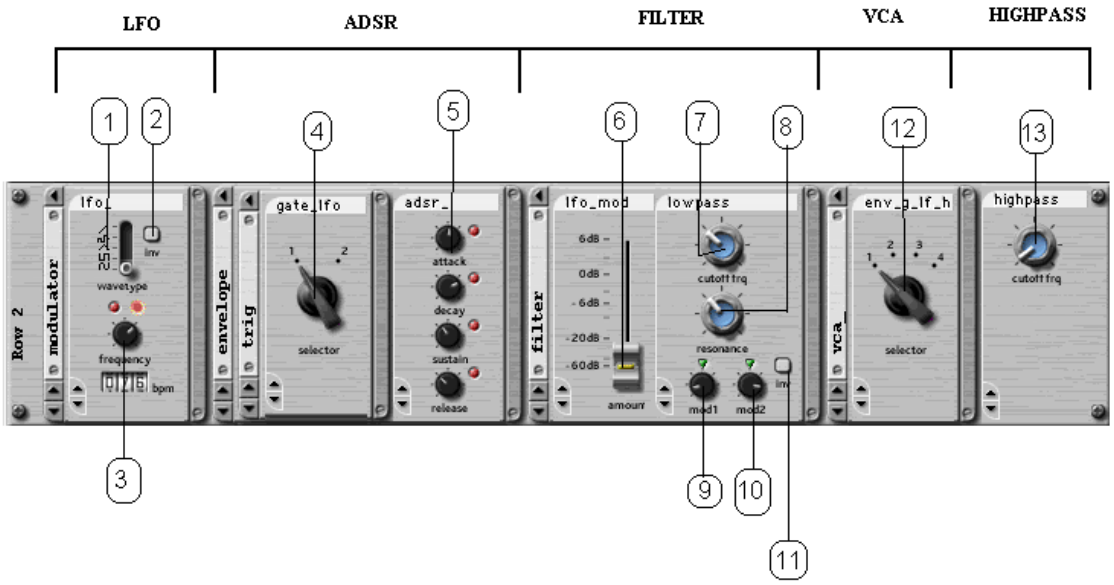
11. This VCO has exactly the same settings as the previous one.

Mixer

The **Mixer** section is used to control the amplitude of the sound sources.

12. This **Slider** module controls the volume of the output of the first **VCO** module.
13. This **Slider** module controls the volume of the second **VCO** module.

Row 2



LFO (Modulator)

The **Modulator** is an **LFO** module (low frequency oscillator). It is used to modulate the inputs of other modules such as the **VCO** modules and filters in order to create vibrato or harmonic changes.

1. The **Wavetype** selector is used to choose the **LFO** output waveform (sawtooth, random, triangle, square or sine).
2. The **Inv** button inverts the phase of the selected waveform in order to get, for example, a descending sawtooth.
3. The **Frequency** knob is used to control the frequency of the output signal from the **LFO**. The output frequency (which can range from 0.1 Hz to 35 Hz) is displayed in beats per minute in the counter below the knob.

ADSR (Envelope)

The **ADSR** module is an envelope generator. It is used to shape the contour of a signal.

4. The trig **Selector** is used to select the source which will trigger the **ADSR** module. In the first position, the gate from the keyboard is the triggering signal while in the second position it is the signal coming out from the **LFO** (**Modulator**).
5. The **ADSR** (attack, Decay, Sustain and Release) module generates the envelope. The **attack** knob controls the amount of time required for the envelope to reach its maximum level after a key is pressed. The **decay** kob controls the amount of time required for the envelope to reach the level set by the sustain knob. The **sustain** knob sets the level at which the envelope will stay as long as a key is pressed. Finally, the **release** knob controls the amount of time required for the envelope to fall to a minimum level after a key is released.

Filter

The filter used in this synth is a -12 dB/oct lowpass filter. It is used to alter the tone color of the signal coming from the **oscillator** section by changing its harmonic content.

6. This **Slider** (lfo_mod) controls the amplitude of the modulation signal from the **(LFO) Modulator**. This signal is used to modulate the cutoff frequency of the filter.
7. The **Cutoff freq** knob controls the cutoff frequency of the filter. Frequency components located below the cutoff frequency can go through the filter.
8. The **Resonance** knob is used to emphasize the frequencies near the cutoff frequency.
9. The **Mod1** knob controls the modulation of the cutoff frequency of the filter. It is linked to the output from the **LFO** (**Modulator**).
10. The **Mod2** knob controls the modulation of the cutoff frequency of the filter. It is linked to the output from the **ADSR** (**Envelope**).
11. The **Inv** button inverts the phase of the **ADSR** (**Envelope**) modulation signal.

Note on the modulation inputs

The total modulation signal is the sum of the two modulation signals each multiplied by the gain corresponding to its respective **Mod** knob. When the knobs are in the center position (green LEDs on), the gain equals 1 and the pitch variation is 1 Volt/octave. This position is used to follow an equal temperament scale.

VCA

The **VCA** (Voltage Controlled Amplifier) is an amplifier whose gain can be controlled from various sources. These different sources act as a volume control on any sound passing through the **VCA**.

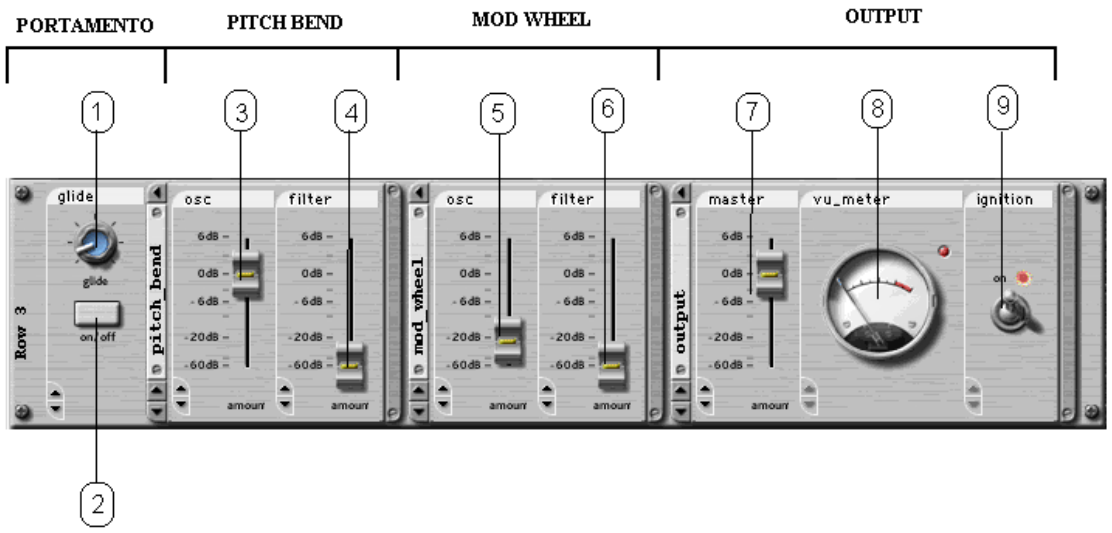
12. The **Selector** (env_g_lf_h) is used to select the source controlling the **VCA**. In the first position, the control signal is the **ADSR** (Envelope). In the second position the control signal is the gate signal from the keyboard. In the third position it is the **LFO** (**Modulator**) signal. Finally, in the fourth position, the **VCA** is in the hold position which means that the synth produces sound continuously.

Highpass

This module is **a Highpass** filter. It is used to remove low frequency components from a signal. It is the opposite of a lowpass filter.

13. The **Cutoff frq** knob sets the cutoff frequency of the filter. Frequency components located above the cutoff frequency can go through the filter.

Row 3



Portamento

The **Portamento** module is an integrator and is used to smooth a signal. It is used to perform a sliding effect from one note to another.

1. The **Glide** controls the time constant of the integrator. The higher the time constant, the longer the time to slide between notes.
2. The **On/Off** button is used to activate or deactivate the portamento.

Pitch Bend

The pitch bend is the first wheel usually located at the left of a keyboard. It is used to create glissando on the **VCO** modules or to open and close the **Filter** (the lowpass filter).

3. This **Slider** (osc) controls the amount of pitch bend sent to the first modulation inputs of the **VCO** modules.
4. This **Slider** (filter) controls the amount of pitch bend sent to the first modulation input of the **Filter** (lowpass filter).

Mod wheel

The pitch bend is the second wheel usually located at the left of a keyboard. It is used to control the amount of modulation from the **LFO** (**Modulator**).

This **Slider** module (osc) controls the amount of modulation from the **LFO** (**Modulator**) on the second modulation inputs of the **VCO** modules.

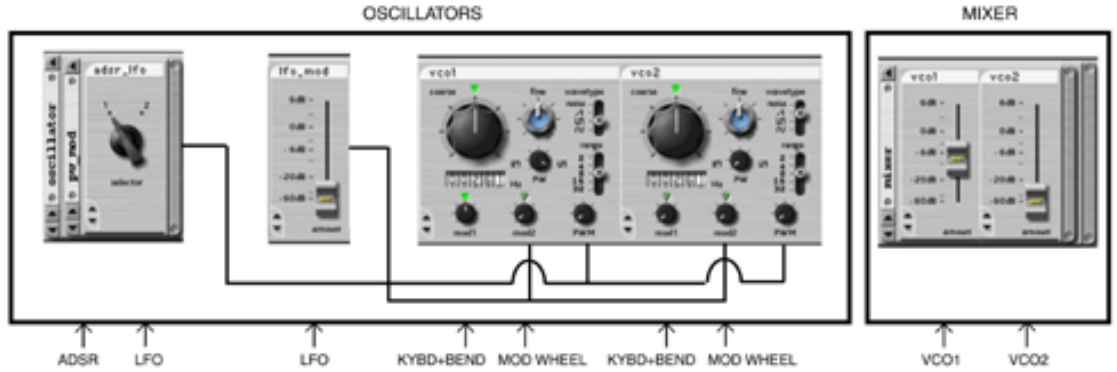
5. This **Slider** (filter) controls the amount of modulation from the **LFO** (**Modulator**) on the first modulation input of the **Filter** (lowpass filter).

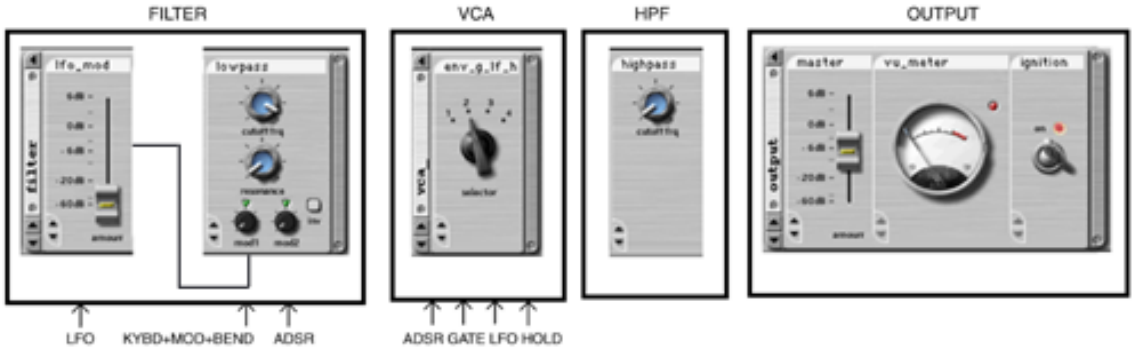
Output

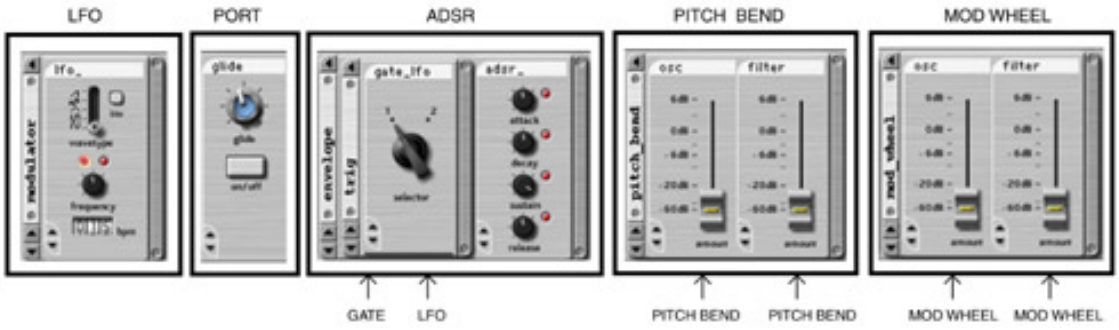
The output is the section where you monitor the sound coming out from the synthesizer. It is composed of a volume **Slider**, a **Vu-Meter** and a **DAC** (Digital to Analog Converter).

6. This **Slider** (master) controls the master level of the synthesizer.
7. The **Vu-Meter** is used to monitor the output level from the synthesizer. The red zone indicates saturation.
8. The **DAC** (ignition) is used to switch on or off the output of the synthesizer.

3 Module connections







4 License agreement

IMPORTANT! CAREFULLY READ ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT BEFORE USING THIS SOFTWARE. INSTALLATION OF THIS SOFTWARE INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS.

This software program, any printed materials, any on-line or electronic documentation, and any and all copies of such software program and materials (the **"Software"**) are the copyrighted work of Applied Acoustics Systems DVM Inc. ("**AAS**"), or its subsidiaries.

1. LICENSE TO USE. The Licensee is granted a personal, non-exclusive and non-transferable license to install and to use one copy of the Software on a single computer solely for the personal use of the Licensee. The Software contains a playing interface (the "**TASSAN SE**" for Licensee's personal and/or commercial use in connection with the Software. Use of the **TASSMAN SE** is subject to this Agreement.

2. RESTRICTIONS ON USE. The Licensee may not nor permit third parties to (i) make copies of any portion of the Software, other than as expressly permitted under this Agreement; (ii) modify, translate, disassemble, decompile, reverse engineer or create derivative and/or competitive products based on any portion of the Software; (iii) provide use of the Software in a network, timesharing, interactive cable television, multiple CPU service bureau or multiple user arrangement to users not individually licensed by AAS, other than as expressly permitted by the terms of this license. The Software is licensed to you as a single product

3. OWNERSHIP. AAS retains title to the Software, including but not limited to any titles, computer code, themes, objects dialog concepts, artwork, animations, sounds, audio effects, methods of operation, moral rights, any related documentation and "applets" incorporated into the Software. AAS retains ownership of and title to all intellectual property rights in the Software, underlying technology, related written materials, logos, names and other support materials furnished either with the Software or as a result of this Agreement, including but not limited to trade secrets, patents, trademarks and copyrights therein. Licensee shall not remove or alter any copyright or other proprietary rights notices contained on or within the Software and shall reproduce such notices on all copies thereof permitted under this Agreement or associated documentation.

4. LIMITED WARRANTY. THE SOFTWARE IS PROVIDED "AS IS" WITHOUT WARRANTY OR CONDITION OF ANY KIND. AAS DISCLAIMS ALL WARRANTIES OR CONDITIONS, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABLE QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT OF RIGHTS OF ANY OTHER PERSON. AAS DOES NOT WARRANT THAT THE SOFTWARE WILL MEET THE LICENSEE'S REQUIREMENTS OR THAT THE OPERATION OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR-FREE.

5. LIMITATION OF LIABILITY. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT WILL AAS BE LIABLE TO THE LICENSEE OR ANY THIRD PARTY FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR EXEMPLARY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOSS OF REVENUE OR PROFIT, LOST OR DAMAGED DATA, BUSINESS INTERRUPTION OR ANY OTHER PECUNIARY LOSS WHETHER BASED IN CONTRACT, TORT OR OTHER CAUSE OF ACTION, EVEN IF AAS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, EXCEPT IN RELATION TO GROSS NEGLIGENCE OR WILFUL BREACH OF THIS AGREEMENT BY AAS. NO AAS AGENT, REPRESENTATIVE OR DEALER IS AUTHORIZED TO EXTEND, MODIFY OR ADD TO THIS WARRANTY ON BEHALF OF AAS. THE TOTAL LIABILITY OF AAS FOR DAMAGES, WHETHER IN CONTRACT OR TORT, UNDER OR RELATED IN ANY WAY TO THIS AGREEMENT SHALL BE LIMITED TO THE LICENSE FEES ACTUALLY PAID BY LICENSEE TO AAS, OR IF NO FEES WERE PAID, AAS' LIST PRICE FOR THE SOFTWARE COVERED BY THIS LICENSE. THE EXCLUSION OF IMPLIED WARRANTIES AND/OR THE LIMITATION OF LIABILITY IS NOT

PERMITTED IN SOME JURISDICTIONS, AND SOME OR ALL OF THESE EXCLUSIONS MAY THEREFORE NOT APPLY.

6. TERMINATION. This License also shall extend to the Software and any updates or new releases thereof obtained by the Licensee, if any, subject to any changes to this Licence made by AAS from time to time and provided to the Licensee, provided AAS is under a separate obligation to provide to Licensee such updates or upgrades and Licensee continues to have a valid license which is in effect at the time of receipt of each such update or new release. This License shall remain in effect until terminated. The Licensee may terminate this Agreement at any time, upon notification to AAS. This Agreement will terminate immediately without notice from AAS if the Licensee fails to comply with any provision of this License. Any such termination by AAS shall be in addition to and without prejudice to such rights and remedies as may be available, including injunction and other equitable remedies. Upon receipt of notice of termination from AAS, the Licensee must (a) immediately cease to use the Software; (b) destroy all copies of the Software, as well as copies of all documentation, specifications and magnetic media relating thereto in Licensee's possession or control; and (c) return all original versions of the Software and associated documentation. The provisions of Sections 1, 3, and 5 shall survive the termination of this Agreement.

7. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the Province of Quebec, without regard to the United Nations Convention On Contracts for the International Sale of Goods and conflict of laws provisions, if applicable, and the parties hereby irrevocably attorn to the jurisdiction of the courts of that province. Les parties sont d'accord à ce que cette convention soit rédigée en langue anglaise. The parties have agreed that this agreement be drafted in the English language.

8. SEVERABILITY. If any of the above provisions are held to be illegal, invalid or unenforceable, such provision shall be severed from this Agreement and this Agreement shall not be rendered inoperative but the remaining provisions shall continue in full force and effect.

9. ENTIRE AGREEMENT. This Agreement is the entire agreement between AAS and the Licensee relating to the Software and: (i) supersedes all prior or contemporaneous oral or written communications, proposals and representations with respect to its subject matter; and (ii) prevails over any conflicting or additional terms of any quote, order, acknowledgement, or similar communication between the parties during the term of this Agreement except as otherwise expressly agreed by the parties. No modification to the Agreement will be binding, unless in writing and signed by a duly authorized representative of each party.

10. NON-WAIVER. No delay or failure to take any action or exercise any rights under this Agreement shall constitute a waiver or consent unless expressly waived or consented to in writing by a duly authorized representative of AAS. A waiver of any event does not apply to any other event, even if in relation to the same subject-matter.