V6.3 Software Update

vMIX Automixing
Inputs on Control Bay
ViSi Remote metering
for Vi 000 Series

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Functionality described is contained in software update 6.3.0.285 and later, and available on console types Vi200*, 400*, 600*, Vi2000, 3000, 5000 & 7000.
(* vMIX automixing not available on Vi200/400/600)

Contents

Introduction

V6.3 Software for all Vi '000-series consoles adds vMIX automatic microphone mixing to the console functionality for the first time. *Note: due to DSP restrictions, this feature is not available on Vi '00 series consoles.*

vMIX is a processing algorithm originally developed for the STUDER Vista broadcast mixers, (originally named VistaMix), and is an automatic microphone mixing algorithm based on gain sharing. vMIX processing comes in very handy in multi-microphone situations such as round-table or panel discussions at conferences, in which indirect voice and early reflection-spill negatively affects the summed mix. vMIX allows the mix to be managed automatically by reducing the gain of channels where the talkers are not active in the discussion, but reacting to the changing dynamics of the discussion faster than a human operator could. This results in better intelligibility of the mix and higher gain before feedback.

In addition, **Inputs on Control Bay**, a new console workflow feature, allows input channels to be assigned to Output fader pages in the Master (Control) Bay, and allows not only fader and mute control from the fader panel but also access to the input channel processing via the master Vistonics screen. As part of this feature, output fader pages can be linked to input fader pages, such that activating an input page can automatically select a specified output page at the same time. This feature is available on Vi '00 as well as Vi '000 consoles. The feature is particularly useful for consoles with lower numbers of physical input faders such as the Vi2000, where it allows a greater number of input channels to be accessed simultaneously than previously.

The ViSi Remote iPad app has also been updated to add metering capability to Vi'00 and '000 consoles. The new V3.3 ViSi Remote app must be used with console software V6.3 to enable meter functionality to work, and includes both signal level and dynamics gain reduction metering shown within the main fader panel views and within the dynamics processing pages. In addition, a new Meter overview page has been added which allows the user to jump quickly to any group of 8 channels or busses.
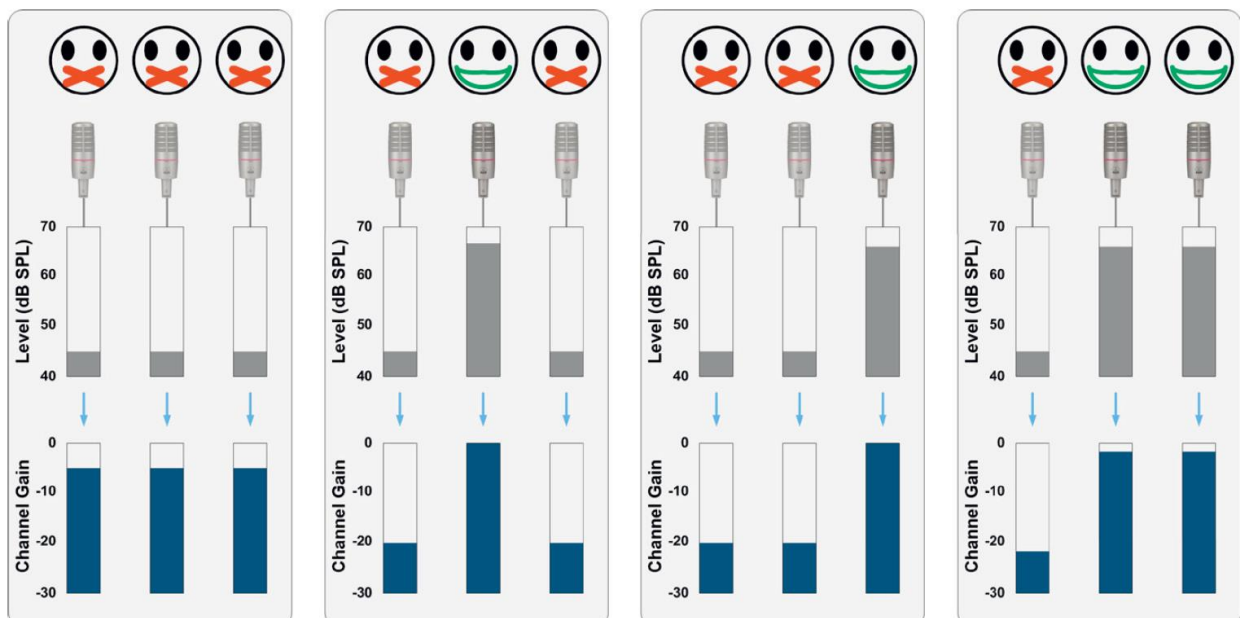
vMIX Automatic Microphone Mixing

As described in the introduction, **vMIX** is a processing algorithm originally developed for the STUDER Vista broadcast mixers, (originally named VistaMix), and is an automatic microphone mixing algorithm based on gain sharing. It is designed to give improved control in multi-microphone situations such as round-table or panel discussions at conferences, where indirect voice and early reflection-spill negatively affects the summed mix. vMIX allows the mix to be managed automatically by reducing the gain of channels where the talkers are not active in the discussion, but reacting to the changing dynamics of the discussion faster than a human operator could. This results in better intelligibility of the mix and higher gain before feedback, whilst avoiding late fade-ins that could result if trying to manage such a mix manually.

Working Principle

The concept of vMIX is to analyse the input channels assigned to a vMIX group and only open the gain of those channels that have active sources talking. By reducing the gain of non-active talkers, spill and ambient noise is greatly reduced. vMIX calculates the gain of the contributing channels in such a way that the cumulative gain of all member channels always equals the value of one open microphone. This avoids modulation of the ambience and background noise. P*lease note that this system does not use gates or expanders.*

The four situations in the example shown below, with 3 talkers each, show the reaction of vMIX (Gain) according to the actual individual input levels (dB SPL).

Number of processors available

The vMIX processing takes the form of a virtual processing block which can be inserted in each input channel that automated mixing is required on. The vMIX process uses its own dedicated insert so does not use up the existing insert point usable for Lexicon, BSS DPR901ii or external processing. The vMIX process is applied to the channel in a post-fade position. This allows the faders to be used to trim the mix and to manually 'push' certain channels so that they have a higher priority in the process.

Each vMIX processor is capable of mixing a maximum of 16 mono input channels.
Note, only mono channels can have the vMIX process inserted – stereo inputs and bus output channels cannot be processed.

Different quantities of vMIX processor units are available on the different Vi console types:

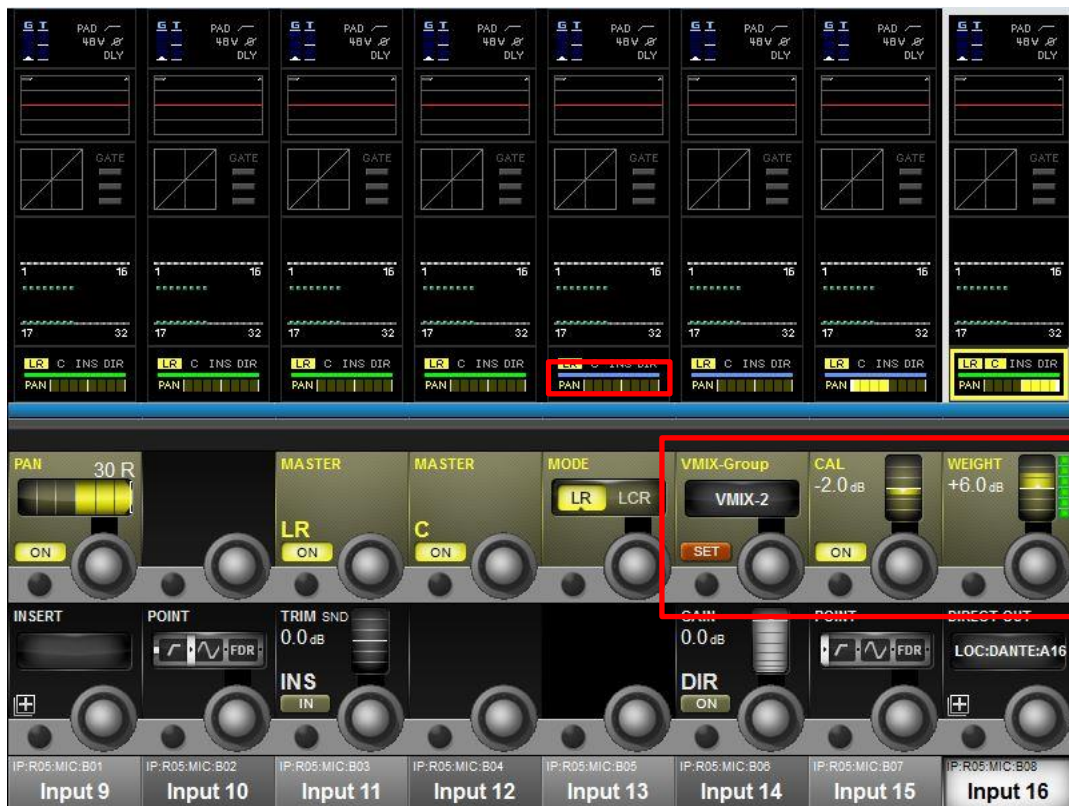| Vi200, 400, 600	vMIX processing not available
Vi2000, 3000	2 independent vMIX processors available
Vi5000, 7000 (at both 48 and 96kHz)	4 independent vMIX processors available

Having more than one vMIX processor available allows separate groups of input channels to be processed simultaneously, each group can have a maximum of 16 member channels.
The groups are always independent, i.e. they cannot be linked together to provide a higher number of channels being mixed as a single group, but can be useful for dealing with multiple discussion groups in a complex conference setup.

Having the vMIX process inserted post-fader in the channel path also means that bus sends routed from the channel will either include or not include the effect of vMIX gain control, depending on whether they are sourced pre- or post-fade, i.e. post-fade sends will include the effect of vMIX but pre-fade sends will not. The same applies to the direct output from the channel.

Operation

Assigning Channels to vMIX processors

The vMIX process is assigned from within the Pan/Misc section of the Input Channel Vistonics screen. Initially only the VMIX-Group control is visible, but once the channel is assigned to a group, two additional controls **CAL** and **WEIGHT** appear as shown above.

The **VMIX-Group** rotary control is used to select one of the 2 or 4 available vMIX groups (depending on console type), and once selected, the **SET** button is pressed to confirm the selection.

Once a vMIX group has been selected, two vMIX-related parameter controls, **CAL** and **WEIGHT** appear within the Pan/Misc control section, and a set of gain-indicating audio meters appear above the Pan function blocks on the overview screen. Note that as channels are assigned to a particular vMIX group, the number of remaining channels that can be assigned reduces until the maximum of 16 channels per group is reached. At this point, it will not be possible to assign any more channels to that group, until other channels are de-assigned. The number and identity of channels currently assigned to each vMIX processor can be viewed in the vMIX overview page, accessible from the Main Menu (see next page).

HINT: Use the console's Gang feature to quickly assign or desassign multiple channels to/from a single vMIX group with one operation: simply gang all the required channels, then perform the assign or deassign operation on one of them, using the vMIX Group SET button.

Using vMIX

Once the channels have been assigned to a vMIX group, the mix can be set up.

The **CAL** rotary control can be used if required, to set the correct balance between the talkers, when all of them are talking at once. This control provides a secondary trim to the channel faders in this regard, allowing all the channel faders to be set at unity whilst variations to the mix are made with the CAL control. The control can be left at the default unity gain setting if it is not required.

Once the balance has been set, the **WEIGHT** control is used to add priority to specific channels – e.g. the discussion moderator or presenter. The WEIGHT control is also useful to compensate for people with weak or thin voices.

The **Gain Reduction meters** seen adjacent to the WEIGHT control and also in the Pan/Misc sections of each channel overview, show the amount of gain reduction being applied to each channel. This will be a function of the number of people talking, and the fader, CAL and WEIGHT settings. The meters are colour-coded to show a different colour for each group (also seen in the main Menu Overview page).

Main Menu Overview page

The overall status of the vMIX processor assignment can be viewed in the Menu-FX page. The VMIX button on bottom right of the touchscreen is pressed to access this view. This page is an extension of the original Lexicon FX page.

In addition to the channel usage, each vMIX processor can be globally disabled using the **ON** button (useful for quick A/B comparison), and the **RESPONSE TIME** control allows the speed of response of each processor to be adjusted. A setting of 50ms is suggested as a good starting point.
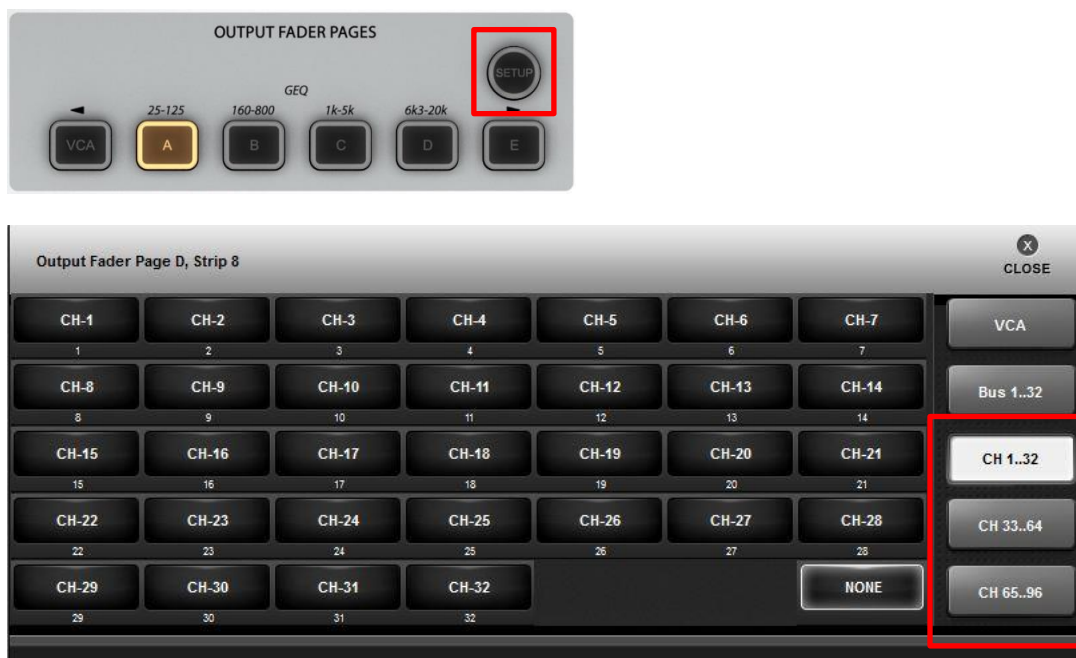
Inputs on Control Bay

On software versions prior to V6.2, it was only possible to assign Busses or VCAs to the Master section fader bay (known as the Control Bay). On V6.2, the facility to assign faders to this bay was added, but it was not possible to access the channel processing of inputs from the master touchscreen. V6.3 onwards adds the capability to control an individual channel's processing parameters in the same was as can be done for Busses.

Assigning Inputs to the Control Bay

The Setup button adjacent to the Output Fader page selection buttons is used to open the assignment page for the Control Bay faders:

When a fader page strip is selected for assignment, the Assign page shown above appears.
In the tabs on the right hand side of this screen, Input channels can now be found and the relevant bank (1-32, 33-64 or 65-96) and the required channel selected.
Note that the label used to identify the input channels on the on-screen buttons is the Short Label *from the channel itself (the above screenshot shows the default channel numbering but this will change when the Short labels are edited).*
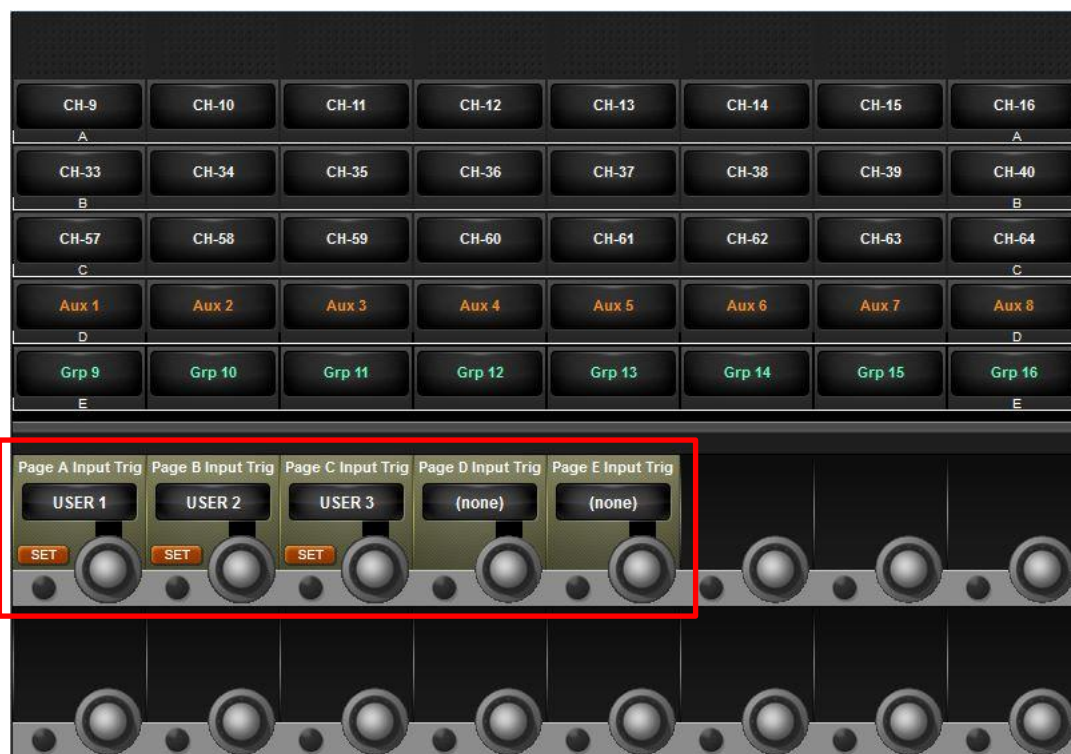
Linking Output Fader Pages to Input Fader page activation

It is now possible to use the Output Fader pages as extensions of the Input Fader pages, allowing the creation of one or more 'wider' Input fader pages. This is useful if it is desirable to be able to see and control a large number of input channels at once, and is particularly useful on smaller consoles which have a reduced number of input faders.
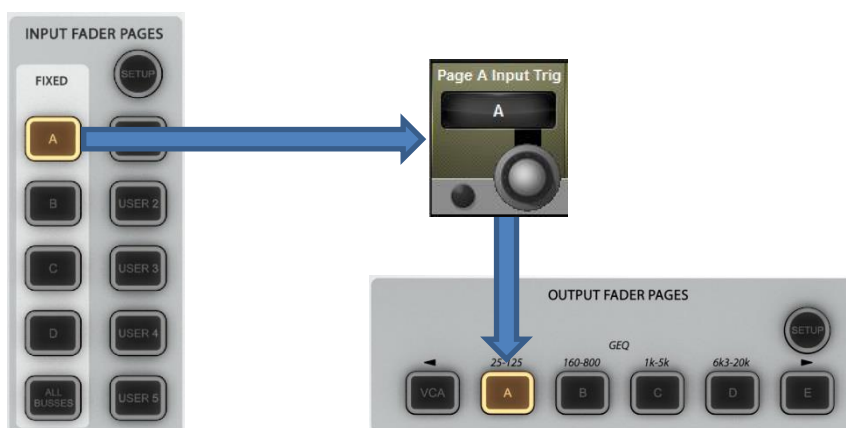
This is achieved by setting up a trigger for each Output Fader page so that pressing a certain Input Fader page button will automatically also activate the chosen Output Fader page.

In the Output Fader page Setup screen there are 5 Trigger Setup controls, one control for each of the Output fader pages **A, B, C, D & E**. For each Output Fader page, it is possible to choose an Input Fader page button from A-D and USER 1-5.

*It is not possible to trigger the dedicated **VCA** Fader page as this is not assignable to inputs.*

The trigger button has the effect of providing a link between Input Fader page button and Output Fader page button as shown below:
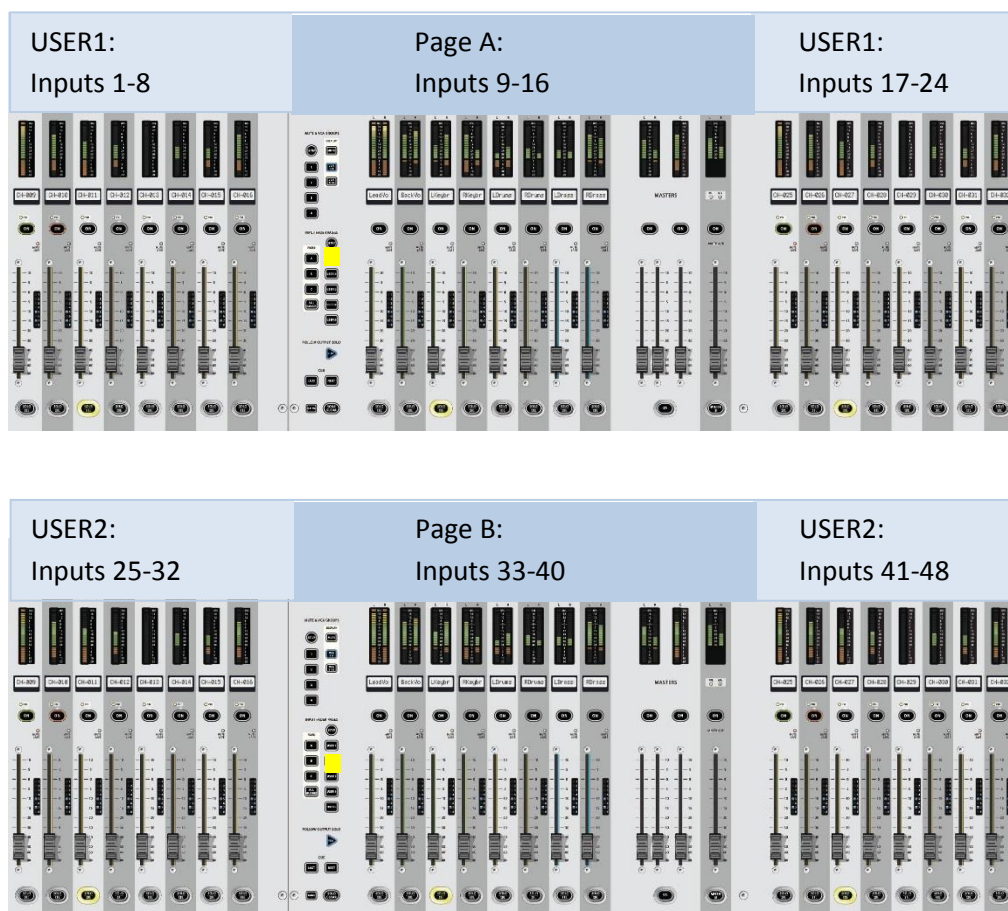
Using Fader Page linking

The following example shows how 48 inputs can be assigned to just two layers on a Vi2000, using the Control Bay as a temporary input bay and linking Output Page A to USER 1 and Output Page B to USER 2.

This gives a simultaneous view and access to 24 inputs rather than the maximum of 16 which would have been possible previously.

Changing between the two layers can be done with a single button press on the USER 1 and USER 2 buttons.

USER1:	Page A:	USER1:
Inputs 1-8	Inputs 9-16	Inputs 17-24

USER2:	Page B:	USER2:
Inputs 25-32	Inputs 33-40	Inputs 41-48

- To see and control the VCAs (replacing channels 9-16 or 33-40), press the VCA Output page button

- To return to the all-input layout, press USER 1 or USER 2 again

Memory of previously selected Output Fader pages

If a trigger has been set up so that pressing an input page also activates an output page, a memory system operates which remembers which output page was active immediately before the trigger event happened. If a different input page is subsequently activated which has no trigger event set up, the output page will be automatically returned to the memorised page. This can be useful if it is desired to always return to a 'default' output page (e.g. the VCA page), when a certain Input page is activated.

Example
Set up the triggers as follows (as per example on previous page):

Input page A -no trigger
Input page USER 1 - triggers Output page A
Input page USER 2 – triggers Output page B

Set up an initial state: e.g. Fixed Input Page A selected and VCA page selected on Control bay.

Activate the pages in this order:
Press Input USER 1 – result: User 1 and Output A are activated
Press Input USER 2 – result: User 2 and Output B are activated
Press Input page A – result: page A and VCA page are activated (i.e. the starting condition).

Observation: the VCA page is activated again even though it is not actively being triggered by an input page, but because it was memorised as the initial page before the first trigger event was received.

Operating an Input Channel from the Control Bay Vistonics screen

Soloing any input channel, whether it is assigned to the Control Bay or from a normal Input Bay, will display the processing strip for that channel on the Control Bay Vistonics screen.
Channel parameters can then be viewed and adjusted in exactly the same way as with a normal input channel strip.

This is analogous to the existing behaviour when a Bus solo is activated, and its strip appears on the Control Bay screen.

Notes:

- If a stereo (paired) input is soloed, the left or right processing strip will be displayed, according to which solo button, left or right, was pressed.

- If INPUT PRIORITY Solo mode is active, and a Bus solo is active, its processing strip will be visible on the Control Bay screen. The Bus strip will then be temporarily replaced by the relevant Input strip if an input solo is activated whilst the Bus solo is still active.

- If the appearance of the Input (or Bus) processing strips when inputs (or busses) are soloed, is **not** desired, the **LOCK MTR** hardware button to the right of the Control Bay screen can be activated, and this will ensure the Meter Overview screen is always displayed, regardless of solo activation.

- If a VCA Solo is activated, the solos of the member channels will be activated, but no input strip will appear in the Control Bay. This is because the system would not know which of the VCA member channels should be activated.

Advantages of accessing Input Channels from the Control Bay

There are several advantages and applications for being able to access input channels from the Control Bay, as well as from the dedicated input bays:

- Different sections of the same input channel can be opened simultaneously on an Input Bay and the Control Bay. This can be useful for example to adjust an EQ and a Dynamics at the same time.

- On smaller footprint consoles, the Control Bay can be used as an additional input Bay to get control and visibility of more inputs at the same time.

- If a fault developed with an Input channel strip or a whole Bay, the affected channels can now be accessed via the Control Bay, just by soloing them. This gives an additional backup to the existing method of assigning blocks of 8 channels to the right-hand Input Bay.

- On Vi2000, 5000 & 7000 consoles, the external DVI output which mirrors the Control Bay screen can now be used to control any input or bus on the console, if a USB-connected touchscreen is attached to this port. This can be useful for training and demonstrations as well as providing additional redundancy and failure resilience.
  Note: this feature is not currently available on Vi3000 consoles.

- All channels on the console can be accessed without moving away from the centre of the console, and users can adopt a 'selected channel'-type workflow which may be more familiar to them if they are used to working on other console brands which use this approach exclusively.

ViSi Remote metering – V3.3

The ViSi Remote iPad software has been updated to add channel and bus signal and dynamics metering, and to add a dedicated meters page.

The ViSi app V3.3 is available FOC via the Apple App store.

The new version of the app can be used with any Vi console software version later than 4.6, but metering will only work if V6.3 or later is installed on the console.

The new app still supports Vi1, 2, 4 and 6 consoles but these consoles do not currently support metering. Support for processing and metering on these consoles will be released in a forthcoming software update.

Fader Panel metering

New Fader panel view showing metering for channel and bus signal levels, plus gain reduction and gate open/hold/closed indication.

Dynamics page metering

The updated dymamics page now includes Gate open/hold/closed indication, compressor gain reduction metering and the selected channel or bus strip shows the current signal level.

The Gate and Compressor curves include a white 'bouncing ball'-type signal indication, allowing easy visualisation of signal level relative to threshold, ratio and attenuation depth.

Meters Page

The meters page is accessed by pressing the button in the bottom-right corner of the screen:

The Meters page itself displays an overview of up to 128 input channels, 32 busses and LRC masters, together with the corresponding Gate-closed and Compressor gain reduction indication.
The number of channels and busses displayed will depend of the Vi console model

Touching any section of 8 meters will immediately switch the view to the fader panel for those channels or busses, allowing an alternative way to move from one set of channels to another without having to scroll the fader panel.