TANGERINE AUTOMATION INTERFACE

SSL SETUP & USER GUIDE V3.6

TABLE OF CONTENTS

1   INTRODUCTION

THD-Labs creates audio tools empowering you to attain an unprecedented level of creativity. By combining modern digital control with the original 100% analogue signal chain of classic mixing systems, we enable engineers to breathe new life into their vintage consoles and tools. Our devices allow you to retain the original character, tone and uniqueness of your large-format analogue console while adding state-of-the-art session recall and DAW control capability.

Classic analog consoles were sold with some of the first integrated mix automation systems. Though ground-breaking in their time, as technology has evolved over 30+ years, their proprietary automation computers have become obsolete and are now unreliable. Enter the Tangerine Automation Interface: a quick-install interface that communicates with your existing workstation over today's most common digital protocols (USB and MIDI) giving you access to all existing mainframe features from within your studio computer.

As DAWs are now the default method to record and play back audio sources, the Tangerine Automation Interface (TAI) allows simple and reliable digital DAW control of your classic console using the same built-in automation features you use regularly. Since summing and audio level changes are handled out-of-the-box by your mix board, you retain all the authentic character of your SSL$^®$ and Flying Faders console while guaranteeing reliable and accurate level matches throughout the mixing process.

The THD-Labs Tangerine Automation Interface is the world's most powerful retrofit for the original automation computer from SSL$^®$ 4000/6000/8000 series and Martinsound Flying Faders consoles. The TAI replaces your existing automation computer and is configurable with up to 96 SSL VCA, ULTIMATION or Flying Faders automation channels. It uses your DAW to manage your console automation via a plug-in (AAX, VST, AU), a Reaper driver or over HUI. Fanless and totally silent, the expandable chassis can be either installed in the machine room or in the control room using standard USB. External accessory ports allow for optional add-in features and futureproofing.

1.1   WHAT DOES THE TANGERINE AUTOMATION INTERFACE DO?

The Tangerine Automation Interface connects to your favourite DAW via a simple plug-in (AAX, AU, VST) (or over HUI) allowing you to control fader automation from within the same project you're mixing, reducing learning time and simplifying workflow.

An improvement over SSL$^®$ Total Recall$^®$, the Tangerine Automation Interface's Recall-iT (available as an option) allows you to create and recall snapshots for all channel knobs and switches on your console (compression, EQ and sends recall). Snapshots can be loaded at any time allowing a consistent match of every channel to previous mix settings.

The Tangerine Automation Interface Keyboard Decoder (available as an option) allows direct access to global automation functions and modes directly from the SSL$^®$ E/G centre keyboard and transport keys. It supports DAW transport remote control, including markers and locate points, global automation mode toggle and level match.

The following SSL® controls values are transmitted and received.

SSL—> TAI

- The LARGE FADERS
- The MUTE switches
- The FADER STATUS switches

If the Keyboard option is installed

- The E/G Keyboard "QWERTY" keys
- The E/G automation keys
- The tape transport switches

If the Recall-iT option is installed

- All channel strips potentiometers and switches

TAI—> SSL

- The channel's VCA
- The channel's MUTE
- The fader's automation ABS and TRIM LED

1.2   FRONT PANNEL DESCRIPTION

Interface Status
Yellow, Flashing   TAI Boot
Yellow, Solid   System Booted, no USB
Green, Flashing   USB connected, mix off
Green, Solid   USB connected, mix ON

Power Ring
ON   TAI is recieving power
OFF   TAI not recieving power

INTERFACE STATUS

SYSTEM RESET

THD-LABS

Tangerine Automation Interface

TAI-MF80

Power Button
Power ON / OFF the TAI
Power Cycle to reset TAI
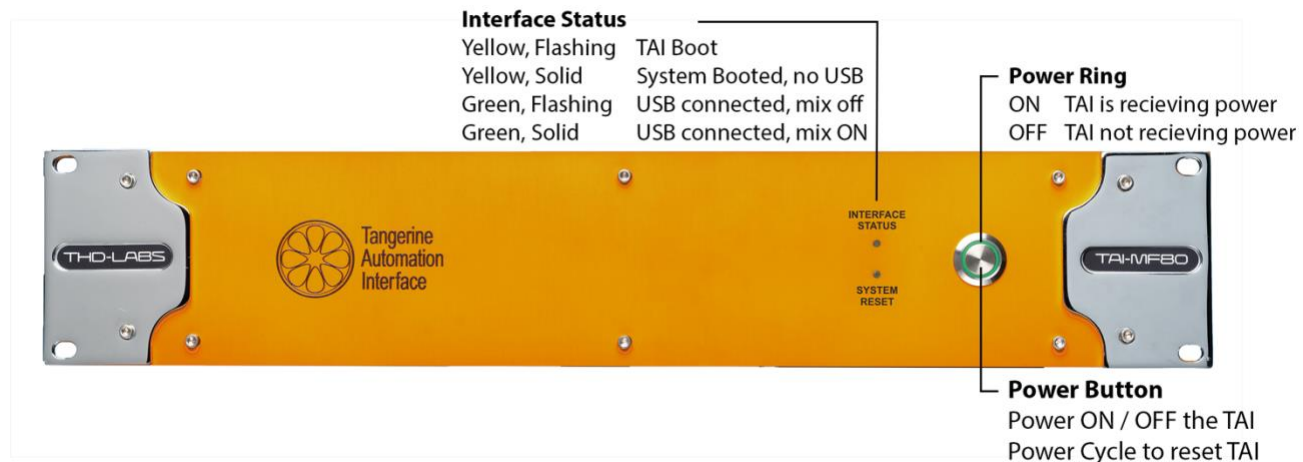
2   DESCRIPTION OF WORKFLOWS

The Tangerine Automation Interface supports 3 dedicated workflows. Every workflow independently replaces an original SSL® or Flying Faders computer. Everything you could do with an old system is possible with the Tangerine in any workflow. On top of all original computer functions, each workflow offers different modern approaches to automation that certain users may prefer.

All workflows have been tailored separately to the distinct characteristics of SSL® and Flying Faders interfaces. Native users of each platform will feel at home using a Tangerine system; we've painstakingly recreated the respective feel of each platform on our system.

2.1   INJEKTOR WORKFLOW
The **INJEKTOR** workflow is THD-Labs' most recent and no-compromise workflow and is the most popular method for working with the TAI. Using the **INJEKTOR** workflow, you can control up to 96 channels of automation directly from your favourite DAW — no external synchronization is required. Pro Tools, Logic and Reaper are officially supported, but it should work with any DAW supporting the AAX/VST/AU plug-in formats. With the **INJEKTOR** application running in the background, all control data is accessible in your DAW's channels using the **TaiMotherShip** plug-in.

2.2   REAPER WORKFLOW
Understanding what experienced vintage automation users liked about the original automation systems, we have implemented a 96-channel workflow using REAPER® (from Cockos™) as the automation engine. Reaper's open architecture allowed us to integrate mix functions that bring the same feel from the original SSL® and Flying Faders automation workflows while offering new features only available in modern DAW's (trimming, copy/paste, mouse editing, automation data embedded within mix sessions).

In this workflow, Reaper directly replaces the existing automation computer and will be "Synced/Slaved" via time code to your audio source. This is the preferred workflow when controlling automation from a tape deck directly from the SSL centre section without having to manipulate a DAW.

2.3   HUI WORKFLOWS
The TAI can be configured to work as multiple HUIs, turning your console into a 32-channel control surface that interacts with HUI compatible DAWs without any additional software required. We have developed an "optimized for Pro Tools" HUI workflow. Two different HUI workflows are available**: HUI OTB** and **HUI Hybrid**.

2.3.1   HUI OTB WORKFLOW
The **HUI OTB** (Out of the box) workflow gives you fader input control from the SSL to Pro Tools for 4 fader banks (32 channels maximum). Pro Tools faders drive the console channel's VCA volume controls. All audio tracks exit the DAW at 0 dB. They are both scaled and summed by the console.

NOTE: In OTB workflow you **DO NOT** have access to Pro Tools automation in **TRIM** mode, because all Pro Tools faders default to 0 dB in TRIM mode and that can have grave impacts on your audio system.

2.3.2 HUI HYBRID WORKFLOW

The **HUI HYBRID** workflow only sends input level control from the console to Pro Tools for 4 fader banks (32 channels maximum). The SSL internal VCA level is set to 0 dB, giving you unity gain summing level across the SSL. Volume changes are handled by Pro Tools in-the-box before exiting your converters.

NOTE: In Hybrid workflow you have access to Pro Tools automation in **TRIM** mode but loose constant volume output to the console's channel strips as Pro Tools and your DAC now control the audio level — not the console.

2.4 AVAILABLE GLOBAL AUTOMATION MODES

2.4.1 AVAILABLE SSL GLOBAL AUTOMATION MODES

The following lists the global automation modes available through TAI workflows. The **ABS WRITE** and **ABS LATCH** are *not available* in the HUI OTB workflow because the switch to **TRIM** modes can create volume spikes.

PREVIEW
Toggles between "**OFF**" and "**WRITE**"

REVIEW
Toggles between "**OFF**" and "**READ**"

TRIM WRITE
Toggles between "**TRIM READ**" and "**TRIM WRITE**"

ABS LATCH
Toggles between "**TRIM READ**" and "**TRIM LATCH**"

ABS WRITE   — Not available in the HUI OTB workflow
Toggles between "**READ**" and "**WRITE**"

ABS LATCH   — Not available in the HUI OTB workflow
Toggles between "**READ**" and "**LATCH**"

For more information on using **Global Automation Modes**, go to **page 34.**

3 INSTALLATION

Installing your Tangerine Automation Interface is a straightforward process made even simpler if you are currently using an original SSL® computer.

3.1 HARDWARE REQUIREMENTS

3.1.1 SSL HARDWARE REQUIREMENTS
The General Hardware Requirements for the SSL consoles are as follows:

- An SSL® 4000/6000/8000 series console

- The standard 50-pin ribbon cables that came with the Original SSL Computer

- A computer running macOS version 10.8.5 to 10.14.6 or Windows 10 with a compatible DAW installed. Known Compatible DAWs:
    - Pro Tools 10 or higher
    - Logic Pro X
    - Reaper
    - Any VST compatible DAW (potentially)

- An appropriate length **USB-A-male** to **USB-B-male cable** to connect the TAI to the DAW Workstation. If more than 6 feet, use a high-quality active repeater USB cable.

Recall-iT Hardware Requirements
In addition to the General Hardware Requirements, the Recall-iT option requires:

- That your SSL® 4000/6000/8000 series console has **recall multiplexers installed**. Please verify that your console has the required hardware recall multiplexers as certain consoles are not equipped with Recall-iT compatible hardware. If you have been using SSL® Total Recall®, you have the required hardware. If you have never used SSL® Total Recall® with your console, go to the annex "Verifying the recall multiplexers required for Recall-iT" on **page 40**.

Keyboard decoder Hardware Requirements
In addition to the General Hardware Requirements, the keyboard decoder option requires additionally:

- A functioning SSL Keyboard module (E Series or G series) — if it works currently, it will work with the Tangerine.

3.2 TAI HARDWARE SETUP

3.2.1 PHYSICAL LOCATION

Since the Tangerine Automation Interface is low power and completely silent, it can be installed virtually anywhere convenient as long as you have the required cabling (for cabling requirements go to the **Hardware Requirements section 3.1**).

SSL systems require the use of 50-pin flat cables; therefore 2 typical use cases exist:

- If the TAI replaces an existing computer, the interface is usually installed in the rack where the computer and power supply are installed. This allows reuse of existing SSL® flat cables as they can easily be reconnected to the TAI.

- If the console is not equipped with the original SSL® computer and its associated cables, the TAI can be installed in the control room near the SSL, as this will minimize costs related to new cable acquisition and the TAI doesn't generate any noticeable noise or heat.

3.2.2 CONNECTING YOUR CONSOLE TO THE TANGERINE AUTOMATION INTERFACE

Connecting the TAI to SSL Consoles

To connect your console to the Tangerine Automation Interface, simply connect each of the 50-pin flat cables located under the SSL's patch section to the connectors located on the rear of the TAI. Each flat cable can transmit automation data for 8 channels. Recall-iT and the Keyboard Decoder share an additional flat cable.

> NOTE: it is important to verify the polarity of the 50-pin flat cables as flipping them (connecting pin 1 to pin 50) can result in damage to the SSL Console and the Tangerine Automation Interface. If you are unsure of your cables' polarity, go to section **7.1 Troubleshooting Fader Bank issues, page 43** for more information or contact us.

Once the 50-pin connectors are in place, connect the ground connector from the SSL® console to the ground connector behind the interface.

CONNECTION SEQUENCE:

SSL SIDE		TAI SIDE
FADER 1–8	⟷	FADER 1–8
FADER 9–16	⟷	FADER 9–16
FADER 17–24	⟷	FADER 17–24
FADER 25–32	⟷	FADER 25–32
FADER xx-xx	⟷	FADER xx-xx
FADER (last bank)	⟷	FADER (last bank)
VCA 1–8	⟷	VCA
KEYBOARD	⟷	KEYBOARD
GROUND	⟷	GROUND
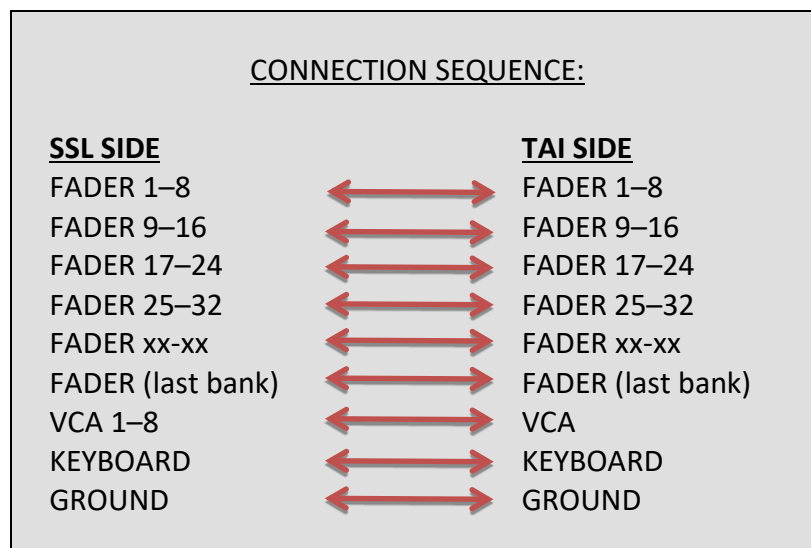
Installing the Master Fader Adapter

If you purchased a dedicated Master Fader Adapter for the SSL console connect it as follows:

Front   Back
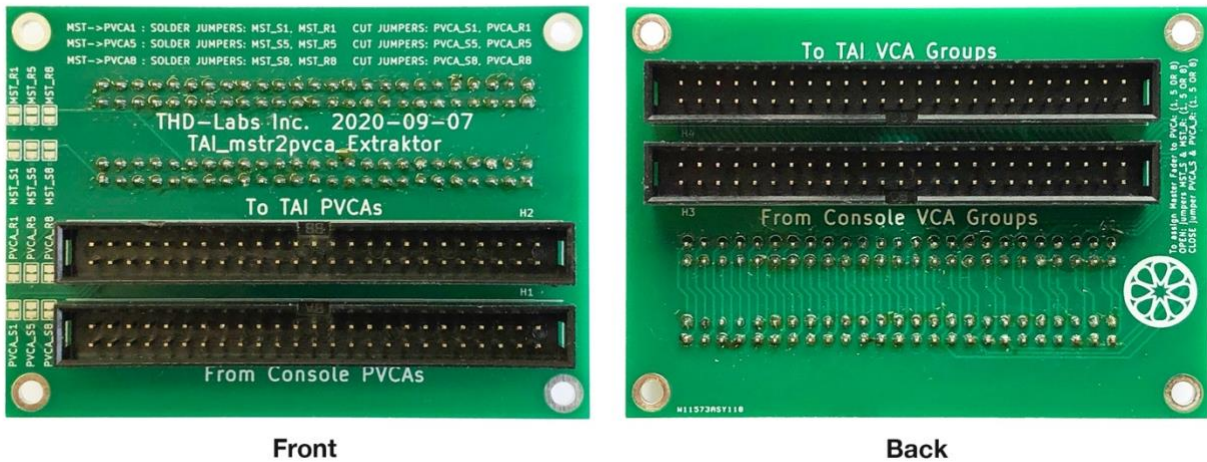
1. Take note of which channel the master fader will be assigned to by reading the solder jumper. If no solder jumper is used, follow the instructions on the PCB to assign the master fader.

2. Connect the console groups to the connector marked "**From Console VCA Groups**."

3. Connect the TAI groups to the connector marked "**To TAI VCA Groups**."

4. Depending on your use case, connect the console to the connector "**From Console PVCAs**."

   o If your console has PVCAs, connect the console PVCAs here.

   o If you purchased a dedicated Master Fader Adapter and your console does not have any PVCAs, do not connect anything to this connector.

   o If you purchased the Master Fader Adapter to replace a regular console channel by the master fader, connect that fader's bucket here from the console.

5. Depending on your use case, connect the proper TAI side connector to "**To TAI PVCAs**."

   o If your console has PVCAs and you purchased a TAI with a PVCA bank, the last bank before groups will be the PVCA bank.

   o If you purchased a dedicated master fader adapter and your console does not have any PVCAs, connect the last bank before groups as a stand-in for the PVCA bank.

   o If you purchased the Master Fader adapter to replace a regular console channel by the master fader, connect the TAI port reserved for that fader's bucket here.

6. Enter the proper TAI configuration settings in section **4.3 SSL Configuration and Calibration**, **page 15**.

3.2.3 CONNECTING THE TAI TO YOUR AUDIO WORKSTATION

1. Connect one end of the Tangerine Power Supply to an appropriate power outlet and the other end to the power port on the rear of the TAI.
2. Connect the **USB-B** port located on the TAI to a **USB-A** on your DAW Workstation.

3.3 SOFTWARE INSTALLATION

The required software to operate the TAI varies according to the chosen workflow.

When using the **INJEKTOR** workflow, you must install the **INJEKTOR** software package that matches your current DAW version and OS version. The **INJEKTOR** software package is available at **http://THD-Labs.com** under the downloads section. Make sure to read the included **Read Me** file for detailed installation details.

When using the **Reaper/SSL workflow**, you must install the Reaper Driver and automation-optimized reaper skin. Both are available at **http://THD-Labs.com** under the downloads section. Make sure to read the included **Read Me** file for detailed installation details.

When using a **HUI workflow**, no additional software is required, other than your HUI-compatible DAW configured for HUI operation.

3.4 RECOMMENDED POWER ON SEQUENCE

During normal operation, it is recommended to power on the automation system in the following order:

1. Power on the host computer without opening **INJEKTOR** or your DAW.
2. Power on the console, including both its channel supply and its fader supply.
3. Power on the TAI, wait for the boot sequence to complete.
4. Open **INJEKTOR.**
5. Open your DAW mix session.

3.5   INITIAL SYSTEM BOOT AND HARDWARE TEST

At this point in the installation, the following parts of the system need to be verified:

- Faders, LEDs, Cuts and status switches

- Communication between the Tangerine and the **INJEKTOR** Software Suite

- The SSL Keyboard (if the keyboard decoder is installed)

*Testing of Recall-iT should be done after its initial configuration and calibration, described later in this manual, in **Section 4.3**. **DO NOT** enter Recall Mode until this initial test has been completed. If at any point, the system is non-functional, refer to the **TROUBLESHOOTING** appendix on **page 43** before advancing to the next step.*

1. Power up the TAI. It will enter an initial boot sequence:

    a   All fader status LEDS should flash in a sequential pattern.

    b   Ultimation faders should move in an up & down positional scan pattern.

    c   CUT switches should be ON for the duration of the initial boot sequence.

    d   If you have the keyboard decoder, the keyboard should beep.

2. Open the **INJEKTOR** Application and make sure it detects the TAI. Keep this application open.

3. If you are using the **INJEKTOR** workflow, open your DAW and insert the **TAIMothership**. Using the plug-in, toggle between mix off and mix on. The mix status should also be reflected in Injektor.

4. With mix on, set the global automation mode to "**ABS Read <-> Write**". Test the following elements. Both **TAIMothership** and **INJEKTOR** should respond in tandem.

    a   Move every fader on the console.

    b   Test every cut

    c   Press every status switch. Each channel's automation mode should toggle between "**Write**" and "**Off**".

    d   If you have purchased the keyboard decoder, test and make sure you can toggle mix on/off and change global automation modes. The keyboard mapping diagram is available on **page 51**, for the E series Keyboard or **page 52**, for the G series keyboard.

At this point we have validated the hardware installation of all automation features. Recall Hardware will be tested later.

4 TANGERINE SETUP AND CONFIGURATION

The TAI is configured using **INJEKTOR**. 4 primary views are accessible from the top menu bar:
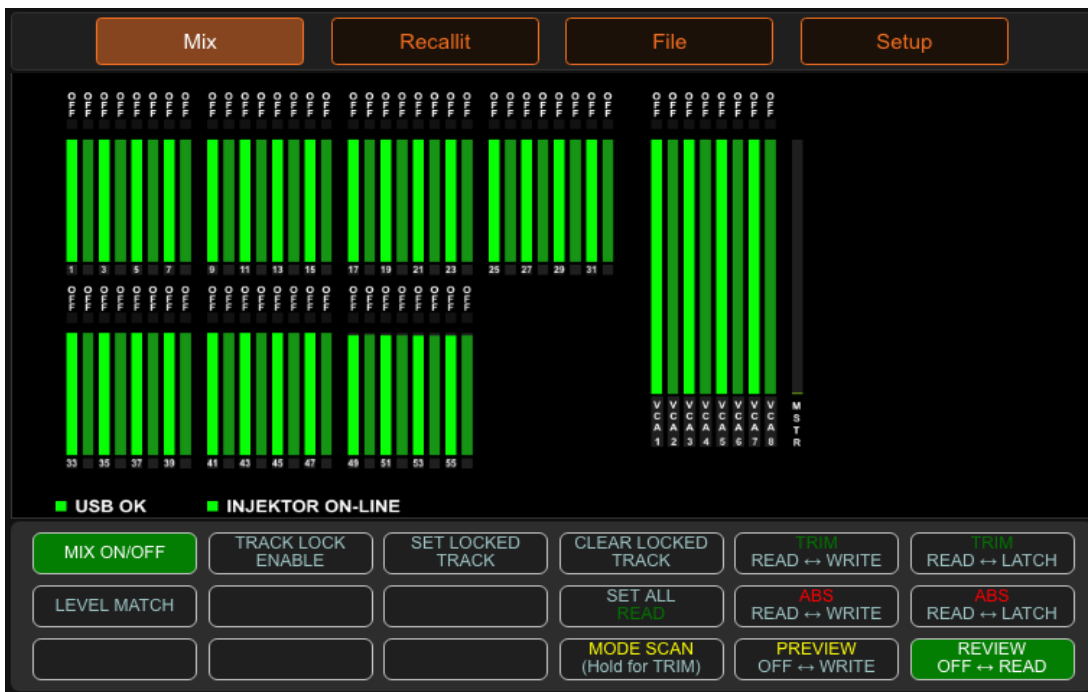
The MIX view enables the automation. This is where you manage, control and monitor automation functions. For more information on the mix view go to **section 6.1.1**.

The RECALL-IT view — available exclusively on SSL models with the Recall-iT option — enables recall functions. This is where you create snapshots of your console channel strips. You can then match current knob and switch positions from previously saved snapshots of the console. For more information on the Recall-iT view go to **section 6.1.2**.

The FILES view — available exclusively on SSL models — is where you can manage recall snapshot files. You can SAVE, LOAD, EXPORT, IMPORT and DELETE your console snapshots. For more information on the Files view go to **section 6.1.3**.

The SETUP view is where you configure your TAI interface and update its software. It allows you to switch between operation workflows, choose comfort settings, calibrate the recall system, and update software / firmware.

4.1   WORKFLOW SELECTION
From the top menu bar, select the **SETUP** view, the following page will be displayed.
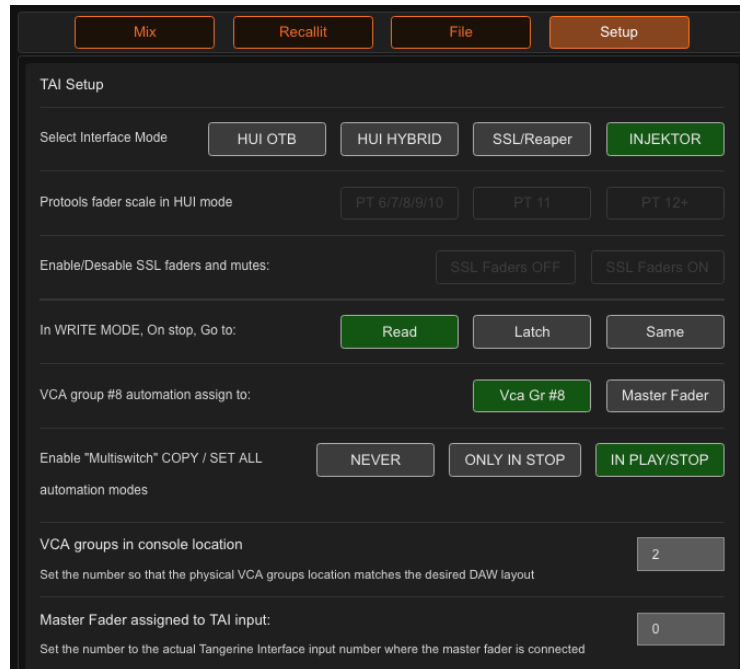
The first row — **Select Interface Mode** — lets you set your preferred automation workflow. The 4 currently supported workflows are **HUI OTB, HUI HYBRID, SSL/Reaper** and **INJEKTOR**.

INJEKTOR Workflow (default)
To use the **INJEKTOR** workflow, select **INJEKTOR**.

Reaper workflow
To use the Reaper workflow, select the **SSL/Reaper**.

If you wish to use the Reaper workflow and have not already installed the Reaper software package, go to section **3.3 Software Installation** on **page 10** for download information.

HUI Out of the Box & HUI HYBRID Workflows
In either OTB or Hybrid workflows, you must also select the Pro Tools version you are using to match the correct fader scale.

To use the HUI OTB workflow, **select HUI OTB** then **select** your version of Pro Tools.

To use the HUI HYBRID workflow, **select HUI HYBRID** then **select** your version of Pro Tools.

4.2 ADDITIONAL PARAMETERS

In WRITE mode, on STOP, GO TO:
This parameter allows you to define the automation mode channels should toggle to after ending an automation write pass. This choice is effective across all workflows.

By selecting **Read**, all channels that have just finished writing to their automation lane will automatically put themselves in Read mode, allowing you to play back your just written automation.

By selecting **Latch**, all channels that have just finished writing to their automation lane will automatically put themselves in Latch mode, allowing you to play back your just written automation and rewrite new sections when you touch the faders.

By selecting **Same**, channels will remain in write mode once you have finished your write pass. If you do not manually change your fader status, you will overwrite your just-written automation on the next play back.

VCA Group # 8 automation assign to:
The Tangerine Automation interface is configured in banks of 8 faders. Since most SSL consoles are built in groups of 8 + 1 master fader, the master fader must share an automation lane with VCA group 8. This parameter allows you to choose between using the last automation lane to automate VCA group 8 or the master fader. This choice is effective across all TAI workflows.

By selecting **VCA Gr #8**, the last automation lane will be used to automate VCA group 8. The master fader will remain functional as a non-automated fader.

By selecting **Master Fader**, the last automation lane will be used to automate the Master Fader. VCA group 8 will remain functional as a non-automated fader.

Enable "multi-switch" COPY/SET ALL automation modes:
The TAI has a new feature not present on original automation computers: multi-switch functions. These functions allow you to rapidly copy automation modes between channels or to set all channels

on the console to a certain setting using multiple status switches.   For more information on using the multi-switch functions see section **0 6.6   Multi-Switch Shortcut** Functions on **page 41**.

By selecting **NEVER**, the functions are deactivated within the TAI. You will not be able to use multi-switch functions.

By selecting **ONLY IN STOP**, the functions are activated within the TAI, though only while playback is stopped. You will be able to use multi-switch functions, just not during playback. This avoids the possibility of accidentally putting a channel into **WRITE** mode while the track is playing, thus replacing automation data.

By selecting IN **PLAY/STOP**, the functions are always activated within the TAI, regardless of playback state. This is the default selection for most users.

VCA group in console location:
(only available in HUI and SSL/REAPER workflows)

This parameter changes the DAW "virtual" VCA bank location, to match the console physical layout. Enter the position of the VCA bank in the console (if the VCAs are the 4th bank from the left, enter 4).

4.3   SSL CONFIGURATION AND CALIBRATION

Number of PVCAs
If your console has patchable VCAs, insert the number of PVCA channels here.

Master Fader assigned to TAI input:
This parameter is used if you have a custom made "master fader adapter" installed and want to use a dedicated TAI channel to automate your master fader.

- Leave this value to 0 if you do not have a master fader adapter.

- If you are using a master fader adapter, set the channel number where the master fader is assigned. Normally the bank right before the groups. Example:

  o If your console has 40 channels, no PVCAs and 8VCAs and you purchased a dedicated channel for the Master Fader use channel 41.

  o If your console has 40 channels, 4 PVCAs and 8VCAs, use channel 45.

  o If your console has 40 channels, no PVCAs and 8VCAs and you did not purchase a dedicated channel for the Master Fader it will replace channel 40 in the interface, use channel 40.

Configuring Recall Channel Strips
To map console output values to the proper channel parameter when using Recall-iT, the console's channel strip type must be defined.
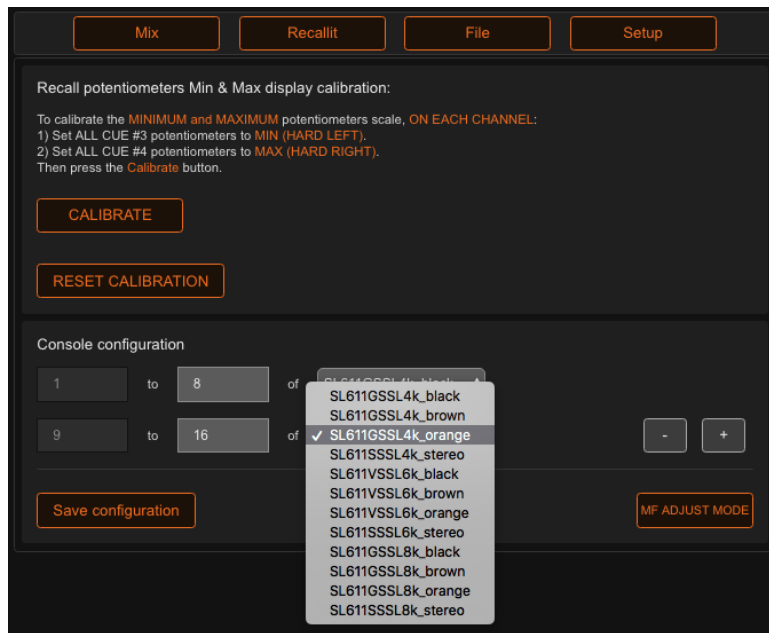
1. Set the 1st channel's type (black, brown, orange or stereo) for the proper series of your console (4000, 6000, 8000 series) and set how many subsequent channels use the same type.

2. Then, press the + button to add a new type of channel strip.

3. Repeat until the entire console's channels are properly mapped into the TAI. Skip over group VCA faders as if they didn't exist. Reconfigure as needed after swapping channel strips.

4.4   TESTING THE RECALL SYSTEM

The Recall system on SSL consoles requires properly maintained and functional hardware at multiple levels of the console: each channel, each bucket and the centre section have hardware that needs validation. As such the following protocol is recommended to test initial functionality of the recall system. A problem within a single channel can cause console-wide issues, so it's important to validate each channel before using the console in a production environment, especially if you have not been using recall previously before purchasing the Tangerine Automation Interface.

If at any point, the system is not responding as described, refer to the **TROUBLESHOOTING appendix on page 43** before advancing to the next step.

Make sure the **Initial System Boot and Hardware Test page 11** is complete before testing recall.

1. **Recall Address System Test**

   a. At the top of **INJEKTOR**, enter the **Recall-iT** view to enter recall mode. Throughout the test, onscreen controls should be static unless moved on the console. If at any time during the initial recall test, onscreen controls jump in an erratic manner, go to the **Troubleshooting section page 47**.

   b. Use the status switches to select each channel individually for recall. If the system does not respond to the status switches, refuses to select a channel using its status switch or stays stuck on a channel, go to the **Troubleshooting section page 44**.

c. Once all the channels are tested for addressing (whether or not they all work), return to the Mix View and make sure that all faders are still functional. If any (previously functioning) fader is unresponsive after exiting recall mode, there is a strong possibility that the console (or a part of it) is stuck in recall mode and refuses to return to mix mode. Go to the **Troubleshooting section page 46.**

2. **Potentiometer and button tests**. Make sure the onscreen position matches the actual console position. For every channel, select it using the status switch and test minimally:

   a. 1 output assign button

   b. 1 EQ potentiometer

   c. 1 compressor potentiometer

   d. The pan potentiometer

   e. The small fader

   f. The Large fader – If any parameter moves along with the large fader, this is indicative of the recall enable line not being properly received by the channel.

   If a control is stuck or its position is not accurately represented, go to the **Troubleshooting section page 46**

3. **Snapshot test**. Press the snapshot button. When prompted, enter a filename and title. Press **Save**. Turn a potentiometer on the currently selected channel. A red outline will appear around it when its position does not match the internally stored position.

4.5   ULTIMATION MOTORIZED FADER CALIBRATION

Over time, drifts and offsets can develop in Ultimation faders. The performance of the system is dependent on a good fader calibration.

Faders are calibrated using trim potentiometers on the underside of the fader. R1 and R2 control motor scale and R3, R4, R5 control VCA / Audio in fader crossover.

If, during the initial system power-up, the faders do not come up at the same position, you probably need to calibrate your faders.

To properly calibrate the multiple paths within Ultimation faders, click on the **MF Adjust Mode** at the bottom right-hand corner of the configuration and calibration interface and follow the onscreen instructions.

4.6   TAI FIRMWARE UPDATE

THD-Labs occasionally releases software and firmware updates providing bug fixes and adding new functionality to Tangerine systems. Contact the **THD-Labs** team for the right update for your system.

Click the **Firmware Update** button to access the firmware update page and follow the onscreen instructions.

5   DAW SETUP

The following section describes the steps to configure your DAW for use with the TAI. This section assumes you have already installed and configured the TAI. Each workflow has its own necessary DAW configurations. If you have the SSL keyboard decoder, there is an additional set of configuration steps required.

To setup **Pro Tools** for the **INJEKTOR** workflow, go to **page 22**.

To setup **Pro Tools** for the **keyboard decoder**, go to **page 23**.

To setup **Logic Pro X** for the **INJEKTOR** workflow, go to **page 24**.

To set up the **REAPER** workflow — including slaving Reaper with Pro Tools—refer to the **Reaper Configuration Guide** available at **http://thd-labs.com**

To setup **Pro Tools** for **HUI** workflow, go to **page 21**.

5.1   PRO TOOLS SETUP FOR INJEKTOR WORKFLOWS

DOWNLOAD AND INSTALL the INJEKTOR software package
1. Download the INJEKTOR software package that matches your current Pro Tools and operating system version. Go to **www.thd-labs.com** and access the **Downloads** section. Download the "INJEKTOR AND TAI PLUG-INS INSTALLER" file.

2. Read the **Read.Me** file and run the **INJEKTOR** installer.

3. Run the Installer package and follow the onscreen instructions.

CONFIGURE the TAI for INJEKTOR workflow
1. **Access the TAI setup page** from within the INJEKTOR software

    Set: "Select interface mode" = INJEKTOR

    Set: Save configuration

CONFIGURE Pro Tools for use with the INJEKTOR workflow
1. **Open Pro Tools preferences.** (Menu—> Pro Tools—> Preferences)

    In the **Mixing** tab:

    Set: "Plug-in controls Default to Auto-Enabled"= **Checked**

    Set: "After Write Pass, Switch to" = **No Changes**

2. **Open the Midi Beat clock window** (Menu—> Setup—> MIDI/Midi Beat Clock)

    Set: MIDI/MIDI Beat Clock to = **Checked**

    Set: Enable MIDI Beat Clock for… Tangerine Automation, Port 5 = **Checked**.

3. **Open the automation window (Menu—> Window—> Automation)**

    Set: <Write enable> = "PLUG-IN" = ON. (All other items should be set to off.)

5.2   PRO TOOLS SETUP FOR KEYBOARD FUNCTIONS

(Only required if you have the Tangerine Keyboard Decoder installed.)

The steps to set-up the keyboard decoder vary between single-computer and multi-computer setups. They work across all workflows.

Setting up the Keyboard decoder for single computer setups across all workflows

1. In Pro Tools, got to **MENU**—> SETUP/Peripherals/MIDI Controllers tab.

2. In bank #1, select:

    "type" = HUI
        "Receive from" = Tangerine Port #1
        "Send to" = Tangerine Port #1

3. Save the changes and close the Peripherals Interface.

4. Pro Tools may warn you that it isn't receiving a heartbeat from the HUI device; this is normal. Select **don't notify again** and then **OK**.
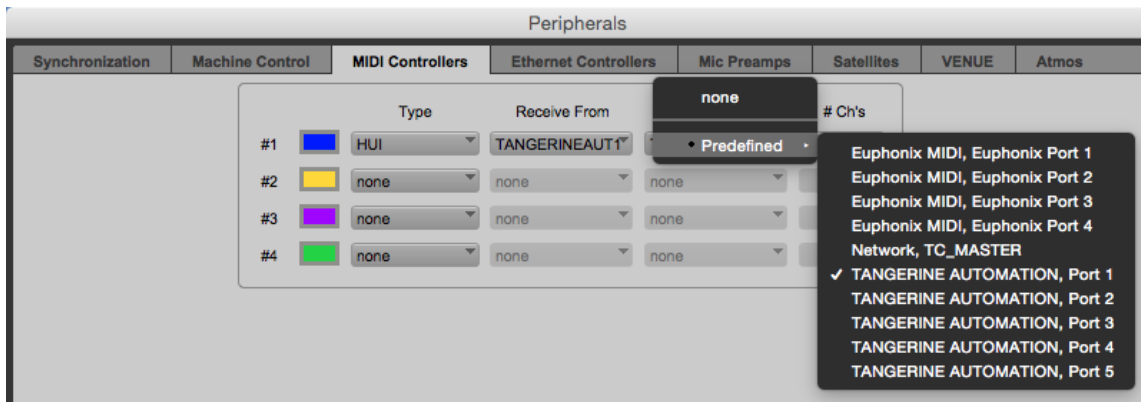
5.3 LOGIC PRO X SETUP FOR INJEKTOR WORKFLOWS

DOWNLOAD AND INSTALL the INJEKTOR software package
1. Download the INJEKTOR software package that matches your current Pro Tools and operating system version. Go to **www.thd-labs.com** and access the **Downloads** section. Download the "INJEKTOR AND TAI PLUG-INS INSTALLER" file.

2. Read the **Read.Me** file and run the **INJEKTOR** installer.

3. Run the Installer package and follow the onscreen instructions.

CONFIGURE the TAI for INJEKTOR workflow
1. **Access the TAI setup page** from within the INJEKTOR software

    Set: "Select interface mode" = INJEKTOR

    Set: Save configuration

CONFIGURE Logic Pro X for use with the INJEKTOR workflow
1. **Open Logic Pro X preferences** (Menu—> Logic Pro—> Preferences)

    In the **Automation** tab:

    Set: "Write" mode changes to = **OFF**

    Set: Write automation for Plug-In = **Checked**

2. **Open the Synchronization Settings** (Menu—> File—> Project Settings—> Synchronization)

    In the **MIDI** tab:

    Set: Destination TANGERINE AUTOMATION Port 1; clock = **Checked**

    Set: Clock mode = **Song — SPP at Play Start and Stop/SPP/Continue at Cycle Jump**

    NOTE: In Logic Pro X, the MIDI beat clock is set per project. Each new project needs to have this setting reapplied.

5.4 LOGIC PRO X SETUP FOR KEYBOARD FUNCTIONS

(Only required if you have the Tangerine Keyboard Decoder installed.)

Setting up the Keyboard decoder for single computer setups across all workflows

1. In Logic Pro, got to **MENU** > Logic Pro > Control Surfaces > Setup…

2. Choose **New** > **Install** in the Setup window.

3. Select **HUI** in the Install window.
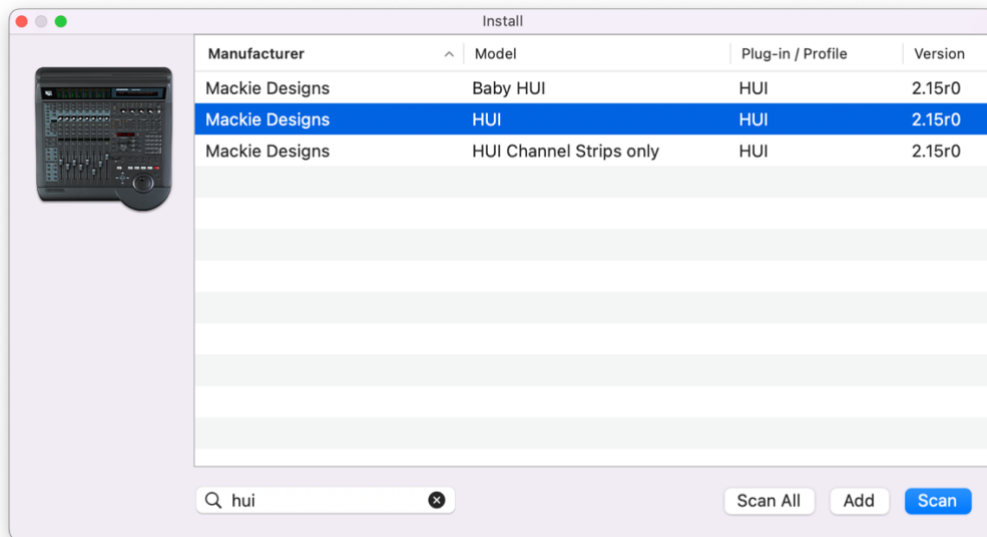
4. Click the **Add** button. Close the Install window.

5. Select the HUI device in the Setup window and choose "**TANGERINE AUTOMATION PORT 1**" in both the Input port and Output port.
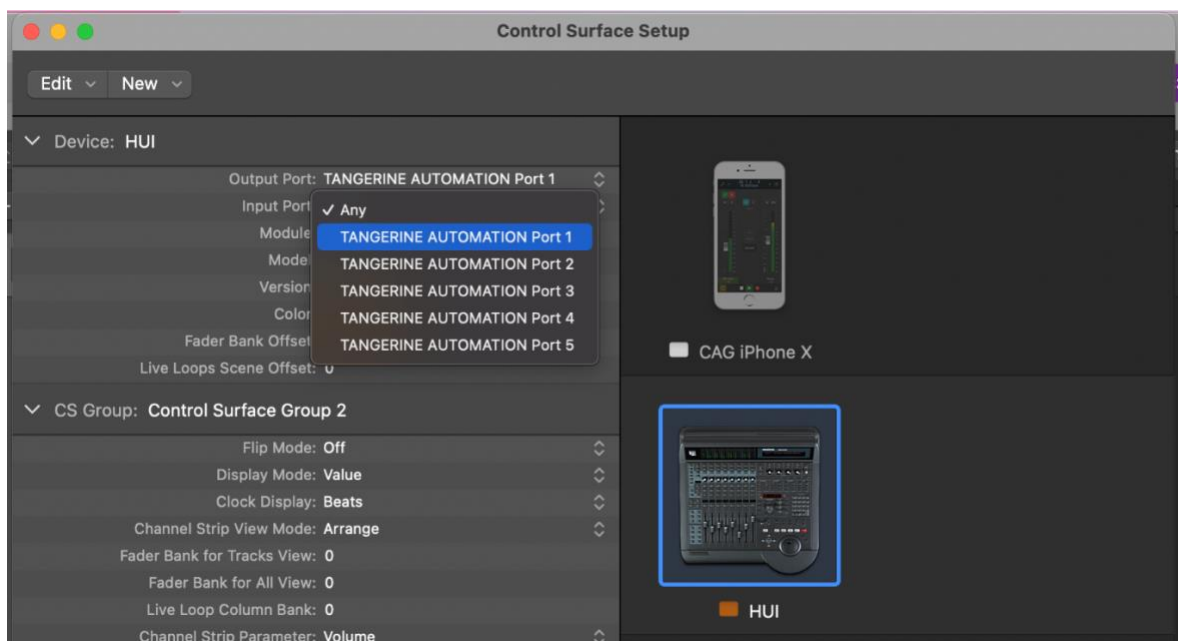
5.5   PRO TOOLS SETUP FOR HUI WORKFLOWS
CONTROL SURFACE CONFIGURATION IN PRO TOOLS

To use Pro Tools as the automation software:

Step 1: In the **Peripherals/MIDI Controllers** menu,
Select Type = 4 x HUI
Set Tangerine Automation Interface Ports 1 to 4 in the "**Receive From / Send To**" fields.

Step 2: In the **Preferences/Mixing** menu, set the "**After Write Pass, switch to**:" selector to "**No Change**"
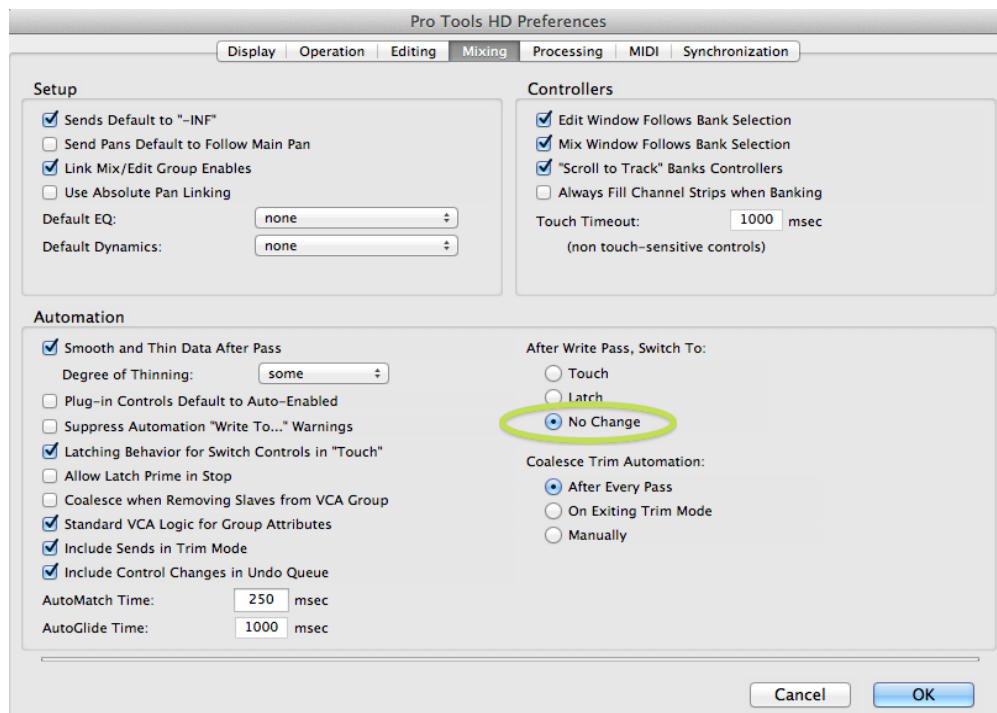
6   USING THE TAI

The Tangerine Automation Interface has 2 distinct interfaces: **INJEKTOR** and **TaiMotherShip**.

INJEKTOR allows access to the following functions:

- Mix Control Functions
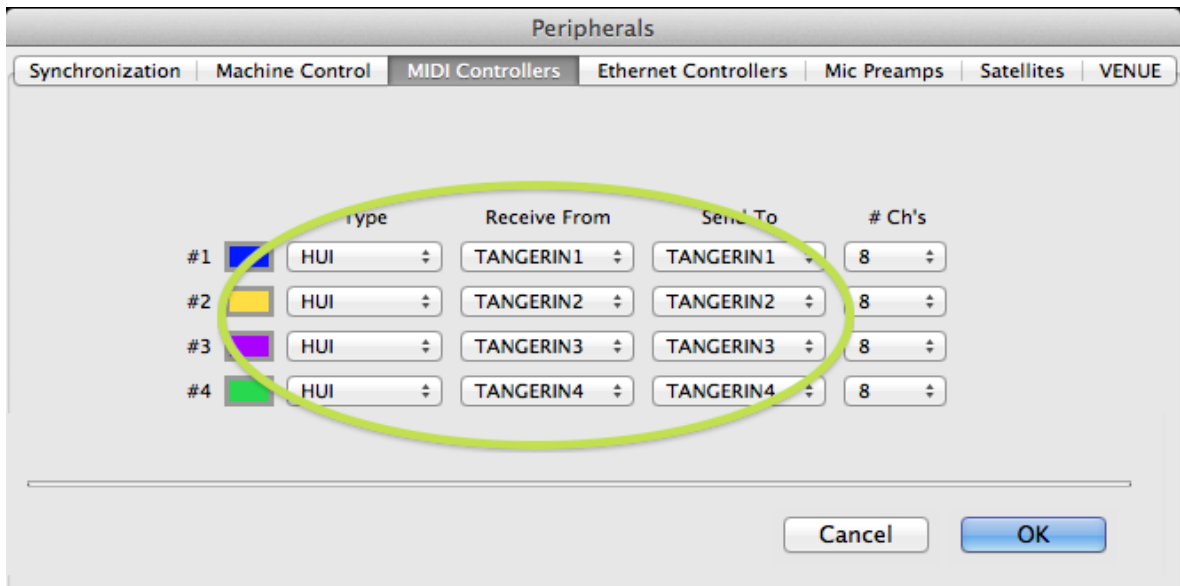   - View current channel status (volume, mute, automation mode)
    - Global automation mode toggle
    - Level Match
    - Automation write controls
- Recall Functions
    - View current channel strip state
    - Create Snapshot
    - Load Snapshot
    - Indication of mismatched controls
- File management of snapshots (create, load, delete, backup)
- System configuration and setting is covered in **TANGERINE SETUP AND CONFIGURATION page 12**.

TaiMotherShip allows access to the following functions:

- Automation Functions
    - View current channel status (volume, mute, automation mode)
    - READ / WRITE / TRIM automation data to the DAW
    - Read automation form DAW
    - Global automation mode toggle
    - Automation read/write lock toggle

For an overview of available workflows — including use cases and pros / cons for each — refer to **DESCRIPTION OF WORKFLOWS page 4**.

6.1 USING INJEKTOR

INJEKTOR is the main method to control the TAI.

From **INJEKTOR** you can use the mix functions, access Recall-iT (on Recall-iT equipped systems), configure the TAI, and update its firmware.

6.1.1 MIX VIEW

The **INJEKTOR** mix view allows you to access the different automation modes and functions. It is a convenient tool that simplifies the automation process, all automation functions can be accessed on this page.

The available functions will change depending on the selected workflow.

Example Mix Page
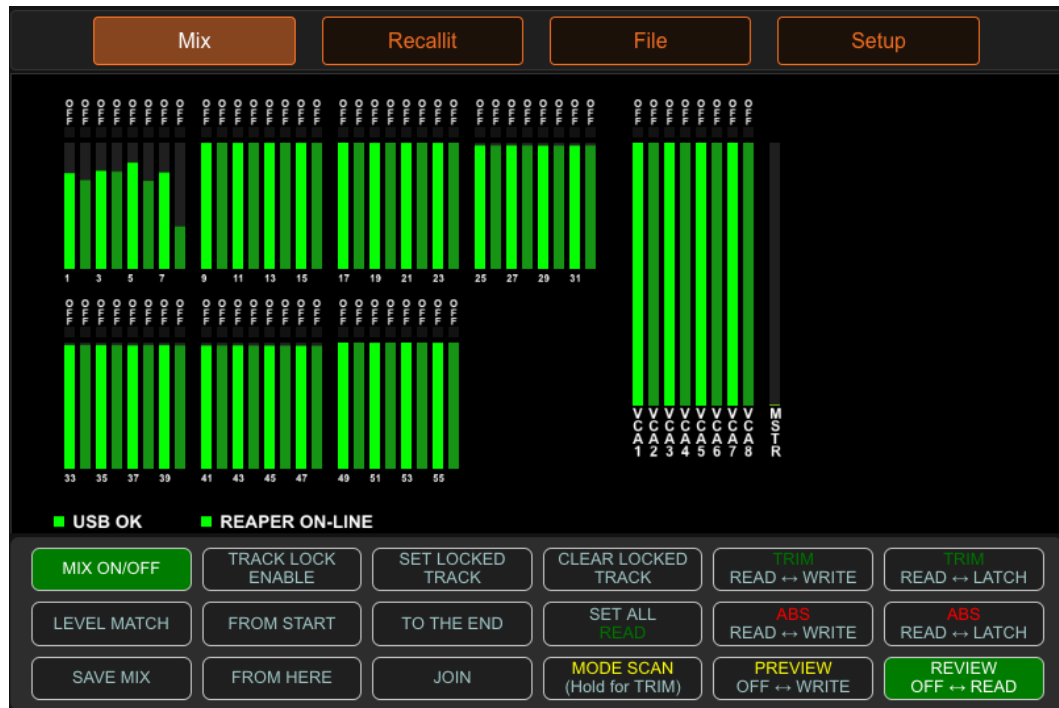
1. FADER VALUE INDICATORS

Depending on the selected automation mode, the green bars indicate either fader level or playback volume.

In WRITE or OFF mode, the indicator shows fader position.

In READ mode the indicator shows the playback volume from the DAW. The indicator will not respond to fader position when in read mode.

2. AUTOMATION MODES LABEL

Located above each green bar, the channel's automation mode is indicated in the following manner:

> OFF mode = OFF
> READ mode = R
> WRITE mode = W
> LATCH mode = L
> TRIM-READ mode = TR
> TRIM-LATCH mode = TL
> TRIM-WRITE mode = TW

3. MIX ON/OFF

The MIX ON/OFF button enables or disables MIX AUTOMATION.

- In MIX ON, automation data is sent to the VCAs and motors are activated for motorized consoles.

- In MIX OFF, fader voltages are looped back through relays to the VCA's, fader motors are turned off and the indicators will not show current fader position.

4. LEVEL MATCH

Puts the TAI in level match mode. The level match (sometimes referred to as Fader Null) is used on non-motorized consoles. It shows both the current fader position and the automation READ volume. It allows you to write a partial automation pass without a jump in volume by ensuring that the faders start in the same position as what is written on the previous automation pass.

When level match is engaged, any mismatched fader's position is displayed in red next to the automation playback in green. To match the fader to the automation, both red and green bars must be at the same height on the mix view. When the fader is properly matched, the red bar for the channel disappears (only the full-width green bar remains).

Level match can also be activated on a per-fader basis by pressing and holding the status switch and moving the corresponding fader. The red and green LEDs on the channel will indicate if the playback level and fader position are matched or not. When both LEDs are ON, the fader and automation levels are matched. Releasing the status switch will exit level match on this fader.

5. END

(Reaper Only) This function saves a new version of the mix in Reaper.

6. FROM START

(Reaper Only) Writes the current fader level from the start of the mix to the current playhead position.

7. TO THE END

(Reaper Only) Writes the current fader level from the current playhead position to the end of the mix. This function can be used in both PLAY and STOP modes.

8. FROM HERE

(Reaper Only) Marks an IN point on the timeline. This IN point will be used by the JOIN function.

9. JOIN

(Reaper Only) Applies the current fader level from the IN mark to the current playhead position.

10. SET LOCKED TRACK

This button selects the tracks to be locked to their current automation modes. A YELLOW rectangle around the automation mode label indicates the selected tracks.

11. TRACK LOCK ENABLE

This function enables the track locking function. Once enabled, the selected locked track will not change from its current automation mode. A RED rectangle around the automation mode label indicates the track is locked to its current mode.

12. CLEAR LOCKED TRACK

This button will unlock all locked tracks.

13. USB INDICATOR

This indicator turns green when a proper USB connection is established between the host computer and the TAI.

14. SOFTWARE ONLINE INDICATOR

This indicator turns green when the TAI detects compatible software is running on the host computer. Compatible software varies by the selected workflow:

- When using the **INJEKTOR** workflow, the **INJEKTOR** application must be running.

- When using the **HUI** workflow, a **HUI** compatible DAW must be both configured and running.

- When using the **REAPER** workflow, Reaper must be both configured and running.

15. GLOBAL AUTOMATION MODE SELECTOR

These buttons enable the choice of 6 global automation modes. For more information on automation modes, go to **6.2 Using Automation Modes, page 34**.

6.1.2 RECALL-IT VIEW

Available on SSL consoles with the Recall-iT option, this view offers a graphical representation of the selected channel. The values for each knob and switch are updated in real time and mismatched parameters are outlined in red. It will feel immediately familiar to users of SSL Total Recall.

1. **CHANNEL INDICATOR**
   Indicates the current SSL channel number to be matched.

2. **KNOB POSITION MISMATCH INDICATOR**
   The red contour indicates knobs that require positional adjustment. The green line indicates the target position. Once a knob has been properly positioned, the red indicator disappears.

3. **SWITCH STATE MISMATCH INDICATOR**
   The red contour indicates switches that require state adjustment. The indicator disappears when properly set.

4. **SNAPSHOT**
   The snapshot button reads all current knob and switch positions across the entire console. Pressing the Snapshot button opens a Save file dialog to save the snapshot to the TAIs internal memory. Opens the Save Snapshot page to enter file information.
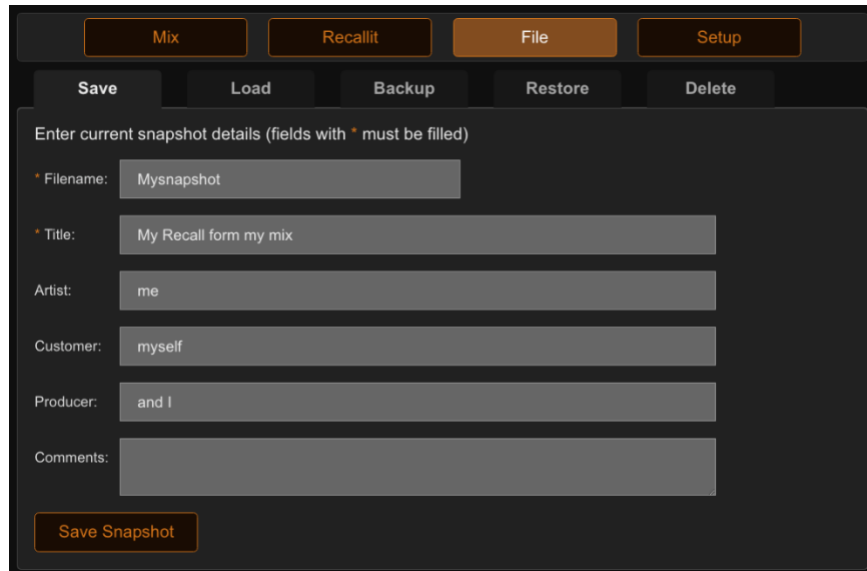
5. **CHANNEL SELECT**
   Use the arrow buttons or the console's fader status switch to select a different channel to be recalled.

6.1.3 FILE VIEW

File view includes all necessary functions to save, load and delete recall snapshots.

SAVE SNAPSHOT TAB

After pressing the snapshot button in Recall-IT, the system redirects to this page, allowing you to identify and save the snapshot. Filename and Title are required, all other fields are optional. Pressing the save snapshot button at the bottom of the page saves the snapshot to the predefined snapshot folder on your computer. If none is selected, you will be prompted to choose a save location.
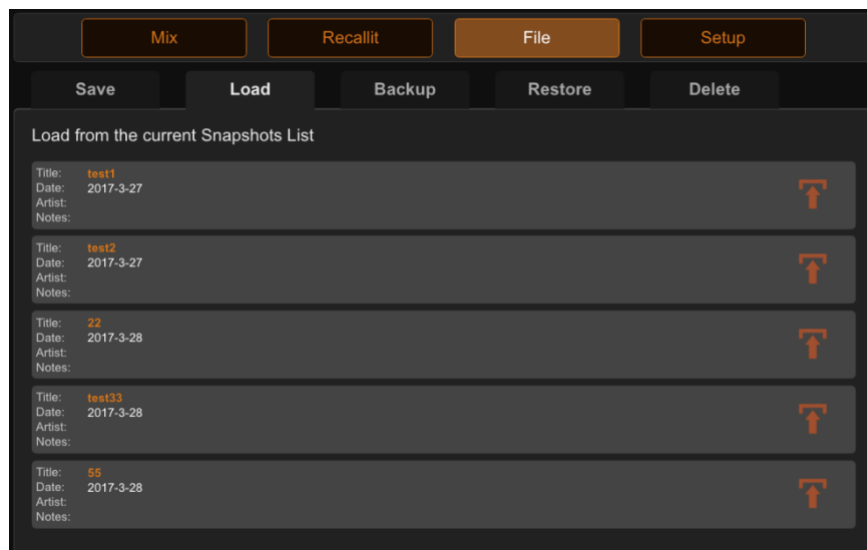
Note: The save snapshot button only saves a snapshot file to disk. **It does not create a new snapshot of the current console state**. Snapshots must be created in the Recall-iT view.

LOAD SNAPSHOT TAB

The **Load** interface lists all snapshots saved to the TAIs internal memory. To **Recall** a saved snapshot, press the orange **Load** button to the right of the requested snapshot.

6.2   USING AUTOMATION MODES

6.2.1   GLOBAL AUTOMATION MODES

Following the same standard as the original SSL Automation computer, the TAI supports 6 global automation modes. These modes control how each channel's status switch will respond when pressed.

Global Automation Modes are chosen via the keyboard, **INJEKTOR** or the **TaiMothership** plug-in.

- In **Preview**, the status switch will toggle between **Off** and **Write** modes.

- In **Review,** the status switch will toggle between **Off** and **Read**.

- In **Abs Read** ⟷ **Write** the status switch will toggle between **Read** and **Write**.

- In **Abs Read** ⟷ **Touch** the status switch will toggle between **Read** and **Touch**.

- In **Trim Read** ⟷ **Write** same as **Abs Read** ⟷ **Write** but for the TRIM track.

- In **Trim Read** ⟷ **Touch** same as **Abs Read** ⟷ **Touch** but for the TRIM track.

6.2.2   CHANNEL AUTOMATION MODES

Following the same standard as the original SSL Automation computer, the TAI supports 7 channel automation modes. Each mode can be assigned individually to any channel on the console and dictates the channel's behaviour.

Channel automation modes are accessed using the channel's status switch.

- In **OFF** mode, the fader is looped directly to the VCA, there is no automation on the channel. If automation is written in the DAW, it is bypassed.

- In **Write** mode, volume and cut is written from the fader to the DAW's absolute volume track. The DAW starts writing data immediately and previously recorded automation is overwritten.

- In **Read** mode, the DAW controls the console using the absolute volume track. The fader is bypassed by the automation.

- In **Latch or Touch** mode, the DAW reads back the absolute volume track until the fader is touched (Ultimation) or moved (VCA) at which point it will begin overwriting existing data.

- In **Trim Write** mode, the fader position is written as an offset to a dedicated trim track that is separate from absolute volume.

- In **Trim Read** mode, levels are read from both the trim and absolute tracks. Trim offsets compound with levels on the absolute track. For example, if the absolute track is at -7 dB and the trim track is at +2 dB, the audio is played back at -5 dB.

- **Trim Touch** functions in the same way as **Touch,** but records to the Trim Track.

6.2.3 TYPICAL MIX AUTOMATION WORKFLOW

The typical workflow for mixing a project is as follows:

1. Start with the TAI in the **Preview**. Set all tracks to **Off** mode and use the faders to set the levels as desired.

2. As you get closer to a first mix, start setting tracks to **Write** mode by pressing their status switch.

   o Useful shortcut: once a channel is in the desired automation mode, press and hold it. Simultaneously press 2 neighbouring tracks, and the full console will toggle to the mode of the first channel. For more information on **status mode shortcuts**, go to **page 41**.

3. Put your DAW in play, it will record a first pass of your mix on armed tracks. When stopped, recorded tracks will toggle automatically to **Read** mode.

   o Tip: Pro Tools has a "write automation to the end" button in its automation window

4. Repeat steps 2 and 3 until a first mix is recorded for all tracks.

5. Set the global automation mode to **review**. In this mode you can toggle between listening to recorded automation (in **Read**) and trying modifications to the mix (in **Off**).

   o Once automation is recorded, you must put a channel to **Off** to hear the level coming from the fader.

6. Set the global automation mode to *abs read / write* or *abs read / touch*. From here, record fader moves and adjust the mix.

   o When in **abs read / write**, you can use the status switch to "punch in" automation writes. Ex. Start in **read**, press play, when you want the start writing, press the status switch (and again to stop).

   o On VCA consoles, you will need to use the Level Match function to reset the fader to the same position as the automation. For more information go to **page 29**.

7. Once you are nearing a final mix with automation moves completed, the **Trim** global automation modes become useful to make changes such as "Guitars down 2 dB everywhere" without changing existing automation moves.

6.3   USING THE TAIMOTHERSHIP

The **TaiMothership** AAX/AU/VST plug-in reads and writes automation to the DAW. Exactly one instance of **TaiMothership** must be inserted into each mix session.

For a visual guide to using **TaiMothership**, check out our video **Using the Tangerine MotherShip Pro Tools AAX Plug-in** available at: **https://youtu.be/jAyzd3Iwe6g**.

> **NOTE: INJEKTOR** must be running at all times in order to use **TaiMothership**.

6.3.1   PLUG-IN OVERVIEW

TaiMotherShip brings all the console faders into a single plug-in.

Install **TaiMotherShip** on only one track in your DAW session (usually the master fader).

TaiMotherShip automatically creates a volume, mute and trim track for all console channels. All automation lanes are written independently into the same DAW track. As such, automation is directly editable using your DAWs automation tools, though it will not follow regions as they are copied / moved around other tracks in the session.

6.3.2   SETTING THE TAIMOTHERSHIP PLUG-IN

1. In your DAW Mix Window, set the DAW track automation mode to **TOUCH**.

2. In your DAW Mix Window, add the **TaiMotherShip** plug-in to a track insert.

3. In the Plug-In, set the **WRITE ENABLE FADER and CUT** switch to **ON**.

4. In the Plug-In, set the **READ ENABLE FADER and CUT** switch to **ON**.

5. In the Plug-In, enable **MIX ON**.

6. In the Plug-In, set your Global Automation Mode.

To see automation lanes as they're written:

7. In your DAW edit window, use the automation selector pull down menu to view the desired parameter from **TaiMotherShip**.

6.3.3   READING AND WRITING AUTOMATION

TaiMotherShip automatically reads or writes automation to the DAW. Automation is read when the DAW is in play or stop. Automation is written only when the DAW is in play.

Each channel can be set to a different automation mode independently of others. The channel's status switch toggles it's automation mode. The global automation mode determines which mode the channel will toggle to.

For more information on the different automation modes, go to **page 28**.

6.4 WRITING & READING AUTOMATION IN ALL WORKFLOWS

6.4.1 WRITING AN ORIGINAL MIX PASS

1. Using the assigned SSL fader status switch, set automation mode to **ABS WRITE**.

2. Put your DAW in play.

3. Use the assigned SSL channel fader to set the volume to the desired level, making level changes as the song plays.

4. Use the assigned SSL channel cut switch to write automated CUTS.

   o To print the same fader level through the end of the song:
   From the Pro Tools Automation window, select "Write on Stop" using → |
   (write to the end on stop).

5. Stop Pro Tools. The channel's automation mode will toggle to **ABS READ**.

6. Put Pro Tools in play the console will replay fader levels and cut states as written.

7. If writing fader or cuts only, avoid overwriting existing automation by setting the **WRITE ENABLE CUT or FADER** switch to **OFF**.

6.4.2 TO REWRITE AND OVERWRITE EXISTING AUTOMATION SECTIONS OF THE SONG:

For non-motorized (VCA-only) SSL consoles
1. Put desired channels in **READ** mode.

2. Use the **LEVEL MATCH** function to match console fader position to the Pro Tools track automation **READ** level.

3. Continue the same process as for Ultimation Consoles

For SSL Ultimation consoles
Automation can be rewritten from either **ABS Read ↔ Write or ABS Read ↔ Latch/Touch**.

- Set the TAI to the desired global automation mode.

From **ABS Read ↔ Write**
In this mode, the status switch is used to punch in/out automation writes. While the DAW is playing:

- Toggle the status to **WRITE** to punch-in automation.

- Toggle the Status to **READ** to punch-out automation.

From **ABS Read ↔ Latch/Touch**
In this mode, the DAW will read until you touch the fader (Ultimation) or move the fader (VCA).

- Set the desired channels to **Latch** or **Touch** mode depending on your console.

- Put Pro Tools into Play. Automation will read back to the console.

- Automation will automatically punch-in when you touch the fader.

6.5   USING THE SSL KEYBOARD FUNCTIONS

(Only available on SSL consoles with the keyboard decoder option installed)

The Keyboard Decoder sends the SSL keyboard keys to the TAI and the host computer, enabling control over certain mix automation states and modes. This option allows you to stay "in the zone" as you can change automation modes and other automation functions without touching your computer.

The keyboard interface functions are as follows:

- Control the Tangerine Automation Interface

    o   Select **Global Automation Modes**

    o   Toggle **Mix On / Off**

    o   Enter **Level Match**

    o   Lock channels

- Control Pro Tools

    o   Transport controls

    o   Create Markers

    o   Go to Markers

The Tangerine Automation Interface remaps existing keys.

- For the new E series Keyboard mapping, refer to the diagram on **page 51**.
- For the new G series keyboard mapping, refer to the diagram on **page 52**.

6.5.1   CONTROLING THE TAI FROM THE KEYBOARD

Selecting Global Automation Modes
The 6 global automation modes can be toggled from the keyboard. Press the key corresponding to the desired mode to toggle to it. Refer to the mapping diagram on **page 51** or **52**.

For more information on using Global Automation Modes, go to **page 28**.

Toggling Mix On or Off
Press the **Mix On / Off** *key* to toggle mix on or off.

Level Match
Press the **Level Match** key to enter the console-wide level match.

For more information on using the Level Match function, go to **page 29**.

Locking Channels
The keyboard can be used to lock automation modes on a channel by channel basis.

The **Enable Lock, Set Lock,** and **Clear Lock** keys replicate the functionalities described on **page 30**.

6.5.2   CONTROLLING YOUR DAW FROM THE KEYBOARD

Transport Controls
The **Play, Stop, Forward,** and **Rewind** keys can be used to control transport within your DAW.

Depending on the wiring of your console, the **Tape Enable** switch may need to be enabled to use transport. If you have properly configured your DAW and the transport keys don't work, try toggling **Tape Enable** before troubleshooting the keyboard.

Create Markers
To create a marker in your DAW press **space bar** on the SSL keyboard. This will open the Marker Creation Interface in your DAW.

Using your computer's keyboard (not the SSL one) name the marker and create it.

Go to Markers
To go to a created marker, press **period "."** and the number 1–9 to go to a marker. They are numbered in order of the timeline.

For illustrations of the functions available on E type keyboards, go **to Illustration of SSL E Series keyboard functions** on **page 51**.

For illustrations of the functions available on G type keyboards, go to **Illustration of SSL G Series keyboard functions** on **page 52**.

6.6   MULTI-SWITCH SHORTCUT FUNCTIONS

6.6.1 SWITCH COPY SHORTCUT:
The TAI's 2-switch copy shortcut allows you to quickly apply the automation state of one channel to any other channel on the console.

On the channel from which you want to copy its current automation mode, **press & hold** its status switch. On the channel to which you want to paste the automation mode from the previous channel, press and release its status switch while still holding the first one.

Example:

Before:
channel #1 = TRIM READ MODE
channel #2 = OFF MODE
channel #3 = OFF MODE
channel #4 = OFF MODE
channel #5= OFF MODE
channel #6 = OFF MODE

2 switch copy mode applied:
Step 1:
    Press & hold channel #1

STEP 2:
    Press & release channel #2 (holding channel #1)
    Press & release channel #5 (holding channel #1)
    Press & release channel #6 (holding channel #1)

After:
channel #1 = TRIM READ MODE
channel #2 = TRIM READ MODE
channel #3 = OFF MODE
channel #4 = OFF MODE
channel #5= TRIM READ MODE
channel #6 = TRIM READ MODE

6.6.2   3 SWITCH SET-ALL SHORTCUT

The TAI's 3-switch set-all shortcut allows you to quickly apply the automation state of one channel to all channels on the console.

On the channel from which you want to copy its current automation mode, **press & hold** its status switch. Then, simultaneously press the status switches of the following 2 channels. Release all 3 switches at the same time. All console channels will be set to the same state as the 1st channel you pressed.

Example:

Before:
channel #1 = TRIM READ
channel #2 = ABS WRITE
channel #3 = TRIM TOUCH
channel #4 = OFF MODE
channel #5= OFF MODE
channel #24 = ABS READ
channel #48 = OFF MODE
channel #72 = OFF MODE
channel #VCA1 = READ

3 switch SET-ALL mode applied:
Step 1:
        Press & hold channel #24
STEP 2:
        Press & hold channel #25 (holding channel #24)
        Press & hold channel #26 (holding channel #24+25)

STEP 3:
        Release channel #24, #25, #26

After:
channel #1 = ABS READ
channel #2 = ABS READ
channel #3 = ABS READ
channel #4 = ABS READ
channel #5= ABS READ
channel #24 = ABS READ
channel #48 = ABS READ
channel #72 = ABS READ
channel #VCA1 = ABS READ

All console channels, including VCAs, are set to the same automation mode as channel 24.

7   TROUBLESHOOTING

7.1   TROUBLESHOOTING FADER BANK ISSUES

Especially during the first installation, it is not uncommon that certain connectors are not in a functional state. Here are some of the most common issues encountered during the initial TAI boot sequence:

- Certain banks of fader status LEDS do not flash in a sequential pattern.

- Certain banks of Ultimation faders do not move in an up & down positional scan pattern.

- Certain banks of CUT switches are not ON for the duration of the initial boot sequence.

- If you have the keyboard decoder, the keyboard does not beep.

If you experience any of these issues, since most issues are related to improper cabling, here are the first troubleshooting steps we recommend.

7.1.1   FADER BANK TROUBLESHOOTING PROTOCOL

1. Make sure that the orientation of your flat cables is the same on the TAI as on the SSL console. Pin 1 is usually identified with a red strip. It's very important that you make sure the polarity is respected matching pin 1 on the SSL with pin 1 on the TAI. Connecting them flipped over can damage the console and the TAI.

2. Cables can be improperly seated within their connectors. Make sure that the cables are pushed all the way into their connectors, and that the cable connectors are properly seated into the SSL's ports and the TAI's ports.

3. We've heard of cables patched under the console being improperly connected or crossed inside the console itself. Once you are sure cable orientation is good between the bottom of the console and the TAI, make sure that the patch is properly linked inside the console.

4. Once cables are verified, if problems still persist, try cross-patching banks, for example bank 1 works but 4 doesn't, swap over bank 1 with bank 4 on the TAI while keeping the SSL side the same. Does the same bank work or does the opposite bank now work?

7.1.2 ISSUE: FADERS AND MUTES WORK BUT STATUS SWITCHES DON'T RESPOND RELIABLY

1. Is the issue, channel specific, bucket specific or console-wide?

   o If the issue is limited to certain channels or certain buckets, the issue is most likely linked to fader banks. See **7.1 Troubleshooting Fader Bank issues**, **page 36**.

2. If the issue is console-wide, do the status switches change the channel in recall mode?

   o If the status switches work reliably in recall but not in Mix mode, the TAI's firmware and the INJEKTOR software are out-of-sync. Contact **THD-Labs**.

   o If you did not purchase Recall-iT, contact **THD-Labs**.

3. If status switches don't work in either Mix mode or recall, does recall mode otherwise work?

   o If the recall system does not work, go to **Troubleshooting the Recall System, page 38**.

7.2 TROUBLESHOOTING KEYBOARD ISSUES
1. Does the keyboard beep during TAI boot-up?

   o If the keyboard does not beep, try troubleshooting the flat cable (steps 1 to 3 from **Troubleshooting Fader Bank issues, page 43**).

   o Make sure that the port used is the one for the keyboard (the last one) and that the cabling is properly connected to the inside of the console. We've heard of console-side patches identified as the keyboard but that go elsewhere in the console.

   WARNING: plugging the flat cable in the wrong direction can short-circuit components and lead to hardware damage. Verify cable orientation before powering up the system.

   o If the keyboard still doesn't beep, troubleshoot the keyboard assembly.

2. Does the keyboard toggle global automation modes in **INJEKTOR**?

   o If the keyboard toggles Global Automation Modes, but not Pro Tools, verify configuration, **page 23**.

7.3 TROUBLESHOOTING THE RECALL SYSTEM

7.3.1 DIFFERENCES IN ADDRESSING BETWEEN THE TANGERINE RECALL AND THE SSL RECALL

The hardware and software implementation are different in subtle ways that may create unexpected results for veteran SSL technicians and those used to troubleshoot recall systems with the vintage SSL computer, especially regarding channel addressing.

- The TAI can read all console channels simultaneously for recall purposes.

- The TAI ignores the channel strip's address assignment switches.

  - It instead uses the physical location of the channel within the chassis.

- Cross-patching ribbon cables (ex: swapping buckets 1–8 with 9–16) will now result in channel 1 appearing as being channel 9 regardless of the value read from its address assignment switches.

- It also means that swapping a channel within a bucket will change its channel number in Recall-iT, whereas before, a channel would retain its assigned address regardless of its position within a bucket, as long as its address assignment remained constant.

7.3.2 TROUBLESHOOTING CONSOLE-WIDE RECALL ISSUES

The Recall address bus is shared across the whole console. A single faulty element can cause issues in the whole recall system. A systematic approach is required. **Make sure faders respond on all channels before attempting to troubleshoot recall**.

The strategy is to split the console down to smaller parts to isolate the issue. Once the system is in a functional state, add in more buckets to figure out which channel is causing issues.

1. Recall is split at the centre section. Try disconnecting the lower faders or upper faders. Do problems disappear when one side is disconnected?

2. If problems persist, try connecting a single bucket, do problems disappear?

3. If problems persist, reboot the console, then the TAI, do problems disappear?

4. Try a different bucket, does it work now?

If recall still doesn't work with a single bucket installed, and you've tried only connecting a different single bucket, the problem is either with the **Recall Bus Driver** in the centre section or you have multiple problematic channels.

7.3.3 RECALL ISSUE: THE KNOBS RESPOND TO INPUT, BUT THEIR POSITION IS INACCURATE

1. Calibrate the Recall System.

2. Make sure the knob caps are properly aligned with the shaft driver.

7.3.4 RECALL ISSUE: STUCK IN RECALL MODE

All mix functions (levels, mutes, etc.) no longer function after exiting recall mode. Restarting the TAI, the console or both fixes the issue. The recall enable line is not toggling properly.

1. Try splitting the console into bottom half and top half. Does the problem disappear with only half of the console connected? Reboot the console and do a short power cycle on the TAI between each test.

If not, the problem is probably with the mux enable line on the recall bus driver.

1. Disconnect the 50-pin flat cable from the console, short power cycle the TAI and the console.

2. Probe at pin 48 on the recall 50-pin flat cable. It should be 0 V when recall is off and 3.3 V when recall is on.

3. Connect the cable to the console, the same values should be read at the input pin of the mux-enable optocoupler in the centre section.

    o On E series consoles, this IC is labelled "**MUX Enable**," image on **page 49**.

    o On G series consoles, this IC is labelled "**IC14**," image on **page 50**.

4. Probe at the output of the mux-enable optocoupler. It should be 12 V when recall is off and 18 V when recall is on.

    o If this IC is not unlatching, try swapping it out for a different chip. We don't use Add En / IC15, it can be used as a spare for testing.

5. Continue down the chain of the MUX enable line, there is also an inverter and a transistor to drive the line. The transistor is in open-collector and faulty wiring, or a bad channel IC can pull the line.

8   APPENDIX

8.1   VERIFYING THE RECALL MULTIPLEXERS REQUIRED FOR RECALL-IT

For Recall-iT to work, you need 2 things on your console; the multiplexers found on the channels and the bus driver. The multiplexers are the same for all console channels. The bus driver looks different on E-type and G-type consoles, though its function is the same.

Recall Multiplexers
Every recallable channel needs to have the multiplexer card installed and functional. You'll need to remove a channel to see if you have the board installed. See image below for where to find it.
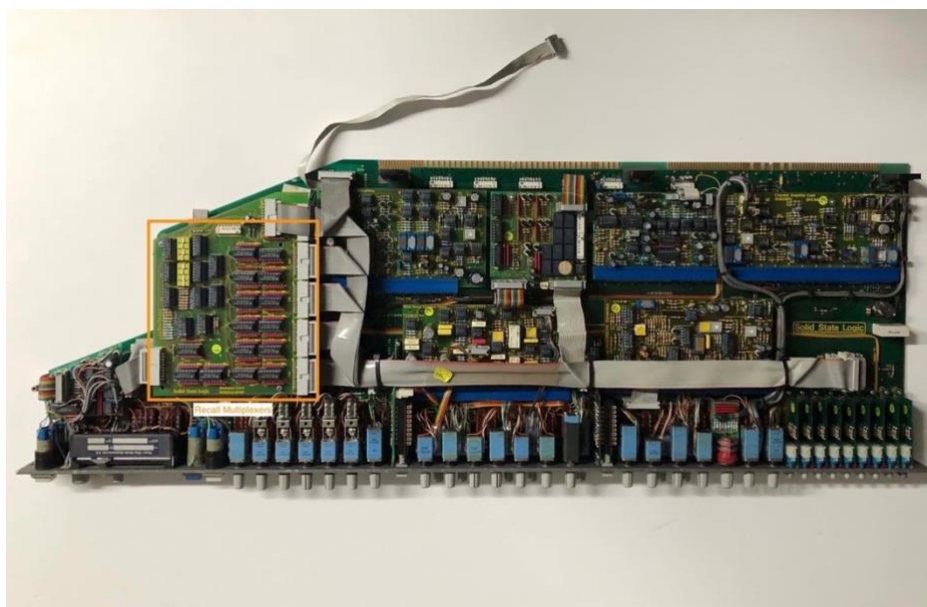
E-type console Bus Driver
To find the bus driver on E-type consoles, look under the keyboard section for the Total Recall bus driver mezzanine card. Not all consoles have this installed and it's necessary for Recall-iT to work.
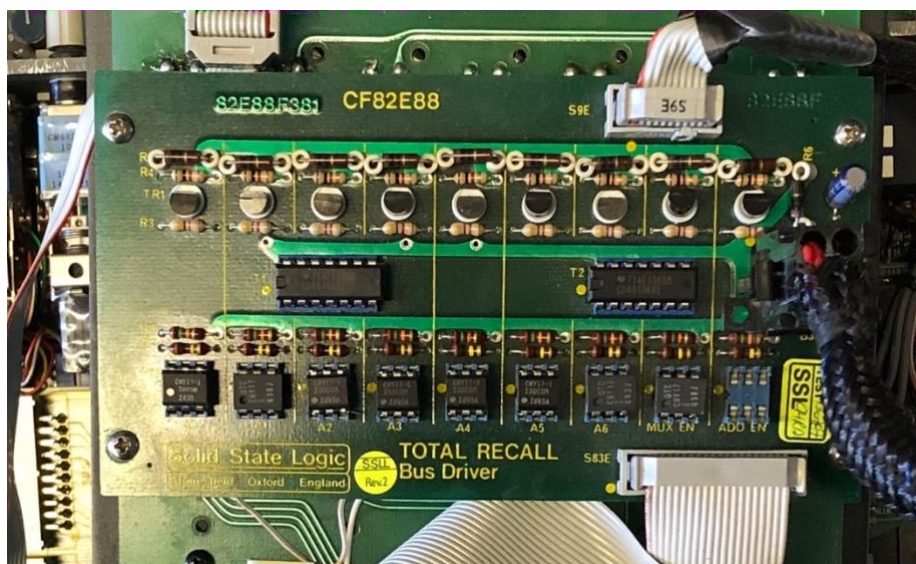
G-type console Bus Driver

On G-type consoles, the bus driver is integrated with the keyboard interface and needs all chips on the board for Recall-iT to work.
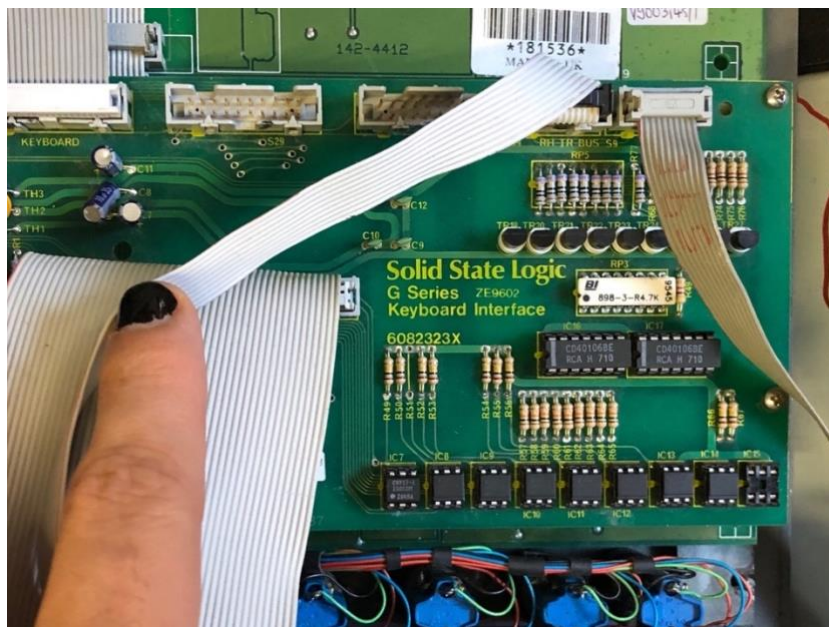
That's all there is to it. If the required chips are present and functional, your console will work with Recall-iT.

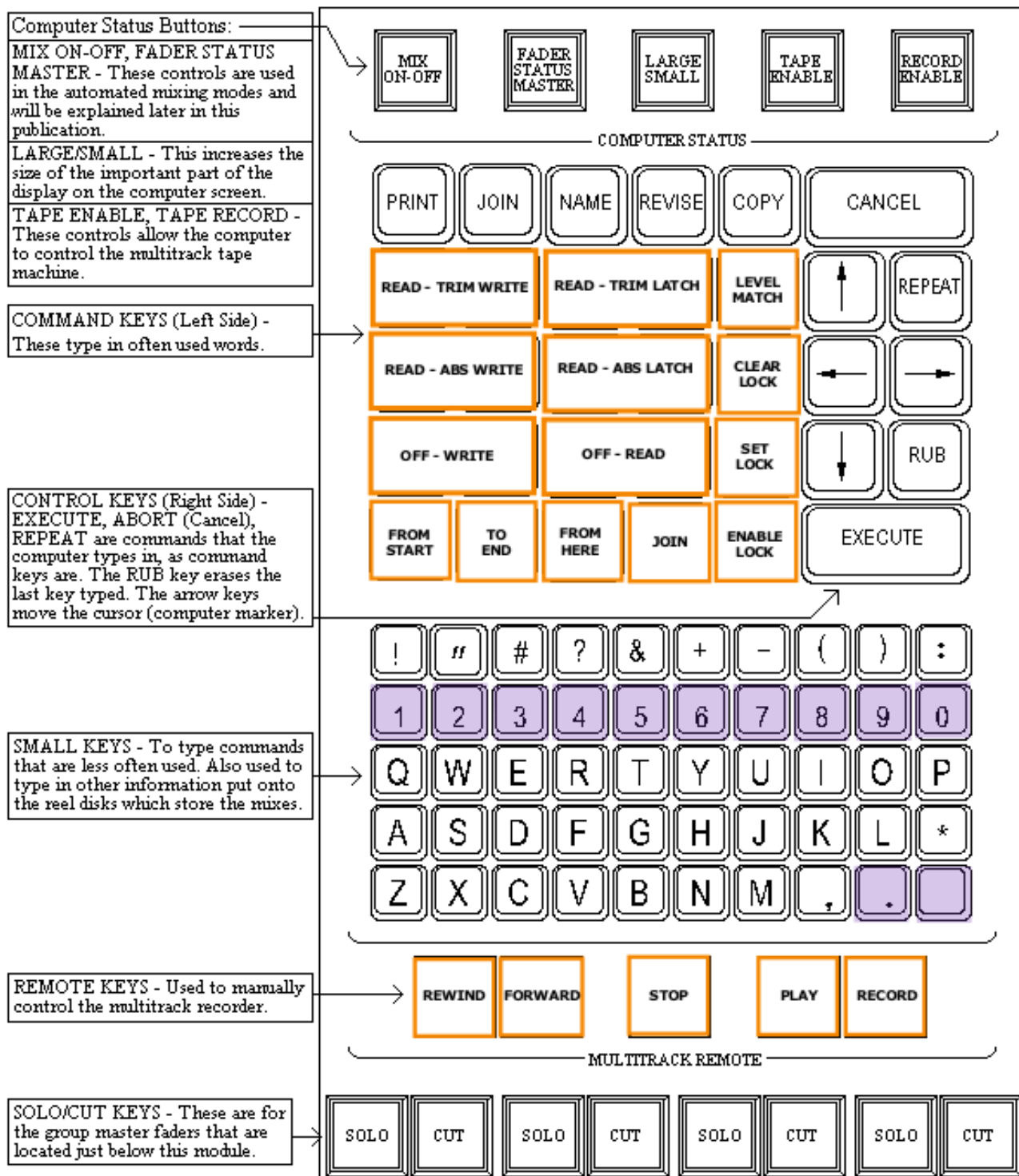## 8.2   ILLUSTRATION OF SSL E SERIES KEYBOARD FUNCTIONS

Computer Status Buttons:

MIX ON-OFF, FADER STATUS MASTER - These controls are used in the automated mixing modes and will be explained later in this publication.

LARGE/SMALL - This increases the size of the important part of the display on the computer screen.

TAPE ENABLE, TAPE RECORD - These controls allow the computer to control the multitrack tape machine.

COMMAND KEYS (Left Side) - These type in often used words.

CONTROL KEYS (Right Side) - EXECUTE, ABORT (Cancel), REPEAT are commands that the computer types in, as command keys are. The RUB key erases the last key typed. The arrow keys move the cursor (computer marker).

SMALL KEYS - To type commands that are less often used. Also used to type in other information put onto the reel disks which store the mixes.

REMOTE KEYS - Used to manually control the multitrack recorder.

SOLO/CUT KEYS - These are for the group master faders that are located just below this module.
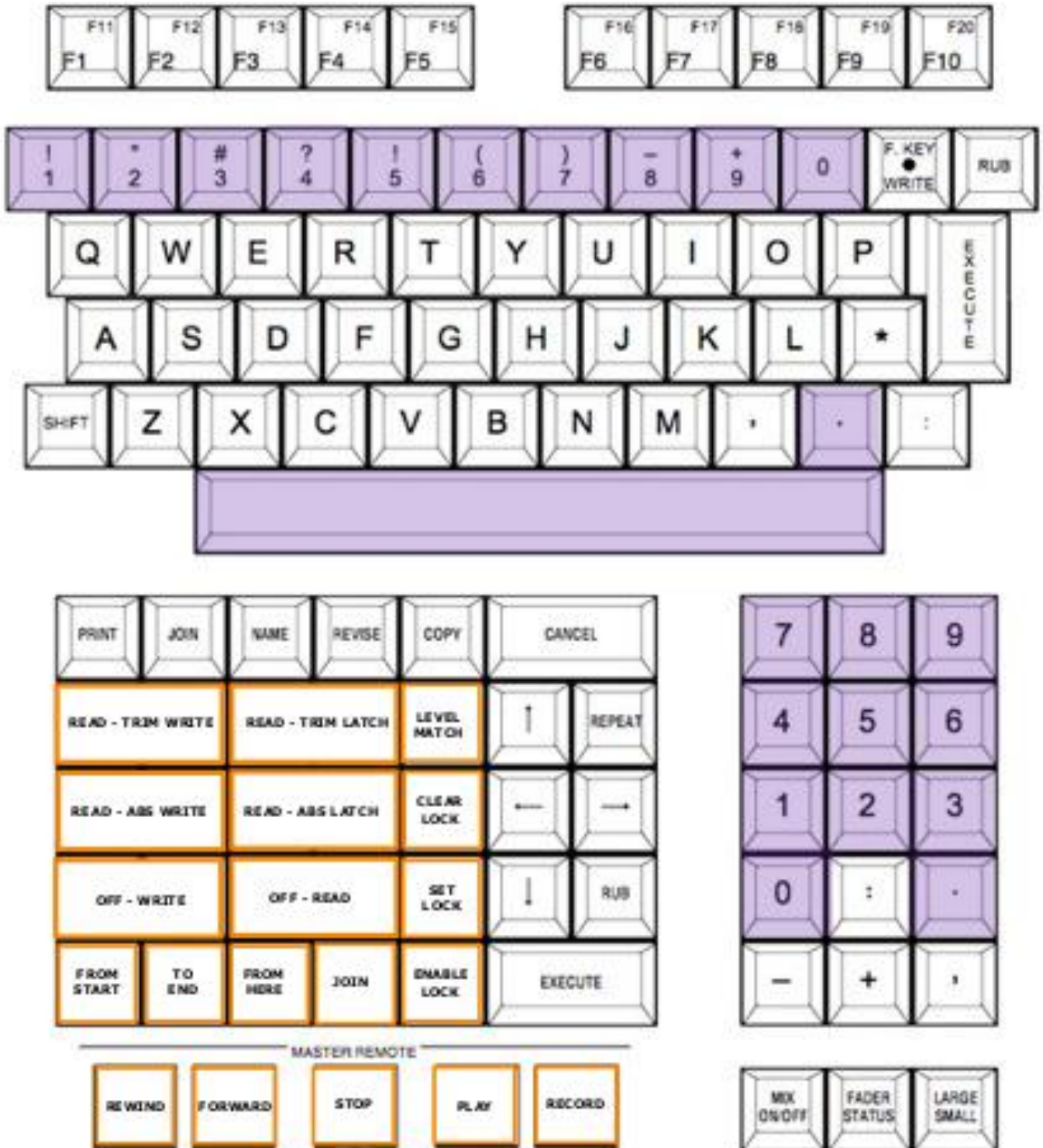
LEGEND = TAI automation functions   = Pro Tools commands automated

8.3   ILLUSTRATION OF SSL G SERIES KEYBOARD FUNCTIONS

LEGEND   = TAI automation functions   = Pro Tools commands automated