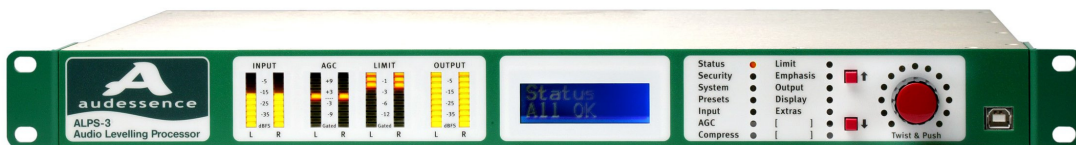


# Audessence ALPS-3

## Installation & Operation manual



ALPS-3 Manual [Ver 2.10] 2009-06-15

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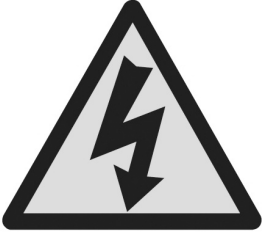

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## Safety Information

### Risk of Electric Shock if cover removed

	<p style="text-align: center;"><b>CAUTION</b></p> <p>To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified personnel.</p>	
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### Warning Symbols



The above symbol alerts the user to the presence of dangerous voltages inside the enclosure. Voltages may be sufficient to constitute risk of electric shock.



The above symbol alerts the user to important operating and maintenance instructions in manuals and other literature that may accompany the product. Please read, understand, and observe all safety information provided.

### Other Safety Instructions

**Safety Information:** Retain all safety information for future use, including by others who may become responsible for the equipment.

**Warnings:** Take note of all warnings and adhere to them.

**Water and moisture:** This equipment does not have large openings in its enclosure, but neither is the equipment sealed against moisture. Do not use in the immediate vicinity of water or in an excessively humid environment. Take care that unit is not exposed to dripping or splashing.

**Ventilation:** The unit dissipates approximately 6 Watts of power only, which means it does not run significantly hotter than its surroundings. There is no specific requirement for air movement since the unit does not employ a cooling fan.

**Heat:** The ambient temperature where the unit is installed should not exceed 40 degrees Celsius.

**Power Source:** Use the equipment only with the type of power source described in the specifications and / or as marked on the equipment.

**Grounding:** Employ suitable grounding of metal cases. A dedicated M4 size captive ground point is provided on all Audessence equipment.

**Servicing:** Refer all servicing to qualified personnel only.

## Conformity



This device complies with the requirements of the EEC council directives: 93/68/EEC (CE marking); 73/23/EEC (Safety - low voltage directive); 89/336/EEC (electromagnetic compatibility). Conformity is declared to the following standards as applicable: EN55022, EN55103-1, EN55103-2, EN61000-4-3, EN61000-4-4, EN60950-1.

**USA Warning** - This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions in this manual it may cause interference to radio communications. It has been tested and found to comply within the limits for a Class-A computing device (pursuant to Subpart J, Part 15 FCC rules), which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area could cause interference, in which case the user, at their own expense, will be required to take whatever measures may be required to correct the interference.

**Canada Warning** - This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications . Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux brouillage radioelectrique edicte par le ministere des Communications du Canada.



**Use of Shielded cables:** In order to meet EMC specifications as above, digital ports must be connected with the correct type of cable. This means foil-screened 110-Ohm digital cable (e.g. Canford DFT or Belden 1696A) for XLR (AES-3) ports and RG58 or similar coaxial cable for phono/RCA (S/PDIF) ports. Use of cheap lapped-screen cables may cause radiated emissions to increase and / or reduce immunity. No special cables are required for analogue or power ports.

## Quick Start Guide

**1./ Method of control:** Available methods of control include front panel control and computer control via any interface: RS-232 serial, dialup modem, GPI (closing contacts), USB, or IP / Ethernet. Scheduling ('dayparting') is also available using the built-in Real Time Clock and schedule software. Front panel control is the most straightforward for getting up and running in a hurry. It gives you full control over input and output setup, access to presets, and basic control over audio processing parameters. Advanced options such as IP remote control and scheduling can't be set up from the front panel, since the front panel interface has been kept clean and easy to understand, without the numerous modes and menu levels that would be needed for setting up the more advanced options.

Computer with Graphical User Interface (GUI) software, supplied on CD with every unit, gives full control of everything and the PC can be remote from the ALPS hardware box. **N.B:** To use remote control via IP, you must connect via USB first (... to set up the IP address).

System requirements for GUI software: Windows PC running Windows 2000 with SP4, any version of XP, or Vista. RS232 serial port or USB port required. (RS232 works over longer distances than USB).

**2./ Software Installation.** If planning to use computer control i.e. GUI, load software directly from the CD before connecting the ALPS unit to the PC. Once the software is all installed, then connect ALPS to USB or COM port afterwards. Installer programme should auto-run from CD, or if necessary run 'setup.exe' manually. Installer shell checks for required framework (Microsoft .NET ver 2) and USB drivers, and installs them from the CD if not already present.

Default connection at PC end is COM1, or go to 'Connections' menu in the GUI to re-scan for available ports and / or select USB (USB runs as virtual COM port and will often be the highest COM port number in the list).

**3./ Login and Security:** When using the GUI, after pressing 'Connect', note that although you will be able to see menus and controls without logging-in, it will not be possible to change anything until logged in. Login is found in Menus under \Security\Login. (NB: the right-hand of the two big buttons at the top toggles the main screen between Menus and Presets). Default password for log-in is AAAA. **N.B:** **Sessions TIME-OUT after about 10 minutes of inactivity!** If controls aren't working, try logging in again.

Similarly from Front Panel, menus will be locked until you log in - a padlock symbol will show on LCD screens that are locked. Login is found in the front panel 'Security' menu.

**4./ Input - Analogue or Digital?** Decide whether you are going to use Analogue inputs or AES (digital) input. Navigate to 'Input' menu and select the input you wish to use. In the GUI this is found in 'Setup\Input' menu.

If you select AES (Digital) input then **N.B: *sample rate selection*** is much more important than with other processors. When selecting digital (AES) input, at the same time you **must** select whether the Base Rate is 96kHz (supports professional rates of 32, 48, 96kHz ONLY at the input) or 88.2kHz (supports consumer rates of 44.1 and 88.2 kHz ONLY at the input). If base rate is not selected properly, digital audio inputs *will* be corrupted!

**5./ Levels setup:** You have gain trims on the inputs and Ceiling (=maximum allowed level) controls for the Outputs.

ALPS's **analogue input** expects to receive a signal *peaking* at +4dBu to +8dBu. If the input is going to be significantly above or below this level, you can adjust the Analogue Input Gain trim to compensate.

ALPS's **AES/ digital input** expects to receive a signal *peaking* at -20 to -16dBFS. If the input is going to be significantly above or below this level, you can adjust the Digital Input Gain trim to compensate.

ALPS's **analogue output** will normally send out a signal peaking at up to +8dBu but never above this 'ceiling' value. If you require a higher or lower level, you can adjust the Analogue Output ceiling directly to whatever *maximum* output level in dBu you require.

ALPS's **digital output** will normally send out a signal peaking at up to 0dBFS but never above this 'ceiling' value. If you require a lower level, you can adjust the Digital Output ceiling to whatever *maximum* output level in dBFS you require.

On the AES digital output you can also select Double Rate (96/88.2kHz) or Half Rate (48 / 44.1kHz).

If in doubt leave all Output settings at their default values (+8dBu analogue level, 0dBFS digital level and 96kHz sample rate) and come back later - armed with the full manual!

**6./ Saving Changes:** Whichever method of control you use, changes are NOT permanent until stored to non-volatile memory.

From the front panel, go to 'System', push knob inwards once to get past 'Stereo Linking' without changing it; next turn the knob left once to access 'Save All: <YES> no' and finally, push to accept this option and make all changes permanent (i.e. your current setting will now become the Power-On default).

If using the GUI, changes are only saved to non-volatile memory when you exit the GUI programme. **ALWAYS press the 'Disconnect' button before shutting down the GUI, disconnecting the ALPS unit, or turning off power; then your settings will be saved safely.**

**7./ Getting Started:** For the vast majority of applications, just plug in and go - and you will find your levels are much better controlled than before! The next step, still easy, is to select a Factory Preset from one of the nine factory presets stored in the ALPS-3 unit. See manual page 17.

**8./ Problem?** Email [tech@audessence.com](mailto:tech@audessence.com) for fast tech support.



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## Installing the Audessence Controller Software

**\* We recommend to install the software from CD onto your PC BEFORE connecting the ALPS-3 unit \*:**

Although this may seem counter-intuitive, it does work reliably and is much faster than the alternative... if you connect the ALPS-3 unit first, Windows will attempt to take charge of the installation, and it will probably make a mess of it!

The Audessence software CD includes an installation shell, Inosetup, that we have pre-programmed to take all necessary steps including checking for required API framework, runtime libraries, USB drivers, etc on your PC. If any are found to be absent, Inosetup will install them for you from the CD. The entire procedure is automatic, with a few confirmation dialogs that will let you know what is being done. This installation process has been extensively checked on various computers running Windows 2000(SP4), various versions of Windows XP, and Windows Vista.

**N.B:** versions of windows before 2000SP4, including earlier versions of Windows 2000, Windows 98, Windows NT, Windows 95 etc, are **not** suitable.

See also the separate manual “Audessence Controller Software Installation & Operation Manual” for further information regarding installation and use of the Audessence Controller software.

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## Users & Sessions - Overview

It is important to understand how the ALPS-3 decides if, and when, grant control over its operation when a connection is established from the outside world.

A connection from the outside world is considered to be a 'User'. Possible Users are:

- USB via USB socket on front panel of ALPS
- Modem or Direct Cable Connection to PC via RS-232 socket on rear panel of ALPS
- IP via Ethernet socket on rear panel of ALPS
- Scheduler operation via 'Daypart' menu system and ALPS internal Real Time Clock
- GPI via 15-pin D socket on rear panel of ALPS

Front Panel control via Jog-wheel and LCD on front panel of ALPS

The above list is in descending order of priority, i.e. USB is the highest priority of User.

Once a User connects and sends any command (or immediately if the Controller programme / GUI is used, since that will send a command to turn on metering immediately), the ALPS recognises the connection and grants that User a session.

If a higher priority of User connects when a session is already in progress, the lower-priority session is immediately terminated and control passes to the higher priority User.

If a lower priority of User tries to connect when a session is already in progress, that connection will be refused and control remains with the existing higher priority User.

If no commands are passed for a given amount of time in a session, that session will time out. The time to receive any command and keep the session alive is 10 minutes. If the Controller programme / GUI is in use, a count-down warning is issued at 9 minutes with the option to press a button which will refresh the timeout so the session can continue.

All of the above is prior to the User being logged in. So a session without login (a 'guest session') is possible. The above rules apply to a guest session.

Guest sessions may subsequently log in which gives access to control functions (e.g. loading presets, changing settings) in addition to just monitoring levels.

Scheduler and GPI operations that require logging in have the ability to log themselves in. But they can only be activated from a logged-in session of one of the other Users, i.e. normally IP, Modem or USB.

All sessions also have a safety timeout in the DSP part of the processor. This is set to 30 minutes. The safety timeout ensures that if a session is not ended correctly, (e.g. because a modem or IP stream is interrupted in mid-flow), the data flow will cease after the safety timeout, allowing connectivity devices such as modems and routers to be ready to receive new connections.

## Front-panel jog-wheel & LCD interface

### Simple guide to using the front panel controls

- Indication of current **main menu** is by permanently visible LEDs with simple text labels next to them.
- Stepping between main menus is always achieved by the dedicated red up/down buttons.
- Within menus, press the jog-wheel in to accept value and / or move to next sub-menu.
- Turning the jog-wheel whilst in a sub-menu changes values and...
  - LCD will display the precise numerical value selected
  - ring of LEDs around jog-wheel shows relative value and range available
- When all the submenus in a given menu have been accessed, a final press of the rotary switch returns to the (main) menu title, for instance:

↑ <b>AGC</b>	or	↑ <b>System</b>
↓ <b>Menu</b>		↓ <b>Menu</b>

- Any time the bottom line of the display reads: '**Menu**' as above, the dedicated up/down push-buttons can be used to select a new main menu. If 'trapped' within a main menu, just keep pressing the jog-wheel in to step through all the sub-menus until the bottom line of the display reads '**Menu**' as above. Then use the navigation buttons to select the menu you want.
- 
- To exit Front Panel control safely when finished, decide if you want to save changes. If so, navigate to 'System' menu, then push straight past 'Linking' to get to 'Save All' menu. Turn rotary control until you see '<YES> no' in the display. Push to accept. All changes are now saved to flash and safe against a power cut. Navigate to 'Security' menu. Push once to access 'Logout' sub-menu, if necessary turn rotary control so display reads '<YES> no', finally push again once to log out.
  - **N.B:** By default all menus will be locked until the user logs in. See section on following page for details of how to log in.

## Logging In via front panel

There are two access levels:

- Guest Level - no password is required. Access to all sensitive menus is blocked, as indicated by a padlock in the bottom-right of the display. Access to display menu (contrast for LCD screen) etc is allowed.
- User Level - Password protected. In this mode all menus are accessible.

To Log In to User Level from front panel, please note the default password will be active unless and until it is changed: AAAA. The procedure is as follows:

- Navigate to 'Security' menu [see previous page].
- Press jog-wheel once to enter Security menu, display will read:

Password

A - - -

- Carefully push the jog-wheel four times, without turning, to enter 'AAAA' (or correct 4-character password for your unit, if applicable) as the password. Next push another three times in succession without turning (i.e. accepting default options). The display will read, in succession:

**Lock menus**  
yes <NO>

**Lock values**  
yes <NO>

**Autosave?**  
yes <NO>

You are now logged in at User Level.

**Lock Menus** option allows the menus to be locked or unlocked when User is logged in. For the vast majority of users the default mode (No) will be appropriate.

**Lock Values** allows access to all the menu items but does not allow changes to the currently set values to be made.

**Autosave:** using the default option 'No Autosave' as above, any changes made from the front panel will affect the unit in real time, but are only made to the volatile RAM memory, and will be lost if the power is cut or if global changes are made by loading a preset. This mode is best for getting familiar with the unit. Changes can be saved to Flash memory manually by navigating to System menu / second sub-menu 'Save all'. Select '<YES> no' and push to accept, and the current state of the unit will be saved to Flash memory.

If required the above option for 'Autosave' can be changed. If 'Autosave' is selected, all changes will be saved to Flash memory as they are made. Only use this mode when you are confident driving the unit and want all changes saved immediately. Autosave mode is probably best avoided in early use of ALPS-3.

**N. B: Timeout:** If the front panel controls are not used for 30 minutes, the session will time-out and control will revert to Guest Level (see above).

## Connections

All connections to the ALPS-3 are conventional and standards-based:

**Analogue Audio Input and Output:** Electronically balanced, RFI-suppressed on 3-pin professional Neutrik XLR connectors. 10k (bridging) input, 50R (Low-Z) output.

**Digital Audio Input and Output:** AES-3 standard, RFI-suppressed on 3-pin professional Neutrik XLR connectors.

**Control:** USB on 'B' type female USB connector [Front panel] or RS-232 on 9-pin Female 'D' connector [Rear Panel].

Control ports operate 'in parallel'; NB use one-at-a-time only.

For use with Audessence Controller GUI programme running on a Windows PC.

N.B. Text format commands can also be used with many Automation systems running on PCs, or 'HyperTerminal' / similar text based comms suite on the PC.

**Power:** Universal AC input on IEC connector accepts 100 to 240 Volts AC nominal.

**Earth / Ground:** A M4x10mm bolt is supplied with one spring washer and two M4 plain washers to mate with M4 female 'PEM' fastener on right-hand side of rear panel, next to IEC AC inlet.

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## Input / Output Setup

Both analogue and digital Input level settings have been pre-set to optimised default values for typical programme material, as you would find it at the output of a mixing desk. In the analogue domain this means peaking up to PPM6 / +8dBu maximum, but with music generally peaking **up to** PPM5 / +4dBu, with higher levels reserved for the loudest passages only. In the digital domain this means the input peaking at around -16dBFS normally, (... and ***occasional*** true peaks can be up to about 6dB louder still).

Particularly with digital input, there is a chance of some programme segments (for example direct dubs from commercially mastered CDs) having a much higher peak level all the way up to 0dBFS. If required, ALPS-3 will cope with these extra-loud inputs remarkably well.

**[Technical note #1]:** The additional headroom available on the analogue input for peaks caused by operator error is another 14dB; so the clip (= distortion) point of the input is at +22dBu].

[Older ALPS-3 units with serial numbers starting 07- or 08- have 13dB of extra headroom and clip at +21dBu].

**[Technical Note #2]:** - because the AGC is r.m.s. responding, the procedure to calibrate the input gain of the unit with sine-waves does not correspond to older processors that respond to the peak value of the input signal. Line-up with tone requires that the level be 14dB lower than you might expect, because tone is that much 'denser' than typical programme material].

**[Technical Note #3]:** - because the Input and Output meters are true-peak responding, a **PPM meter** connected to the same signal will read the same value on tones but a small amount, (around 2dB) **less** on programme material. This is because a PPM meter *integrates* peaks over 5 or 10 milliseconds.

## Input Levels

**Lineup with tones:** A value of -30dBFS digital is required at the input to bring the AGC indication to 0dB with *sine-wave (NOT programme)* drive. This is normally equivalent to -10dBu analogue input (again, remember this is only with sine-waves). The calibration of input gain will change if the setting of the 'Input gain trim' control is changed.

**Lineup with programme:** The important thing to remember is that, with AGC engaged of course, the AGC meter should sit at 0dB (plus or minus 4dB or so) when the incoming programme is peaking 'normally' i.e. up to around PPM 5 / +4dBu in the analogue domain, or alternatively, peaking at around -16dBFS in the digital domain.

**Input Metering:** The Left and Right 'Input' meters provided are calibrated in -dBFS, and are true-peak responding. If analogue input is in use, 'top of scale' or 0dBFS is equivalent to +20dBu. Normal programme peaks should register around -20 to -15dBFS on the ALPS-3's input meters (the first two yellow segments of the front-panel meters), regardless of whether digital or analogue input is being used.

**Input Gain Trim:** There should normally be no need to adjust the input gain. However, in recognition of the wide range of differing operational practices around the globe, 'Input Gain Trim' controls have been provided.

***N.B. analogue and digital inputs have individual gain trims.***

The procedure to adjust Analogue input gain follows: First login as per the procedure in Audessence Controller manual. Navigate to the '**Setup\Input**' Menu, and use the slider marked '**Analogue Input Gain Trim**'. The Input Gain Trim for analogue sources has a range of -8 to +14dB, with 0dB default.

The procedure if Digital input is in use is identical, except use the '**Digital Input Gain Trim**' control, and note that the available gain trim range for digital signals is -20dB to +6dB. **N.B: Positive settings of the Digital Input control are for use in exceptional circumstances only!**

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## Output Levels

The separate Analogue and Digital Output level ceilings of ALPS-3 have been pre-set to default values that should be fine for 'normal' operation in a professional or semi-professional environment. The Analogue outputs peak at up to PPM6 (+8dBu) with no possibility of any overshoot at all. The digital output peaks at up to 0dBFS, again with no possibility of overshoot at the selected sample rate.

Note that a PPM meter connected to the ALPS output will very rarely if ever read PPM6, because a PPM meter *integrates* brief peaks. It will typically read 1dB or 2dB less than a true-peak responding meter. If you require maximum peak output from your ALPS to hit 6 on a PPM meter, follow the procedure below to increase the Analogue output ceiling of the unit.

If necessary the Output level ceilings can be adjusted. Login and navigate to 'Setup\Output' menu. N.B. '**Digital Output Ceiling**' and '**Analogue Output Ceiling**' have separate independent values, since you can use both outputs simultaneously.

'**Analogue Output Ceiling**' range is -6dBu to +18dBu peak (\*). It is calibrated directly as the maximum peak signal that the unit can produce. The +8dBu 'Nominal' setting of the control corresponds to +8dBu true-peak ceiling.

(\*) [previously to +14dBu, on older units with serial numbers starting 07- and 08-]

Set the output ceiling control to give the greatest peak level the processor could ever output (with normal AGC settings, this will reliably occur when the input suddenly surges from very quiet to very loud, say from -8dBu to +8dBu or more).

'**Digital Output Ceiling**': range is -20dBFS to +6dBFS. Default is 0dBFS.

**N.B:** Positive gains should never be required in normal operation, and **PLEASE NOTE**, *selecting a positive value for digital Output is risky!* as it is very likely to introduce distortion! For most applications the default of 0dBFS will be fine. **ONLY select >0dBFS Digital Output ceiling with great caution, and if you are a real expert in digital audio!**

The 'Output Level' controls are applied after all other audio processing stages. They are just gain / attenuation, right at each output. So do not fear that adjusting the output level will disturb the density of the audio you have selected or the amount of peak limiting applied, it will not.

*Just one more reminder, **please DON'T set positive Digital Output gain unless you know what you are doing!***



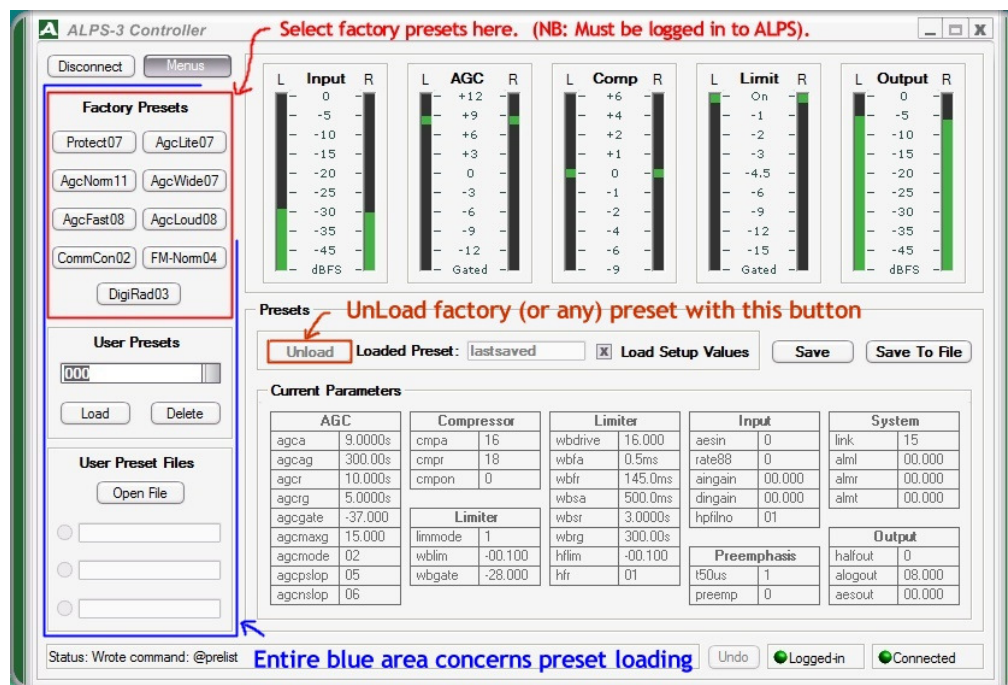
## Presets

### Getting started with Factory Presets

The best way to get started with setting ALPS-3 to produce the exact levelling action you require is simply to load one of the nine built-in factory presets.

If you are in 'Menu' mode, press the 'Preset' button in the Controller (/ GUI). The 'preset' button is just to the right of the 'disconnect' button - **and N.B: this button toggles between 'Menu' mode and 'Preset' mode).**

This will bring up a list of available factory presets for the unit. Even if you have never worked on Presets before and thus have no User Preset Files on your PC, you will always see at least the nine Factory Presets that are loaded into each ALPS-3 unit during manufacture:



These can be loaded for immediate use, just by pressing the relevant button. A description of the purpose and action of each factory preset follows later in the manual.

- **Note on Impermanence**

When you press the button for a factory preset, the preset is loaded into volatile memory only:

- If you make a mistake and overwrite a previous setup that turned out to be preferable to the factory preset you just loaded, don't despair! To get back to the values that were in use immediately prior to entering the Presets mode, just click the button marked 'Unload'. ***N.B: 'Unload' takes you back to a snapshot of all settings, taken when you entered the 'Presets' window.***
- Any changes you make are automatically saved to non-volatile memory when you press the 'disconnect' button prior to closing the GUI.

- **Note on Setup Parameters and Presets**

Please note that Presets normally include only the parameters that affect the audio processing directly...

There are some additional 'Setup' parameters in the I/O, System, and Pre-emphasis menus that are saved in the ALPS-3 hardware unit but are not normally loaded from a preset, because they are likely to be specific to the individual unit rather than to a preset.

The engineering - related parameters include:

- Input Source
- Input Gain Trims
- Output Ceilings
- Digital rate selections
- Emphasis time-constant selection and de-emphasis selection

These 'setup' values do **not** form part of the 'factory presets' stored in the ALPS-3 unit. So, loading a Factory Preset will not upset your Setup parameters.

These 'setup' values **are** saved when a setup is 'Saved' as a User Preset on the ALPS unit.

These 'setup' values **are** loaded when a User Preset is accessed.

These 'setup' values **are** saved when a setup is 'Saved As' a User file on the PC.

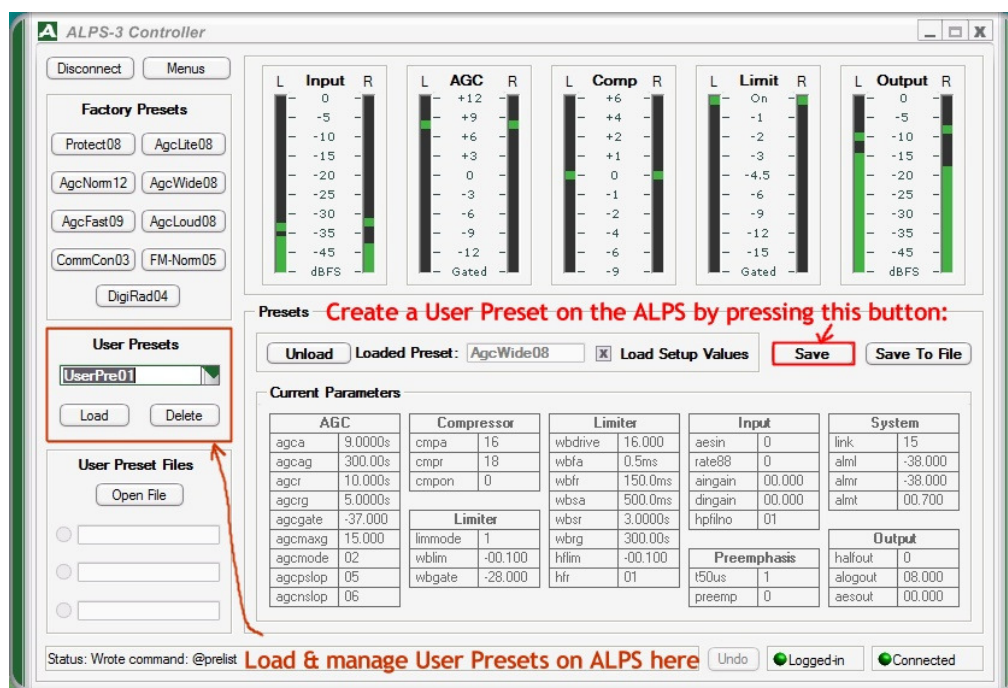
When Uploading a User file from PC to the ALPS-3, the values **are** uploaded to the ALPS unit.

## User Presets

You can create your own Presets; the normal way to do this is to start with Factory presets. These 'User' presets can then be saved to the ALPS processor non-volatile memory, where they will be available for calling using the GUI, for automatic loading by the Daypart (/ scheduling) system, and in some cases for accessing by the GPI port.

To create a User Preset, first of course you have to be logged in to the unit, and to set the unit into the required state that you wish to save. If necessary, use the Menus / Presets toggle button to get back to Controls, set the unit up, and then press Menus / Presets toggle button again to get back to Presets.

See the screenshot below for the location of buttons to create ('Save'), load, and manage User Presets:



When the 'Save' button is pressed, a dialog will be presented enabling you to name the preset. Names must have 9 characters. They can use lower case, upper case or a mixture of the two. They can include alphanumeric characters and hyphen ('-') but must **NOT** include any other punctuation marks or spaces.

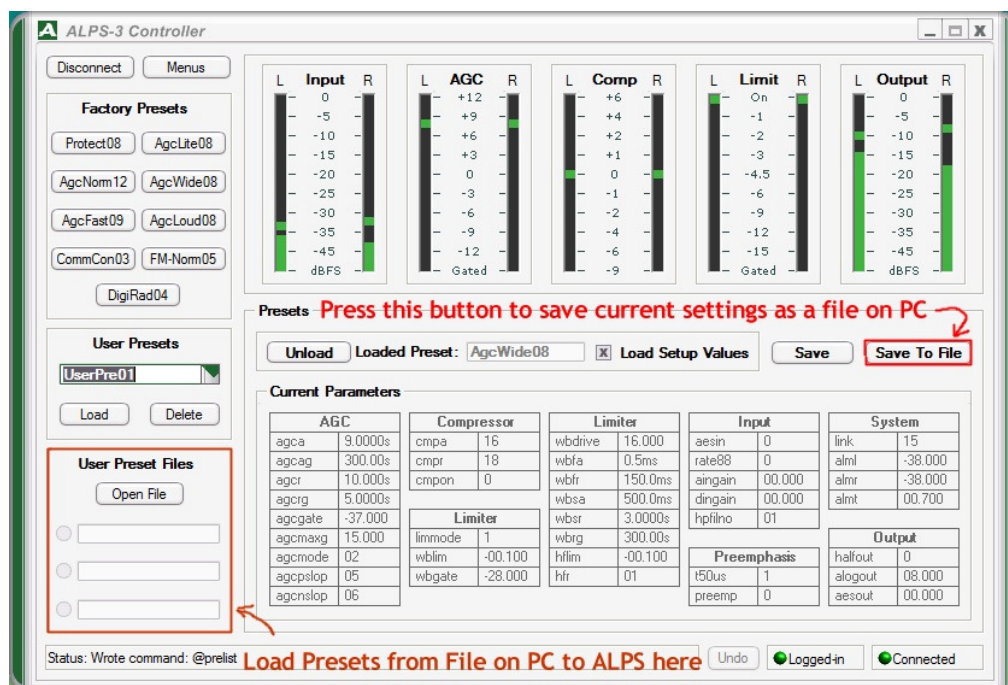
## Saving Presets as files on the PC

You can also back-up your User Presets as files on the PC running the Controller software. To do this, press the button marked 'Save to File' immediately to the right-hand-side of the 'Save' button. Again, a dialog will be presented enabling you to name the preset.

**N.B:** Use the same naming restrictions as for User files on ALPS, i.e. use maximum 9 characters. Characters can be either upper or lower case or a mixture of the two, they can be alphanumeric, plus hyphen if needed, but must not include spaces or other punctuation marks.

The extension to be used for preset files is '.apf' (alps preset file), this is appended automatically.

See the screenshot below for the location of buttons to create ('Save'), load, and manage User Presets:



## Description of Factory Presets

**Note (1):** Presetname\*\*: the final two characters of every preset name are numerical and indicate the version number of that preset. Obviously, these numbers are subject to change as the Factory presets are improved following further work at Audessence, and user feedback.

- **Preset 1: Protect\*\***

This preset has no AGC (it will not bring up quiet passages). It is designed specifically to do as little as possible to programme audio of normal level. It stops 'over-loud' passages that would cause distortion in link equipment from peaking above its pre-set threshold of +8dBu.

**Protect\*\*** is mainly used for protecting links with analogue inputs such as digital codecs and all kinds of studio-to-transmitter-links (STLs) that can distort if over-driven.

It is a look-ahead hard-knee limiter, which will do nothing to signals peaking up to +8dBu (PPM 6). Above this level the limiter has hit its output ceiling of +8dBu and due to its look-ahead it can never exceed this output level, even on transients. Its input will handle peaks of up to +22dBu without any audible distortion at all (production-measured better than -78dBr THD&N at +20dBu input). Limiter release is complex and reasonably fast, so that limiting action is not objectionably audible.

**Advanced setup tip for 'protection' apps:** In the analogue domain, Input Gain trim can be used in conjunction with Output Ceiling to tailor the setup of the unit for particular protection tasks, for instance:

As shipped, the 'Protect' preset guarantees that even the briefest programme peaks are limited to +8dBu (PPM6).

However, this is often overly cautious. In many circumstances there may be no need to limit at +8dBu, if the codec or other equipment being protected can take a higher level.

For example, the Input Gain Trim could be reduced by 4dB to -4dB, and the Output Ceiling could be increased by 4dB to +12dBu. For normal programme levels in the PPM1 to PPM6 range, this will have zero net effect. The ALPS will now guarantee that programme peaks can't exceed +12dBu, (PPM7) instead of +8dBu (PPM6) as in the stock preset.

Tailoring the protection capabilities of your Audessence processor can maximise the programme dynamic range and 'presenter satisfaction', whilst providing totally reliable, tweak-proof protection against overload to all downstream equipment.

**Preset 2: AgcLite\*\***

This preset was designed specifically for gentle, artistically sensitive processing of classical music and other musical genres which rely on dynamics for the musical effect. A peaking range range of somewhat more than 24dB at the input (PPM 1 to PPM 7) is gently, and relatively sedately, processed to a controlled dynamic range of 12dB at the output (PPM 3 to PPM 6). Some musical dynamics are thus retained. Peak limiting is included, and its time-constants have been optimised to give the illusion of greater loudness if occasional surges on the input cause AGC output to exceed the +8dBu peak limiting threshold. AGC uses gentle slopes, while soft-knee look-ahead limiter gives brickwall peak control with minimum artefacts.

- **Preset 3: AgcNorm\*\***

This preset is the power-on default for all new ALPS-3s 'fresh out of the box'. Normal AGC action, this would be our choice for the majority of broadcast applications where a studio or other source's output has to be normalised but without destroying dynamics. A dynamic range of greater than 24dB at the input is processed to around 8dB measured range at the output - yet hide your PPM, and this preset still sounds remarkably good! We used a whole arsenal of tricks to minimise ducking, hole-punching and other unpleasant artefacts of AGC, so that peak limiting could be restricted to dealing with unusual transients that the AGC can't track, bass peaks, or when the input has a remarkably high 'crest factor'. Most material is controlled intelligently by the AGC and passes through 'un-squashed' by the limiters.

- **Preset 4: AgcWide\*\***

Similar to the above but with a super-wide 'capture range' for dealing with very unpredictable levels or super-sloppy desk jockeys. A massive 30dB peak range at the input is processed to less than 8dB measured range at the output, with a moderate response time in the region of four seconds.

- **Preset 5: AgcFast\*\***

Similar to AGCwide, but with much faster action. This is mainly intended for all-speech applications and could accurately be described as an aggressive quality AGC. This will maximise intelligibility under the most difficult of conditions. Good for sports and other live outside broadcasts (OBs) ('remotes' for stateside users) where the levels really are wild.

- **Preset 6: AgcLoud\*\***

AGC properties are similar to AGCnorm, but this one cranks the drive into the wideband dynamic limiter for significantly boosted perceived loudness. A surprising amount of punch is also retained due to intelligent coding. This one is for those who want to make everything LOUD! However, it does not do anything that would introduce chronic and fatiguing distortion, or annoying pumping.

- **Preset 7: CommCon\*\***

This preset is specifically for controlling the loudness of commercials in television broadcasting. It is designed for use where the commercials can be separately processed.

- **Preset 8: FM-norm\*\***

AGC action is based on AGC-Norm for the optimum balance between effective control and maintaining some programme dynamics. Somewhat greater drive to peak limiter gives decent audibility in bands crowded with loud commercial stations. HF limiter still sounds sweet and open.

**Note (2):** The FM preset takes account of pre-emphasis, by using an HF limiter in addition to the wideband limiter used in the AGC presets. By default the output is also de-emphasised with the same time-constant so it is 'flat' (but this can be changed).

**Note (3):** FM presets can also be used to 'de-Ess' speech material, as well as for their primary purpose of feeding FM broadcast transmitters. The De-essing action is audibly relatively gentle, yet very effective at reducing sibilance nonetheless. Peak amplitude is additionally constrained by around 15dB at 15kHz (50us setting) or 19dB at 15kHz (75us setting).

- **Preset 9: DigiRad\*\***

Optimised for bit-rate reduced digital radio systems. This gives very consistent levels, boosting clarity but without exacerbating the problems of digital perceptual coding systems. This is also louder than all of the AGC presets except for AGC-Loud.

This preset is suitable for all forms of digitally-delivered radio and audio such as webstreaming, PodCasting, DAB, and HD Radio.

## Control via GPI

### When will GPI control be active?

GPI control will be active if:

- There is no higher-priority session in progress
- The 'GPI in Use' pin of the GPI interface is pulled low (all GPI pins are active-low) (See Appendix 1 for details of GPI interface)
- The special preset called by the GPI is in existence:  
(These are named User-0001, User-0002, User-0003 and User-0004.  
These special presets should have been created prior to shipping, if so they can be overwritten with your preferred settings)
- One of the GPI pins for loading presets is pulled low for at least one second - this actually loads the preset

### Presets for GPI operation

Four presets can be called by the GPI interface. These presets **must** have special, pre-determined names, exactly as below. Be sure to observe Uppercase and Lowercase exactly, and the use of hyphen ('-') as opposed to underscore ('\_')

**User-0001**

**User-0002**

**User-0003**

**User-0004**

Create these presets to fulfil the processing functions you want to be able to access by GPI.

In some cases, units supplied for specific applications will have an example set of four Presets of those names already loaded:

- For TV applications, the presets are as follows:

User-0001:	Normal AGC (plus peak limiting) for general TV programmes
User-0002:	Light AGC (plus peak limiting) for classical music etc.
User-0003:	Heavy AGC for more aggressive level control
User-0004:	Protection Limiting only

These can be overwritten if you want something different.

### Timing

- Presets are loaded almost immediately the GPI pin is pulled low
- Preset load in this mode takes around 4 seconds to execute



## Daypart (Scheduler) operation

### When will Daypart control be active?

Daypart control will be active if:

- There is no higher-priority session in progress
- A valid schedule is loaded
- The Real Time Clock (RTC) in the ALPS unit is set correctly

### Preparing for Daypart (scheduler) operation

The Daypart scheduler is set up via the Controller (GUI) programme. A ‘wizard’ is included to make setup entirely intuitive.

Presets are loaded according to a schedule based on time and the day of the week. Schedules always rotate according to the day of the week.

Any preset (including both Factory presets and User Presets) can be selected by the Daypart software for scheduled operation.

However, and this is a detail point, remember that Factory presets do not load ‘setup’ values (i.e. engineering values like input and output levels), but User presets load all parameters. Sometimes it may be advantageous to copy factory presets as User presets to enable certain parameters in Setup, such as high-pass filter setting, to change according to time of day.

The software automatically handles the transition in Local Time from Standard Time to Daylight Saving Time.

The RTC in ALPS actually runs in Standard Time, but you don’t need to worry whether it is Standard Time (‘winter time’) or Daylight Saving Time (‘summer Time’) when the RTC is set or when schedules execute.

**For the purposes of setting up, all times are *local time*. The RTC can be synchronised to local time, and schedules always run in local time.**

## Set up Connections for IP / Ethernet

### Setup PC for connecting to ALPS-3 via IP

To configure the PC that runs the ALPS-3 Controller / GUI, you need only select the TCP/IP connection option, and supply the IP address of the ALPS-3. This is often an intranet address, or could be a public (internet) IP address. Normally in the case of connecting over the internet, this will be the public IP address of a router which then has its NAT table or 'port forwarding' configured to identify the ALPS-3 on its intranet.

The default Timeout is set to 5 seconds. You can increase this by choosing a value from the drop-down list if your connection is subject to problems.



The screenshot shows a configuration window for connecting to the ALPS-3. On the left, under 'Connect Type', there are three radio buttons: 'USB/Serial', 'TCP/IP' (which is selected), and 'Modem'. To the right, there are two text input fields: 'IP Address' containing '81.21.227.81' and 'Port Number' containing '61234'. Further to the right, there is a 'Timeout' section with a dropdown menu currently showing '5000'.

### Important Note on internetworking and SECURITY

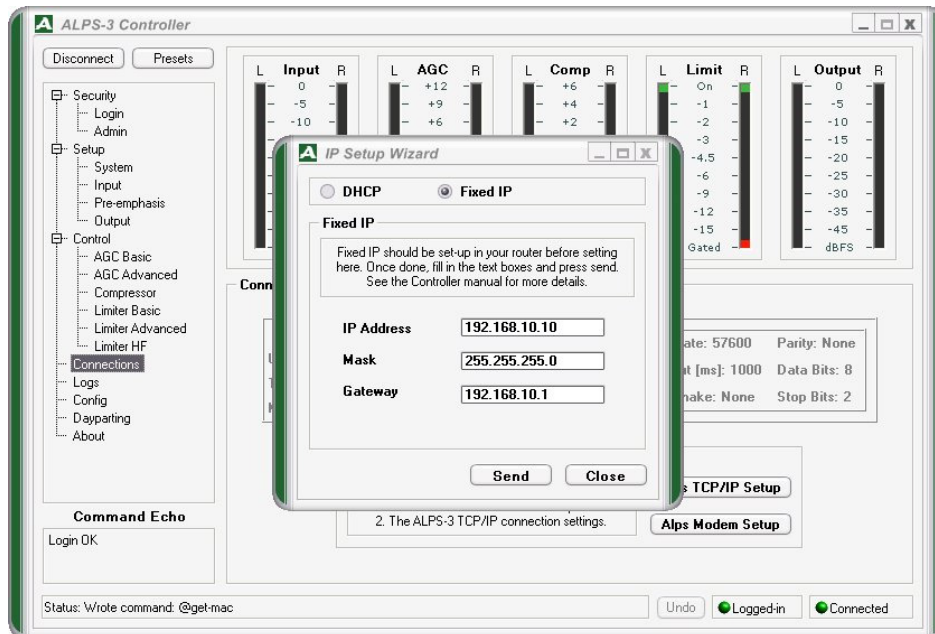
Please be aware that there are important security issues to consider in setting up a network that will route its traffic over the public internet, and especially in 'forwarding' ports. Simply opening a port permanently with no other security measures will invite intruders to hack into your network, so a more careful and thorough approach is needed.

**If this is all new to you, the best thing to do is get expert help configuring and securing your network.**

Try searching Wikipedia for 'Port Scanner', there is an article giving a useful introduction to some of the basic security issues. Also a web search for 'Shields Up' will lead you to a useful service that can check if your network is obviously insecure against hacking and other forms of undesired activity at even a basic level.

## Setup ALPS-3 Ethernet port for connecting via IP

The ALPS-3 IP interface also needs to be configured for IP connections. To do this, you will first need to connect to the ALPS-3 and log in via USB. You can now launch the TCP/IP Setup Wizard, see below:



### Choice of address allocation method

ALPS-3 can be configured for either Fixed IP or DHCP. Fixed IP is recommended since DHCP may lose its address after a power cut to the router. (although on many modern routers it is also possible to fix the lease of an intranet address to the MAC address of a device, which *should* be almost as safe as using a fixed IP address).

### Fixed IP

Launch the IP Setup Wizard in the Controller programme, it is under 'Connections' (see above). Make sure the IP Setup wizard is set for 'Fixed IP' (as above). You will need to supply an IP Address outside the router DHCP range (usually a local range address like 192.168.1.10), the network mask (usually 255.255.255.0, see your router configurator or manual) and possibly also the Gateway (Router) address (however, since ALPS-3 does not establish connections with the outside world, we believe that the Gateway address is never actually needed).

Press send (at the bottom of the dialog). If an error was encountered then the address text boxes will read Not Set.

You should now be able to connect to the ALPS-3 from the PC running the Controller programme via IP on the LAN using its local address on the router as set above. It is worth checking that this works before moving on to configure traffic from the internet (if applicable).

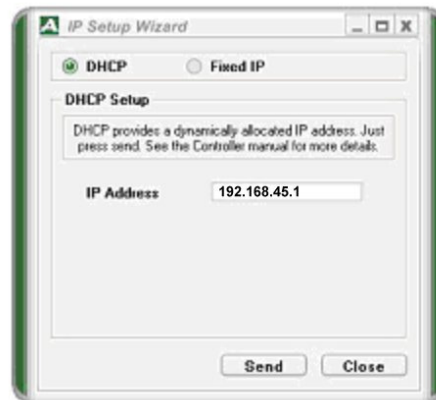
## DHCP

ALPS-3 units are shipped with the IP mode set to DHCP as the default. This makes them easy to discover on a suitably DHCP-enabled network.

Make sure that your ALPS-3 unit is connected to a working Ethernet port first, then connect and log in to the ALPS-3 *via USB*.

Go to \Connections menu, and press the 'ALPS-3 TCP/IP Setup' button. If the IP Address text box reads Not Set or 0.0.0.0 you will need to close and then re-start the IP Setup Wizard. (N.B: If this happens repeatedly then the ALPS-3 is not getting a DHCP address from the network).

Your dynamically allocated IP address should now appear in the IP address dialog text box as shown below (the actual address will be different of course).



## Configure IP Network

The final part of IP setup is actually configuring your network to get data from the PC to the remote ALPS and responses back again, which is really outside the scope of this manual. If this is new, try Wikipedia searches on 'NAT' and 'Port address translation'.

At the PC end, you have already specified the IP address you want data from the PC to be sent to and there should be no need for anything else.

At the ALPS end, you have already configured the ALPS to communicate with the LAN in use at that location.

What remains is to ensure that data from the PC, [which will use IP (not UDP) packets on logical port 61234], is routed to the correct local-range IP address of the ALPS.

In essence, in many cases you will need to configure your router so that its NAT table contains your allocated local-range IP Address and the logical port number used by ALPS-3, which is 61234.

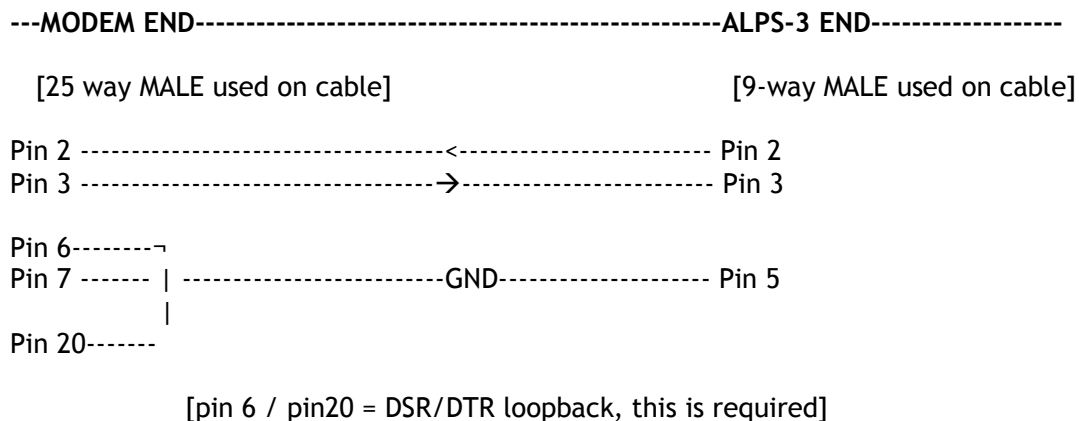
See your Router documentation for configuring its NAT table for DHCP or Fixed IP.

## Set up Connections for Modems

### Interconnection Lead

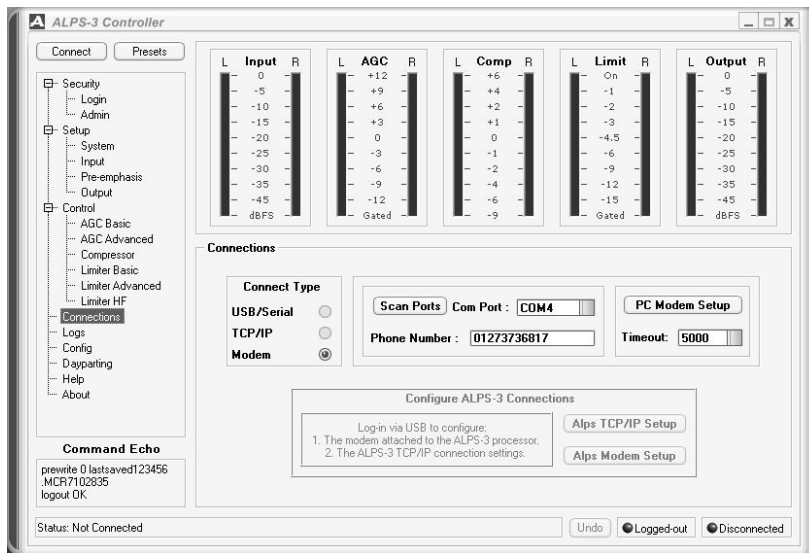
ALPS-3 is designed to be used with a US Robotics 'Sportster' 56k Data / Fax 'external' modem. N.B: Other modems may work but are not supported by Audessence.

The lead used to interconnect modem with ALPS-3 must be correctly wired. The correct connections are as follows:



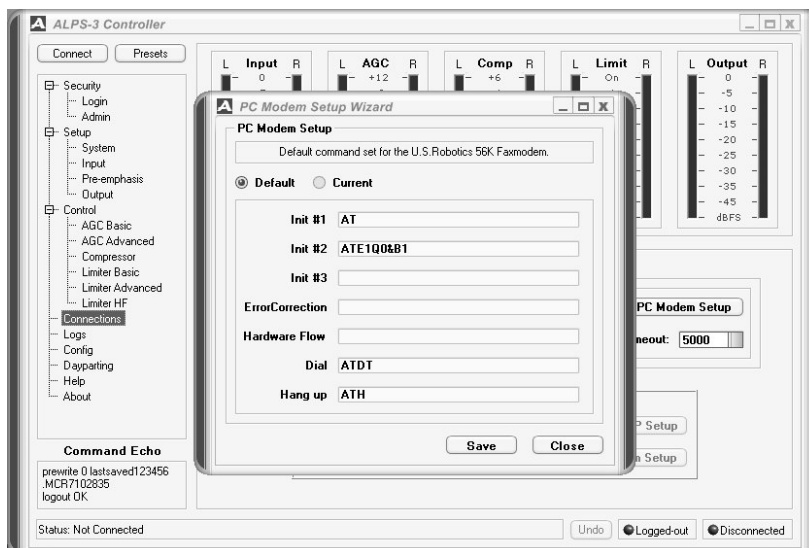
Arrows show direction of data flow. Pin 2 is data from ALPS-3 to Modem. Pin 3 is data from Modem to ALPS-3. (NB: Avoiding mention of 'TXD' and 'RXD' will help avoid confusion. By convention, TX and RX refer to data flow referred to the DTE, i.e. in this case ALPS-3).

## PC Modem Setup



First, select 'Modem' in 'Connections \ Connect Type' as above.

If you then click the 'PC Modem Setup' button you will be able to view the default modem initialisation strings for use with the recommended modem :



The above 'PC Modem Setup' screen can be toggled between the fixed pre-programmed, default modem initialisation strings ('Default') and an editable set, the so-called 'Current' settings.

By this means other local modems, such as a built-in modem in the PC, can be set up for successful communication with the remote modem at the ALPS-3 end.

See the manual for the local modem in order to determine what strings may need to be sent to initialise it correctly.

## ALPS-3 Modem Setup

Audessence recommends that you purchase the modem for the ALPS end of the connection from us, in which case it can be pre-configured and tested before you need to use it, in which case using a modem should be very easy indeed.

Recommended modems are available from the factory as an optional extra.

The following assumes you are starting with a modem that has not been pre-configured:

When an (external) modem is first used with ALPS, it could be set to a mode where data is sent back to ALPS-3 when it is not desired, i.e. **echo** might be on, and the modem will not be in '**Quiet Mode**'. This can cause endless looping of meaningless data. This is easily solved by initialising the modem, and a standard script for this purpose has been provided, so you won't have to discover and set all the Hayes 'AT' commands for yourself. Of course, this script will work only with the recommended modem.

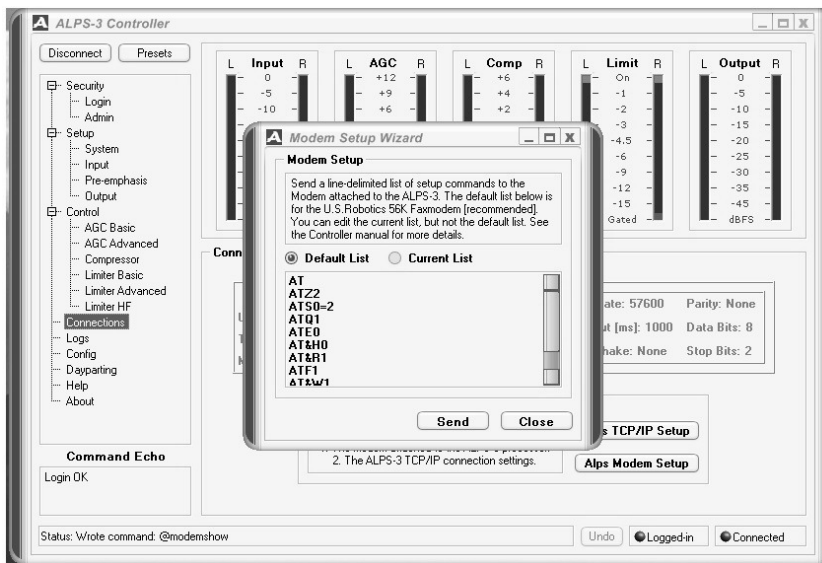
To set up the modem, firstly connect the modem to your ALPS-3, and ensure both are switched on.

Next connect and Login to the ALPS-3 *using a USB connection (it MUST be USB)*.

Then, press the button marked 'Alps Modem Setup' and indicated by an arrow below:



This will bring up the 'Modem Setup Wizard' as shown below:



As long as you are using the recommended modem (US Robotics 'Sportster' 56k Data / Fax 'external'), the default list of initialisation commands for the modem should work perfectly first time. Just press the 'Send' button to send the init strings to the modem. Pressing this button will also save the modem state afterwards, so it will be ready even after a power cut.

The meaning of each default command is as follows:

ATZ2	[Reset modem]
ATSO=2	[Set auto-answer to 2 rings]
ATQ1	[enable quiet mode - <b>essential, do not edit</b> ]
ATE0	[echo off - <b>essential, do not edit</b> ]
ATF1	[echo off - <b>essential, do not edit</b> ]
AT&W1	[write current config to NVRAM Template 1]
ATY1	[set power-on default setting to NVRAM Template 1]

By swapping from 'Default List' to 'Current List' in the dialog box seen above, you can make the command list editable. For example, if you wanted the modem to answer an incoming call after four rings instead of two rings, you could change ATSO=2 to ATSO=4.

For Modem manual, see:

<http://www.usrobotics.com/support/s-modem/s-modem-docs/usrv90.pdf>



## Audio Processing Controls

The Audio Processing Controls found in Menu (Expert) Mode are designed for the use of audio processing experts. If you are not experienced in adjusting audio processors, start by using factory presets.

If you can't find a preset that gives the desired result, please contact Audessence by email - in the first instance to: **[tech@audessence.com](mailto:tech@audessence.com)**.

### Filters

ALPS-3 includes low-pass and high-pass filters immediately before the active audio processing stages.

The low-pass filter is a fixed linear-phase filter which is less than -0.5dB at 20kHz.

The High-pass ('rumble') filter can be adjusted for a -3dB frequency of 3Hz, 25Hz, 40Hz, 70Hz or 110Hz, with a default value of 25Hz. The control for the high-pass filter is found in the 'System' menu.

## AGC

### [AGC Basic]

- **Attack**  
Controls how fast the AGC responds when the input is getting louder.
- **Release**  
Controls how fast the AGC responds when the input is getting quieter.
- **Gtd (Gated) Attack and Gtd Release**

These controls are all about what happens during pauses in the programme. N.B., you can use the **AGC GATE** control, found in **AGC Advanced** menu, to set the level below which a pause is identified.

If the programme before the pause was loud, then the AGC will be in negative gain immediately prior to the pause. In this case, during the pause the AGC gain will head up towards 0dB at a rate determined by '**AGC Gated Release**'. A moderate AGC Gated release (maybe 5 seconds) is good, because if the AGC was stuck in negative gain it would be dangerous to have it recover too slowly in case the next passage starts quietly. Using a moderate AGC Gated release time gets you smoothly back to 0dB ready for whatever may happen next after a pause in the programme.

If the programme before the pause was quiet, then the AGC will be in positive gain immediately prior to the pause. In this case, during the pause the AGC will head back towards 0dB at a rate determined by '**AGC Gated Attack**'. A very slow AGC Gated Attack (maybe 300 seconds) is good, because if the programme was very quiet as it went under the gate, it is quite likely to be quiet as it comes out of the gate again. In these circumstances, you want the Gain Reduction to effectively freeze during the pause, this way very quiet song intros or a very weak speech segment do not go dipping and surging as they vary around the gate threshold, they just stay boosted, which is better. The maximum AGC boost in these circumstances will be constrained by AGC Max Gain (see later).

If programme does get very loud with positive AGC after a pause then the various attack times deal with that situation pretty well, the peak limiter keeping things under control while the AGC reacts. If Advanced AGC is selected, even huge surges of say 30dB are coped with quite adequately.

**[AGC Advanced]**

- **Mode** [Off / Normal / Adv (Advanced) Low / Adv Medium / Adv High]

**Off** means no AGC action at all. The AGC gain will be permanently frozen at 0dB.

**Normal** means the AGC response will use fixed time-constants ('AGC Attack' and 'AGC Release') only.

**Adv-Low** means the AGC response will speed up if its target gain is outside a total range of 16dB around the current gain, and is above the AGC gate threshold.

**Adv-Med** means the AGC response will speed up if its target gain is outside a total range of 14dB around the current gain, and is above the AGC gate threshold.

**Adv-High** means the AGC response will speed up if its target gain is outside a total range of 12dB around the current gain, and is above the AGC gate threshold.

- **ITU-1770** - **\*NEW\***

**Off** is a compatibility mode, which will give the exact same AGC action as earlier versions of Audessence levellers.

**On** makes AGC response fully compliant with ITU-R BS 1770 (the *LeqRLB* curve). This means it will respond to *perceived loudness as defined by the ITU standard*, and it will also control '*strident*' material more accurately.

- **Gate**

The AGC gate determines the level of incoming programme below which 'Gated' behaviour (a controlled return of the AGC gain to its 0dB 'resting' position), occurs.

- **Max Gain**

This control limits the maximum amount of boost the AGC can apply to quiet sounds that are nevertheless above the AGC gate threshold. Essential when advanced AGC is engaged, to prevent unnatural boost profile of sounds that are trailing away towards silence.

- **Pos Slope:**

This controls how much correction is applied to inputs that are too quiet (i.e. that will result in positive AGC gain). Expressed as a ratio, or slope. Max setting of 'Inf' (infinity) applies total correction - e.g. a signal that is 10dB too low will be boosted eventually by 10dB. 2:1 applies 50% correction, i.e. 5dB for a 10dB gain error).

- **Neg Slope**

This controls how much correction is applied to inputs that are too loud (i.e. that will result in negative AGC gain). Expressed as a ratio, or slope. As above.

## Compressor

The compressor is designed to boost very low-level signals moderately, and to ameliorate very high levels. It can be used to deliberately compress the sound, adding 'density' and audibly processing the dynamics of speech and music.

The compressor also includes a 1.33:1 expander function below -31dBrNOL [reference: normal operating level] so that for very low levels below -43dBrNOL the compressor has unity gain even when engaged.

The compressor has a fixed maximum boost of just 4dB between -31dBrNOL and -22dBrNOL. It has a slope of 1.5:1 above threshold so that at -10dBrNOL it has unity gain and at +20dBrNOL it has -10dB gain.

**On/Off:** A detailed description of the full extent of the functionality of this control is beyond the scope of this manual.

**Attack and Release:** Compressor uses a simple single time-constant scheme. Time-constants are specified by preset numbers. Smaller numbers mean shorter times, on a logarithmic scale.

#4 = 0.33 milliseconds	#13 = 170 milliseconds
#5 = 0.65 milliseconds	#14 = 340milliseconds
#6 = 1.3 milliseconds	#15 = 680milliseconds
#7 = 2.7 milliseconds	#16 = 1.4secs
#8 = 5.3 milliseconds	#17 = 2.8 secs
#9 = 11 milliseconds	#18 = 5.6 secs
#10 = 21 milliseconds	#19 = 11 secs
#11 = 43 milliseconds	#20 = 22 secs
#12 = 85 milliseconds	#21 = 44 secs

## Limiter

### [Limiter Basic]

- **Mode (Off / Wideband / Wideband + HF)**

The limiter is normally set to Wideband.

If the limiter is switched 'off' then there is nothing that will absolutely guarantee the maximum peak output level or ensure that the output signal cannot clip. N.B: under these circumstances there is no boost (wideband drive) applied to the signal either. In this mode, if the AGC is engaged then the output level will typically peak around -16dBFS digital (and -8dBu analogue) during periods when the input is of normal, stable medium-term peak level.

The wideband limiter is used for most studio-based applications in conjunction with the AGC. Using the wideband limiter guarantees that the output of ALPS-3 won't clip. It can also be used to drive the signal in order to make it sound louder whilst remaining at the same peak level.

The HF limiter applies additional limiting to HF components of the audio and should only be engaged for applications where the processor feeds an FM transmitter, or where there is a need to reduce sibilance ('de-ess').

- **WB (Wideband) Drive**

This is a very important control and is quite easy to grasp. Increasing the drive from 0dB makes the output sound louder, but without the peak output of the processor exceeding the Output Ceiling set in the Analogue I/O menu. If you want the target output level of the processor to be louder or quieter, it can be achieved in most cases by setting this control. Higher numbers (more drive) will make the sound louder.

In technical terms, the wideband drive is a fixed gain after the AGC stage and before the wideband limiter stage. Drive can only be set if the wideband limiter is engaged, or in other words if the wideband limiter is off, then the wideband drive defaults to 0dB.

- **WB (Wideband) Threshold**

This is an advanced feature. Don't adjust this control unless you are working in the digital domain and are an expert. If it is set wrong it can easily lead to great confusion over levels! If you want a different digital output level, it would normally be better to navigate to the Output menu and set the output level there (Digital Output control).

**N.B. Don't ever try to exceed 0dBFS digital level in an attempt to make the sound louder. This will lead to many technical problems!**

- **WB (Wideband) Gate**

This is an advanced feature that slows down the release of the wideband limiter during pauses in the signal. It is especially useful for reducing pumping and over-processing of voice signals.

Normal setting is -22 to -27dB.

- **Knee**

The Wideband Limiter knee can now be selected as 'Hard' or 'Soft' (previously it was always in 'soft' mode, apart from a few specials we produced to customer request).

Soft-knee gives a gradual transition from zero limiter action to full limiter action (the limiter has zero slope, or infinite ratio, once it is doing more than 3dB of gain reduction even in soft mode). Generally soft-knee sounds better for all types of general levelling duties.

Hard-Knee has been included for those protection-limiting functions that require to do *NOTHING* to the audio below the limiter threshold, and to provide perfect limiting above the threshold.

Note that ALPS series processors *can never* clip the signal!

### **[Limiter Advanced 1 and Limiter Advanced 2]**

These are advanced time-constant settings that take great experience to set correctly. We strongly recommend **NOT** to adjust these settings!

*In particular, it is recommended never to adjust 'fast attack'. This should always be set to 0.5 milliseconds. If it is set to a higher value, the wideband limiter can overshoot and this could introduce clipping distortion if the output exceeds 0dBFS.*

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## HF (Pre-emphasis) Limiter / and 'De-Essing'

- **HF Release Slow - Medium - Fast**

This setting affects a trade-off between brightness and distortion in the HF limiter. It **only** makes any difference if the HF limiter is on (i.e. Limiter Mode set to 'Wideband & HF'). Medium will be right for most applications. Slow will make the sound less bright but possibly cleaner as well. Fast will make the sound brighter but possibly dirtier - which effect is more noticeable will depend mostly on the type of programme material.

- **HF Threshold**

This is an advanced feature. Don't adjust this control unless you are working in the digital domain and are an expert. If it is set wrong it can easily lead to great confusion over levels!

## Miscellaneous Controls

### [Digital I/O]

- **Input Source**

Selects Digital or Analogue input source.

- **Digital Rate - *IMPORTANT!***

Selects 96 / 48 kHz, or 88.2 / 44.1 kHz base rate. If set to 96 / 48, the input will also lock to 32kHz with no problems. ***N.B: For input to lock to 44.1 or 88.2, this must be set! Otherwise, input will lock to 'pro' rates (32,48, or 96) ONLY!***

- **Digital Output Rate**

Selects double rate (96 or 88.2kHz) or normal rate (48 or 44.1kHz) for interfacing to any digital system. ALPS-3 does not support 32kHz or lower *output* rates.

### [Pre-Emphasis]

- **De-emphasis on-off**

This selects whether the output is actually pre-emphasised or whether it takes account of pre-emphasis but has a flat frequency response characteristic. ***N.B: this only makes any difference if Limiter Mode is set to 'Wideband & HF'.***

- **Time Constant**

Select 75us for North America & Canada or 50us for rest of world. Again this **only** makes any difference if the Limiter is set to @wideband & HF'.

**[System]**

- **Link**

Normally a stereo unit, the ALPS-3 Left and Right channels are normally linked so that the louder of the two controls both. ALPS-3 can also be set to dual-mono mode, so that two completely independent mono programmes could be processed by a single ALPS-3 unit. The processing parameters and level trims used will be the same for each of the two channels.

- **Alarm Left / Alarm Right**

These sliders allow the threshold for the loss of input audio alarm to be set. The output of the alarm is on the GPI connector; see appendix 1, page 37 of this manual).

For normal alarm operation these should be set in the range -30dB to -40dB as desired.

If running in mono, the alarm function of an unused channel can be disabled by setting its alarm level to zero.

- **Alarm Time**

This allows the delay time for the loss-of input audio alarm to be set. The output of the alarm is on the GPI connector; see appendix 1, page 37 of this manual).

A setting to the extreme left of this slider (labelled 'Off'), allows for the alarm to be disabled. In this instance, the GPI pin will indicate that audio is 'OK' at all times regardless of whether audio is actually present or not.



## Contact Us

Please contact Steve Webster if you have any questions, comments or suggestions regarding the Audessence Controller PC programme.

Email: [steve@audessence.com](mailto:steve@audessence.com)

Please contact Martin Spencer if you have any questions, comments or suggestions regarding audio processing, setup of Audessence audio processors and operational considerations.

Email: [martin@audessence.com](mailto:martin@audessence.com)

Please contact Graham Sloggett if you have any questions, comments or suggestions for the Sales department.

Email: [graham@audessence.com](mailto:graham@audessence.com)

## APPENDIX 1 - GPI Interface details

15-way (Female) D-connector on rear panel. Interface circuitry incorporates overvoltage, ESD and RFI protection.

### Pinouts

Pin	Type	Function	Notes
1	GND (*1)	Earth for inputs	INPUTS: A closing contact or open-collector (test: use 50 Ohms) to earth - activates the function (active low). Internal pull-up with jumper for defeat (becomes 3.3V / 5V logic input without pull-up). 3.3k to +3.3V via jumper supplied. Hold pins low for 1 second.
2	Input	Not Used	
3	Input	Force to User 1 preset	
4	Input	Force to User 2 preset	
5	Input	Force to User 3 preset	
6	Input	Force to User 4 preset	
7	Input	Not used	
8	Input	Force to Bypass	
9	Uncommitted	Not used	
10	Output	Audio Present at ALPS input *	Open Collector (protected). 50V @ 500mA rated.  Low => 'good' (failsafe on AC power fail)
11	Output	Power OK	
12	Output	Unit is powered & DSP watchdog is OK (*2)	
13	+V output	Volts for simple ext logic/pull-up	From internal Vcc (3.3V) via 100 Ohms resistor.
14	Input	GPI in use	<b>LOW</b> = run GPI as user
15	GND (*1)	Earth for outputs	
(*1): All earths (GNDs) are common unless there is some reason to split them.			

\* For details of setting the 'Audio Present' thresholds and delay for the audio failure alarms, see page 35 of this manual.

## APPENDIX 2 - RS-232 Interface details

The DB-9 connector on the rear panel of ALPS-3 can be used for a variety of control applications, including the following:

- Control from an automation system that can output ASCII text over RS-232
- Control via an 'external' modem connected to the POTS (plain old telephone system) network
- ... or possibly for those inclined, even from a PC running a console programme such as HyperTerminal for control in the old-fashioned 'teleprinter' style!

The ALPS RS-232 connector is wired for connection to a PC using the most readily available, straight-through type serial cable, which is a D-9 male to female, with all pins wired direct i.e. pin 1 to pin 1, pin 2 to pin 2, pin 3 to pin 3, etc.

The pinouts of the ALPS D-9 connector are as follows:

Application (DTE i.e. PC -relative)	Pin #	Application (ALPS-relative)
Signal Ground	5	Signal Ground
Receive Data (RXD)	2	Transmit Data (TXD)
Transmit Data	3	Receive Data (RXD)

No handshaking or flow control is required, or implemented in ALPS. All the other pins are left unconnected in ALPS.

Serial port parameters for the communicating device:

Serial Port parameters	
Speed:	57600 bps
Data Bits:	8
Parity:	None
Stop Bits:	2
Flow Control:	None

For use with a modem, please note the following:

- Use only a US Robotics 56k external Fax / Data modem
- Use Audessence special cable for connecting modem to ALPS-3. Available on request, please contact Audessence sales dept for details, or see below:

Modem cable details:

Modem end - 25 pin male	Function	ALPS end - 9 pin male
2	Data FROM ALPS	2
3	Data FROM Modem	3
6	Modem DSR - (link to DTR)	n/c
7	Signal Ground	5
20	Modem DTR - (link to DSR)	n/c

## Appendix 3 - Control via RS-232 & text commands

### Control via Text Commands

#### HyperTerminal parameters [for text based control of ALPS-3]

If using HyperTerminal, then to get the full range of features including bar-graph level displays on the PC, you need to run HyperTerminal Private Edition (HTPE) Ver. 6.3 or above, available from: <http://www.hilgraeve.com>

#### Set to:

<i>ANSI terminal emulation</i>	Terminal Settings: Cursor:	Rows: 40, Columns: 132 Underline, tick 'Blink'
<i>ASCII send</i>	Do NOT tick:  Set:	Send Line ends with LFs  Echo typed characters locally Line delay: 150 milliseconds Character Delay: 0 milliseconds
<i>ASCII receive</i>	Do NOT tick:  Do tick:	Append LFs to incoming line feeds  Force incoming data to 7-bit ASCII Wrap lines that exceed terminal width

Also, in the main HyperTerminal menus, under 'View' \ Font... set font to: WST\_Engl, bold, at 18 point. It is essential to get this exactly right if bar-graphs are to display correctly.

### Log In

- Login by typing the following line exactly as below:
- **login user AAAA** [or other password, if the password has been changed from the factory default shown here].
- Then press the return key. Once connected, try typing 'help' (followed by Return key, no initial capital on 'help') to verify comms and get help. Or type 'show' to get the current settings, or 'bars' to get bar-graphs.
- **NB:** Sending 'bars' will cause data to spew out from ALPS, until any further incoming command, such as 'show' which will stop it again.

### Timeout

- **NB:** The user login session will time out after 30 minutes of inactivity. At this time the LCD display backlight will also be turned off.

## Appendix 4 - ASCII Text Commands Reference

*Please note: All ASCII text commands are case-sensitive. Use CAPS where indicated.*

### 4.1./ ASCII commands available to 'Guest' access level

- These commands are available immediately upon connecting to the ALPS unit, without having to login with a password. In each case the command as shown must be followed by the [enter] character, the ASCII code for which is 013 in decimal, or 0D in hex.

<b>help</b>	no format required displays a help message with brief info on commands available
<b>login</b>	takes the format: login user **** where **** is replaced by the User password (4 characters) Default User password is AAAA (N.B. One space character between login & user) (N.B. One space character between user & ****)
<b>show</b>	no additional format required displays a list of all parameters and their current values
<b>prelist</b>	no additional format required displays a list of factory presets saved in the ALPS unit
<b>meter</b>	takes the format: meter 1 n turns meters on at rate n n is an integer value: n=1 fastest, n=2 default, n=50 very slow NB will cause data to spew out of ALPS until terminated Terminate by typing: meter 0
<b>vers</b>	no additional format required displays version info
<b>bars</b>	no additional format required displays bar-graphs in suitably configured terminal program NB will cause data to spew out of ALPS until terminated Terminate by running any other command such as <b>show</b>

---

## 4.2./ ASCII Commands available to 'User' access level

<b>bypass</b>	Bypasses the unit takes the following format. For example: bypass 1 puts the unit into bypass mode, <b>OR</b> : bypass 0 puts the unit back into its normal operating mode
<b>set</b>	Sets a parameter (control) to a value <b><u>WARNING These are detail settings for expert use only!</u></b> <b>Setting parameters to the wrong values can make it sound BAD!</b> <b>Audessence recommends that this command is not used by automatic controllers.</b> takes the format: set [param] [value] where [param] is the name of a parameter, e.g: agca where [value] is the numerical value to be assigned, e.g: 8.5 for example: set agca 8.5 Needs spaces, as shown (N.B. the equals sign is NOT used) See below for parameter listing
<b>CONFIG</b>	Used manually for setting the password... Just type CONFIG (all uppercase) and follow the prompts (Generates prompts for text inputs to set the password)
<b>preload</b>	Loads a factory preset takes the format: preload n where n is the number of the preset (integer, 0 through 9)  Loads a factory preset to current state (in RAM only, N.B. the user must subsequently employ the <b>prewrite 0</b> command to make this permanent)...
<b>prewrite</b>	Saves the current setup to internal FLASH non-volatile memory takes the format: prewrite 0 [filename] Saves all current parameters to EEPROM so they will be saved after a power cut. Default [filename] is 'lastsaved'. Nine characters must be used. The 0 must be included

## Appendix 5 - ALPS Parameter listing

Parameter	Detail	Integer/ Decimal	Min	Max
agca	AGC Main attack (sec)	D	100m	100
agcag	AGC Gated attack	D	500m	300
agcr	AGC Main release	D	100m	100
agcrg	AGC Gated release	D	1	300
agcgate	AGC Gate threshold (dB)	D	-50	-20
agcmaxg	AGC maximum gain (dB)	D	0	+20
agcpslope	AGC slope for positive gains (coded)	I	0	6
agcnslope	AGC slope for neg gains (coded)	I	0	6
alml	Audio Fail Alarm - Left Level (dB)	I	-60	0
almr	Audio Fail Alarm - Right Level (dB)	I	-60	0
almt	Audio Fail Alarm - Delay Time (min)	D	0.1	5
cmpa	Compressor attack (coded number)	I	4	18
cmpr	Compressor release (coded number)	I	7	21
hflim	HF limiter threshold (dBFS)	D	-30	0
hpfilno	High-pass filter number (coded)	I	0	4
hfr	HF limiter release (coded number)	I	0	2
wbfa	Wideband limiter fast attack (sec)	D	1m	500m
wbfr	Wideband limiter fast release	D	10m	5
wbsa	Wideband limiter slow attack	D	50m	5
wbsr	Wideband limiter slow release	D	100m	50
wbrg	Wideband limiter gated release	D	1	300
wblim	Wideband limiter Threshold (dBFS)	D	-30	0
wbgate	Wideband limiter gate threshold	D	-40	-10
wbdrive	Wideband drive (dB)	D	0	+25
aesout	Digital output level ceiling (dBFS)	D	-20	+6
aingain	Analogue input gain trim (dB)	D	-8	+14
alogout	Analogue output level ceiling (dBu)	D	-6	+14
dingain	Digital input gain trim (dB)	D	-12	+6
contrast	LCD screen contrast (arbitrary)	I	1	10

**N.B.** In table above, m is used as an abbreviation for ‘milli’ [no spaces]  
thus for example 50m = 0.05

[ends]./