



CB Electronics TMC-1 Monitor Remote

Reference

Version 6.0





CB Electronics

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The Information in the manual is updated as the TMC-1 is improved, you can find the latest version of the software on the product web page.

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INTRODUCTION	1
CONNECTIONS	2
INSTALLATION	2
<i>Power</i>	3
<i>Connecting to XMon or A-Mon</i>	3
<i>XMon to HD-15 Converter</i>	4
<i>RJ45 Breakout Box</i>	4
<i>Connecting to NTP DAD AX/DX32, NTP Penta or Avit MTRX</i>	4
<i>Connecting to D-Mon</i>	5
<i>PFL/AFL from the Mixer/Workstation</i>	5
<i>Hard Ware Mute</i>	5
<i>Record/Play tallies for Auto Mute/Auto Talkback/Talkback Resume</i>	5
SETTING UP TMC-1	6
FOR THE FIRST TIME OR AFTER MAJOR SOFTWARE UPDATE	6
<i>Factory Default:</i>	6
<i>T/B Gain 1 & 2</i>	6
<i>Listen Gain 1 & 2</i>	6
<i>AFL Gain</i>	6
PROTECTED/CALIBRATED SETTINGS	7
INPUT AND OUTPUT TRIMS	8
<i>Input Trim:</i>	8
<i>Speaker Trim:</i>	8
<i>Using TMC-1v5 to adjust Trims</i>	10
<i>Mono Trim:</i>	11
<i>7.1, 5.1 and User Trim:</i>	11
<i>Cal A/B Trim:</i>	12
<i>Cal P</i>	12
CALIBRATING THE SPL LISTENING LEVEL	13
<i>Why is there no overall output level adjustment for the speaker sets?</i>	13
<i>Power Amplifier Input Pad</i>	14
OPERATION	14
<i>Meters Page:</i>	15
<i>Speaker Mute:</i>	15
<i>Speaker Solo Page:</i>	15
<i>Input Select with Sum Enabled</i>	15
<i>Cue Sends Page:</i>	16
<i>Cue Sends Page with Select Depressed</i>	16
<i>Cue Mutes</i>	16
<i>Select Page:</i>	17
<i>In/Out Preset</i>	17



Information display: Shown Below	18
FORMAT	18
Auto Mute Page	19
Auto Talkback	20
User Keys, GPIO's and Auto:	20
Setup Menu:	21
T/B, L/B, AFL Page	21
TMC-1 CONTROLS	22
[Mute] Key:	22
[Dim] Key :	23
[Page] Key:	23
[Select] and [Ctrl] Keys:	23
[Select] Key:	23
[Ctrl] Key:	23
USER FUNCTION KEYS:	24
Display Keys [1] – [8]	25
[User]:	25
Function Keys: [Fn-1], [Fn-2], [Fn-3]	25
Function Keys - normal operation after factory Reset	25
Knob Push	25
USER KEY FUNCTION TABLE	25
USER KEYS-COMMON TO ALL	26
TMC1-XMON ONLY	30
TMC1-PENTA ONLY	30
TMC-1-DMON ONLY	32
TMC-1-AMON ONLY	33
Knob Push	33
Display Keys [1] – [8]	34
METERS PAGE	35
User keys: [1], [2], [3], [4], [5], [6], [7], [8]:	35
USER KEY BANK 2	35
METER SOURCE	36
TMC-1-XMON METER SOURCE	36
TMC-1-PENTA METER SOURCES	36
TMC-1-DMON METER SOURCE	36
TMC-1-AMON METER SOURCES	37
CUE SENDS PAGE	38
User keys: [1], [5], [6], [8]:	38
[v] and [^]:	38
[Enable]:	38
[PFL]:	38
[Select]	38



<i>Cue Sends Display with [Select] depressed</i>	39
<i>Speaker Mute and Solo pages</i>	39
<i>Speaker Select keys [1]-[8]:</i>	39
INPUT SELECT PAGE	40
<i>Input Select keys [1]-[8]:</i>	40
<i>Input Select page with Sum Enabled</i>	41
TALKBACK	41
<i>Internal Talkback and Listen-back Latching</i>	42
<i>TMC-1 Internal/External Microphone Gain adjust</i>	42
<i>XMon Talkback:</i>	42
<i>Penta Talkback:</i>	42
<i>Internal/External Talkback and Listen-back Latching [1] and [6]</i>	42
<i>TMC-1 Internal Microphone Gain adjust</i>	42
<i>TMC-1 External Microphone Gain adjust</i>	42
<i>Auto-T/B & Auto Mute</i>	43
ENGINEER HEADPHONE SOURCE SELECTION	44
SYSTEM SETUP	45
<i>Setup Menu:</i>	45
<i>Menu 01 – Meter Order</i>	45
<i>Menu 02 – Talkback Latch Enable</i>	45
<i>Menu 3 – TFT Brightness</i>	46
<i>Menu 4 – Top Display</i>	46
<i>Menu 5 – HUI AFL</i>	46
<i>Menu 6 – Mute Monitors when Listen Active</i>	46
<i>Menu 7 – Cue Output when Talkback Active</i>	47
<i>Menu 8 – Level Display Type</i>	47
<i>Menu 9 Talkback keys when Record Active</i>	47
<i>Menu 10 – Cal A / Cal B/Cal P Lock</i>	47
<i>Menu 11 – A / B Switch Lock</i>	47
<i>Menu 12 – Listen Speaker Output Assign</i>	48
TMC-1-PENTA: LISTEN1 IS SENT TO LEFT AND LISTEN 2 IS SENT TO RIGHT ADVANCED SETUP	48
ADVANCED SETUP	49
<i>Adv Menu 01 – Lock/Un-Lock User Keys</i>	49
<i>Adv Menu 02 – Calibration Mode Enable</i>	49
<i>Adv Menu 03– SPL/Dolby Display for 0dB Gain</i>	49
<i>Adv Menu 04– External T/B Dim</i>	50
<i>Adv Menu 05 – Volume Knob push switch Function</i>	50
<i>Adv Menu 06 – Page key function</i>	51
<i>Menu 07 – Select Key Off function</i>	51



<i>Adv Menu 08 – Ctrl Key Off function</i>	51
<i>Adv Menu 09, 10, 11, 12, 13, 14 – GPI Inputs</i>	51
<i>The default function for GP4 in is Ext T/B 2</i>	52
<i>Adv Menu 15 – AFL/PFL GPI Active level</i>	53
<i>Adv Menu 16 – GPI Record Tally Active Level</i>	53
<i>Adv Menu 17 – GPI Play Tally Active Level</i>	53
<i>Adv Menu 18 – GPO 1 Output Function</i>	53
<i>Adv Menu 19 – GPO 2 Output Function</i>	53
<i>Adv Menu 20 – GPO 3 Active High/Low</i>	53
<i>Adv Menu 21 – Maximum Gain</i>	53
<i>Adv Menu 22 – Factory Reset</i>	54
TMC-1-XMON ONLY ADVANCED MENU'S	55
<i>Adv Menu 23 – Alt Output Select</i>	55
<i>Adv Menu 24 – Communications</i>	55
<i>Adv Menu 25 – XPand Surround</i>	55
TMC-1-PENTA ONLY ADVANCED MENU'S	55
<i>Adv Menu 23 – Alt Output Select</i>	55
<i>Adv Menu 24 – Digital Headroom</i>	56
<i>Adv Menu 25 – Insert Makeup Gain</i>	56
<i>Adv Menu 22 –Set default Analogue Output level (On Menu Exit)</i>	56
<i>Adv Menu 27 – Write I/O Names To Penta / DAD AX/DX32</i>	58
<i>Adv Menu 28 – Reset Penta / DAD AX/DX32 to Defaults on Menu Exit</i>	58
TMC-1-DMON ONLY ADVANCED MENU'S	59
<i>Adv Menu 23 – Digital Headroom</i>	59
<i>Adv Menu 24 – Define Cue Mix Using</i>	59
TMC-1-AMON ONLY ADVANCED MENU'S	60
<i>Adv Menu 23 – Alt Output Select</i>	60
<i>Adv Menu 24 – Centre Speaker Fitted?</i>	60
<i>Adv Menu 25 – LFE Speaker Fitted?</i>	60
<i>Adv Menu 26 – Rear Surround Speakers Fitted</i>	60
<i>Adv Menu 27 – Communications</i>	61
<i>Adv Menu 28 – XPand Surround</i>	61
GPIO	62
<i>GPO Open Collector Outputs</i>	63
<i>Connecting a lamp to a Open collector outputs</i>	63
<i>Connecting a LED to a Open Collector Output</i>	63
<i>GPI Inputs</i>	65
<i>CONNECTING A SWITCH TO A GPI INPUT</i>	65
<i>CONNECTING TO THE AVID S6</i>	65
<i>CONNECTING TO THE AVID SYNC IO</i>	66



T/B MIC I/P	66
USB PORT	67
POWER	67
CONFIGURATION	67
HUI EMULATION	67
MIDI TIMECODE	67
FIRMWARE UPDATES	67
RECOVERY	68
NETWORK PORT	69
DHCP	69
OSC (OPEN SOUND CONTROL)	70
User Keys	70
OSC Slave O/P	72
OSC WiFi Connections	72
SETTING THE TMC-1 USER KEY FUNCTIONS	75
SETTING THE INPUT, OUTPUT, SPEAKER, METER AND USER NAMES	75
PRESETS	76
TMC-1 INTERNAL CONNECTIONS	79
Corrected XMon 15 pin Connections	80
TALKBACK & HEADPHONES CONNECTOR (XMON)TMC-1 HD15 (VGA) CONNECTOR	80
TMC-1 HD15 (VGA) CONNECTOR	81
CONNECTING A AVID ICON CONSOLE TO THE MTRX/DADAX32/NTP PENTA	82
TMC-1-XMON/A-MON RJ45 BREAKOUT BOX	83
CONNECTING THE TMC-1 HEADPHONES AND TALKBACK MICROPHONE TO THE DAD AX32, NTP PENTA 720 AND AVID MTRX	84
SINGLE MINI SPEAKER	85
GLOSSARY	85
CUSTOMER QUESTIONS	86

Introduction

The TMC-1 Monitor Controller is supplied with different software to suit the system controlled, TMC-1-XMon, TMC-1-Penta, TMC-1-DMon, TMC-1-AMon and TMC-1-Remote

Features

- Connects to Avid XMon via 15 pin 'D' connector.
- Connects Trinnov D-Mon via Ethernet. Use the TMC-1-DMon Manual with this manual
- Connects to DAD AX32/NTP Penta via Ethernet. Use the TMC-1-Penta Manual with this manual
- Connects to A-Mon via HD15 and DCC VGA Cable
- Protected calibration settings
- Internal Talkback Microphone
- Play tally from Play GP Input, MTC, HUI or LTC
- Record/Red Light GP Input/Output
- Record Tally from Record GP Input or HUI
- Auto-Mute Main LS, Studio LS, Talkback and Listen Back programmable from Play and Record GPI or HUI
- Before, During and After automation of Studio L/S and Headphone Output.
- Two separate talkback destinations
- Dual Calibration Settings By default 85 and 80 SPL
- Dedicated speaker solo/mute keys.
- GPIO for Talkback, Listenback, PFL/AFL
- Stem Input mixing with Mute and Solo
- A/B Input selection

This guide will introduce the TMC-1 with examples and illustrations

Further information and software upgrade and x-mon, d-mon, penta, amon version information can be found at

www.colinbroad.com/cbsoft/tmc1/tmc1.html for tmc-1-xmon

www.colinbroad.com/cbsoft/tmc1/tmc1penta.html for tmc-1-penta

www.colinbroad.com/cbsoft/tmc1/tmc1dmon.html for tmc-1-dmon

www.colinbroad.com/cbsoft/amon/amon.html for tmc-1-amon

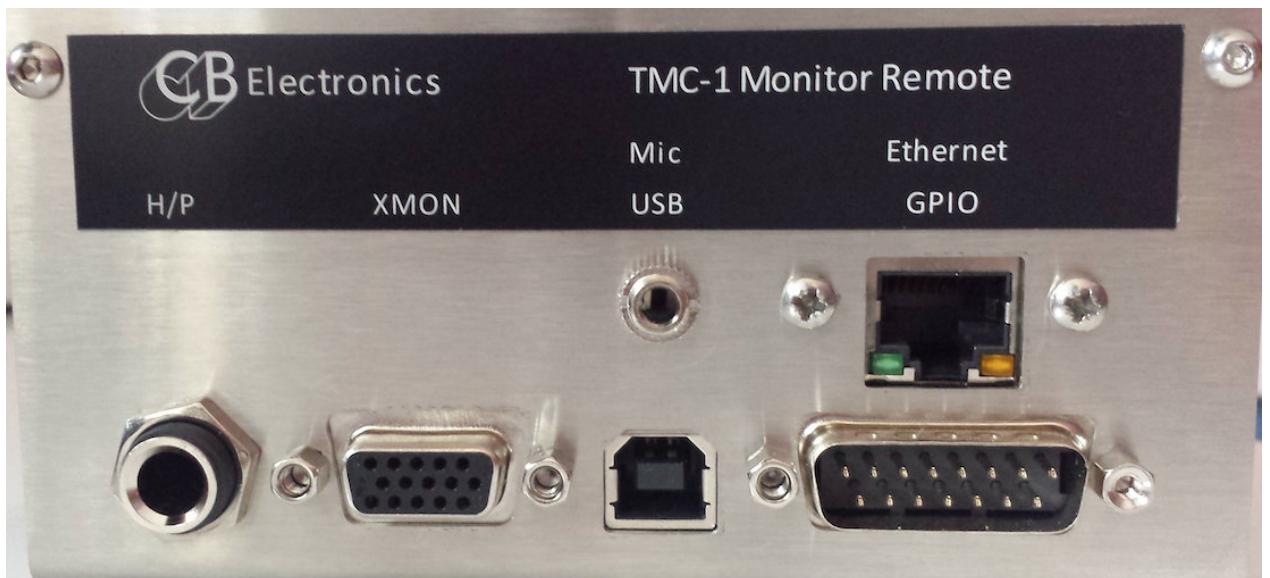
Connections

The TMC-1 has six connectors on the rear as follows

- HD15 female: XMon connection including RS-422 or MIDI, Headphone, and Talkback Microphone.
- USB: Used for Power and if connected to a DAW, can be used with MTC or HUI for auto talkback and Timecode Display.
- ¼" Jack: Headphone Cue monitor connection to X-Mon via 15 pin 'D'.
- 15 pin 'D' Male: GPIO in/out – Talkback 1 and 2 Enable/Selection, PFL/AFL enable, H/W Mute output, LTC input, Play Input, Rec/Red light in/out.
- 3.5mm Jack: Electret Microphone input (Laptop Mic)
- RJ45: Ethernet: Network connection

Installation

The TMC-1 is designed as a desktop unit but may be mounted flush with the desktop. The unit should be sited in any convenient position away from sources of moisture or excessive heat. The TFT display brightness may be adjusted via the Setup menu to optimise viewing under different lighting conditions.



TMC-1 and TMC-1-S6 , TMC-1 Rear view with Ethernet and T/B Mic Input

Power

Power the TMC-1 via the USB cable supplied. The TMC-1 may be powered directly from the USB power supply included or connected directly to the DAW.

Connecting to XMon or A-Mon

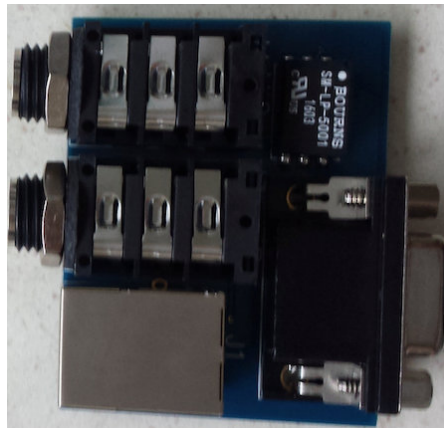
The HD15 Female on the rear can be connected to the A-Mon with a DDC VGA cable, a Conversion box is supplied to connect to the XMon.

XMon to HD-15 Converter



RJ45 Breakout Box

A Breakout box to RJ45 and Jacks is also available for use with both A-Mon and XMon, it may also be used on the TMC-1-Penta and TMC-1-DMon to access the T/B Mic and Headphone jack



The TMC-1 will recognize and configure XMon or A-Mon to the last TMC-1 setting on power up. If the XMON is not discovered, then No XMon/No A-Mon will be displayed in the top right of the TFT Display. Once good communications are established with the XMon/Amon, this will then be replaced as selected in the Setup Menu. You can select to see the XMon software revision; the software revision number of the XMon used to develop the TMC-1 was "Version 11".

Connecting to NTP DAD AX/DX32, NTP Penta or Avit MTRX

Connect via a network cable directly or via switch. The TMC-1 will detect any NTP device on the network independent of subnet address. Selecting the NTP device in the E-Net page will set the subnet address on the TMC-1. Alternatively set the correct subnet address on the TMC-1 using a USB cable and the TMC1-win or TMC1-mac program.

Connecting to D-Mon

Connect via a network cable directly or via switch. The TMC-1 will detect any D-Mon device on the network with the **same subnet address**. Selecting the D-mon in the E-Net page. Set the correct subnet address on the TMC-1 using a USB cable and the TMC1-win or TMC1-mac program.

PFL/AFL from the Mixer/Workstation

Available as a GPI input or via the USB Hui connection

Hard Ware Mute

GPO Output for external speaker switching, enabled on powerup, disabled by the mute key, enabled using [Ctrl]+[Mute]

Record/Play tallies for Auto Mute/Auto Talkback/Talkback Resume

Available as a GPI input or via the USB Hui connection, Play tally also available from LTC or Midi TC.

Setting up TMC-1

For the first time or after Major Software Update

Factory Default:

We recommend that you start from the factory default setting. This sets all gains and Trims at 0dB and selects the Main input and Output. To do this, you need to enter the advanced menu – see appendix B: Selecting the Advanced menu

Having setup the unit to its default setting, you can then adjust each input trim as required to achieve the required SPL level and trim the speaker outputs where necessary.

Note: **TMC-1 Penta** Reconfigure the TMC-1-Penta from the TMC1-Penta2 program after a factory reset

T/B Gain 1 & 2

Depress T/B 1 to adjust Talkback Microphone 1 gain [5]

Depress T/B 2 to adjust Talkback Microphone 2 gain [8]

Listen Gain 1 & 2

Depress Listen 1 to adjust Listen Microphone 1 gain

Depress Listen 2 to adjust Listen Microphone 2 gain

AFL Gain

Press the [Select] and [Page] keys to display the [Select Page] screen. Press Levels [5] and scroll down to AFL I/P. The gain may now be changed via the Encoder.

Protected/Calibrated Settings

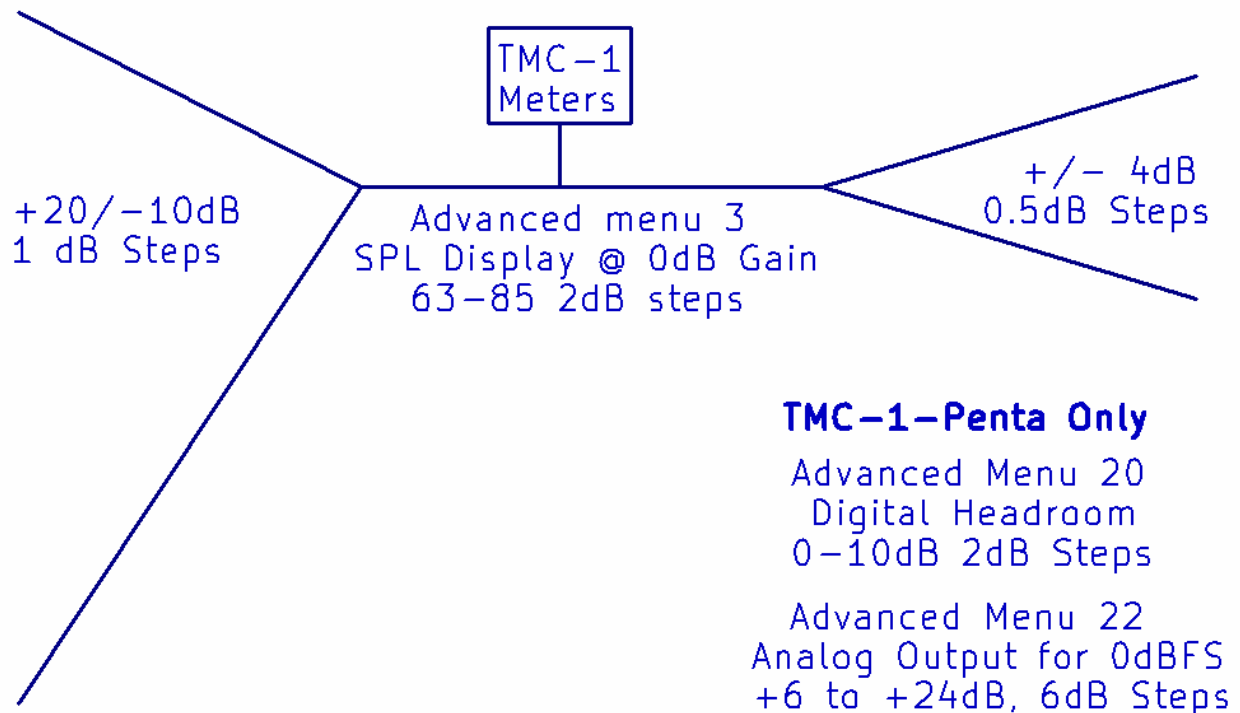
The gain structure of the TMC-1 monitor control is determined by a number of protected calibration menu's and settings. The only absolute setting is Gain, SPL and Dolby level are also determined by the speakers and their amplifiers.

TMC-1 Calibration

Advanced Menu 2 – Calibration Lock

Input Trim

Speaker Trim



To remove the protection and enable calibration

- 1) Depress [select] and [Page] to access the "Select Page"
- 2) Select [Setup]
- 3) Calibration enable is in the Advanced Setup, to access depress [Select] and [->] keys to access Adv Menu 01.
- 4) Depress the [->] key to access Adv Menu 02:- Calibration Lock
- 5) Use the [^] and [v] keys to select Unlock All
- 6) Use the [Page] to exit setup, the TFT display will now show "Calibration" in the top Right.

Input and output trims

The TMC-1 has programmable input and output gain trims, these may be set in Calibration Mode which is enabled in the advanced menu. The Input and output gain trims can be viewed on the "Levels" pages, to access depress [select] and [Page] to access the "Select Page" the depress the [Levels] key. Use the [->] key to step through the pages.

Input Trim:

Each input has a -10dB to +20dB input trim in 1dB steps, the Input trim is before the meters and is used to match levels between different inputs. For example the Dolby RMU default output level is -10dB. Normally we set the Input trim for the RMU at +10dB

1. Enable Calibration as above
2. Select the Meters page
3. Enable the input Selection [I/P Sel], this is a user defined key
4. Disable [Sum]
5. Depress and hold the selected input, a Red Box in the lower right will display the Input Trim
6. Adjust as required whilst holding selected input key depressed
7. Repeat as required for all inputs
8. Disable Calibration

Speaker Trim:

Each speaker output has a +/-4dB trim in 0.5dB steps. The output trim is after the meters and used for individual speaker calibration. To maximise signal to noise the range is limited, where necessary attenuate the speaker amplifier input or use a input pad.

The TMC-1-penta provides two extra global menu settings as follows

- "Adv menu 20 - Digital Headroom" Output attenuation on all outputs
- "Adv Menu 22 - Analogue Output for 0dBFS" on all Analogue outputs

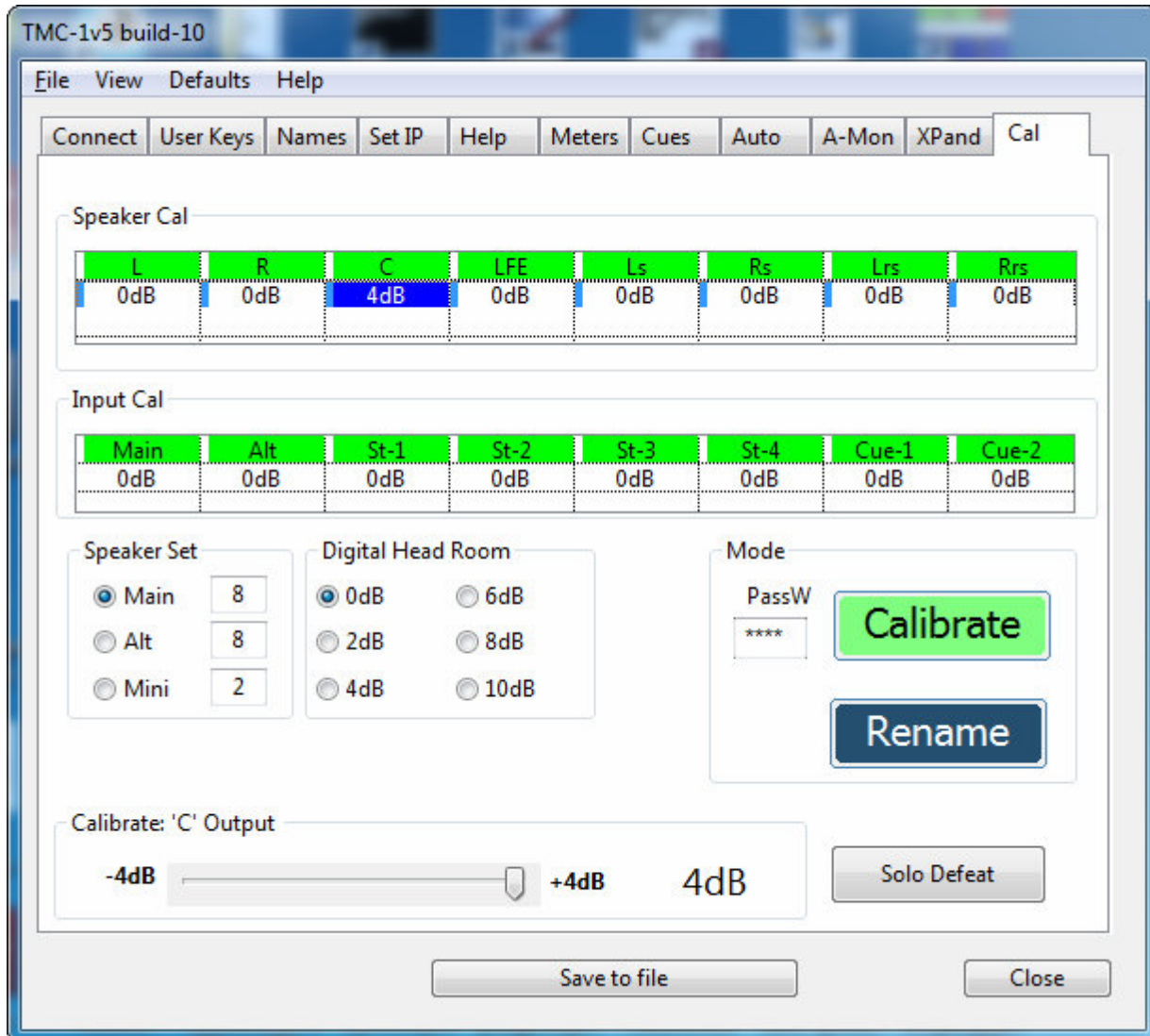
To set the speaker trim, select the Meters page then enable speaker Solo using the [Solo] key, by default this is the [Ctrl/Spk.Solo] key.

1. Enable Calibration

2. Connect input to Pink Noise at reference level (-20dBFS 0dBm nominal)
3. Enable the "Solo" page using the [Solo] key (Note Solo is a user function), Select the required output and speaker, on the Penta version you can step through the speaker banks using the [Solo] key.
4. Solo the individual speaker, hold the speaker key depressed, a Red Box in lower right will display the speaker trim
5. Adjust as required whilst holding speaker key depressed.
6. Repeat as required for all speakers
7. Disable Calibration

Using TMC-1v5 to adjust Trims

TMC-1v5 Software for Mac or Windows may also be used adjust the input and output trims, The password to enable calibration is "1984" (Big Brother is watching). You can save and recall the calibration using TMC-1v5.



The Number of speakers in each speaker Set can be defined and the speaker set selected.

Selecting a speaker will also solo the speaker when Calibrate is illuminated Where appropriate the Digital headroom and Analog Level for 0dBFS will also be displayed.

The Solo Defeat key will remove any speaker solo.

It is recommended that the settings are saved to a file after Calibration for later recall.

Mono Trim:

When Mono is enabled the output has a +/-4dB trim in 0.5dB steps.

1. Enable Calibration
2. Select the Meters page
3. Hold the [Mono] key depressed (Mono is a User key), a Green Box in the lower right will display the Mono trim
4. Adjust as required whilst holding [Mono] Depressed
5. Disable Calibration

7.1, 5.1 and User Trim:

When 7.1 or 5.1 are enabled the surround outputs have a 0dB to -12dB trim in 0.5dB steps.

1. Enable Calibration
2. Select the Meters or Input/Output page
3. Hold the [7.1] or [5.1] User key depressed, a Green Box in the lower right will display the 7.1 or 5.1 trim
4. Adjust as required whilst holding [7.1] or [5.1] Depressed
5. Disable Calibration

Atmos, 7.1 and 5.1 calibrations

The setup procedure is as follows:

- 1) Setup the individual speaker trims in Atmos(immersive) mode
- 2) Select 7.1 is selected and adjust the 7.1 global surround trim until the surround level is correct.
- 3) Select 5.1 or 5.1 DMix and adjust the 7.1 global surround trim until the surround level is correct.

4) Example: The effect of adding trims for

Format	Ls	Rs	Lb	Rb
Atmos	+1dB	+0.5dB	-0.5dB	0dB
7.1 Trim = -2dB	-1dB	-1.5dB	-2.5dB	-2dB
5.1 or 5.1 DMix Trim = -3.5dB	-2.5dB	+3dB	-4dB	-3.5dB
Sur-3dB	-2dB	-2.5dB	-3.5dB	-3dB

Note. the 5.1 and 7.1 calibration is very important when multiple speakers are used for each surround channel.

Cal A/B Trim:

The factory reset value for Cal A is 85 and Cal B is 80. However, these values can be adjusted when calibration is enabled.

1. Enable Calibration Mode
2. Whilst in the Advanced Setup, find "SPL @ 0dB Gain" Menu and set as close as possible (2dB Steps)
3. Hold [Cal A] or [Cal B] depressed.
4. Adjust as required
5. Disable calibration

Cal P

There is no adjustment for Cal P as it is defined with the preset.

Calibrating the SPL Listening Level

The TMC-1 has 3 level display formats, SPL, Gain and Dolby, only Gain is absolute, SPL and Dolby level are relative and calibrated by the user. The object of the calibration is to adjust the output and speaker amplifier gain so that the monitor gain at the required listening level is as close to 0dB as possible.

- 1) Decide on the listening level – for Film Dolby specify a SPL of 85dBA.
- 2) Adv. Menu 2 - Enable Calibration mode on the TMC-1 (Unlock All)
- 3) Adv Menu 3 – Set the SPL Level Required +/-1dB
- 4) Menu 14 – Set the Display mode to dB
- 5) TMC-1-Penta Only – Adv menu 22 – Set the Line level of 0dBFS
- 6) Exit menu and enable Speaker Solo, whilst holding the speaker key depressed adjust the trim to 0dB
- 7) Select a Pink Noise Source to all channels and set up a SPL meter
- 8) Adjust the amplifier gain so that when the TMC-1 the gain display is approximately 0dB for the required SPL level. Switch to SPL display mode and use the TMC-1 speaker trim to make fine adjustments.
- 9) Repeat for each Speaker

Why is there no overall output level adjustment for the speaker sets?

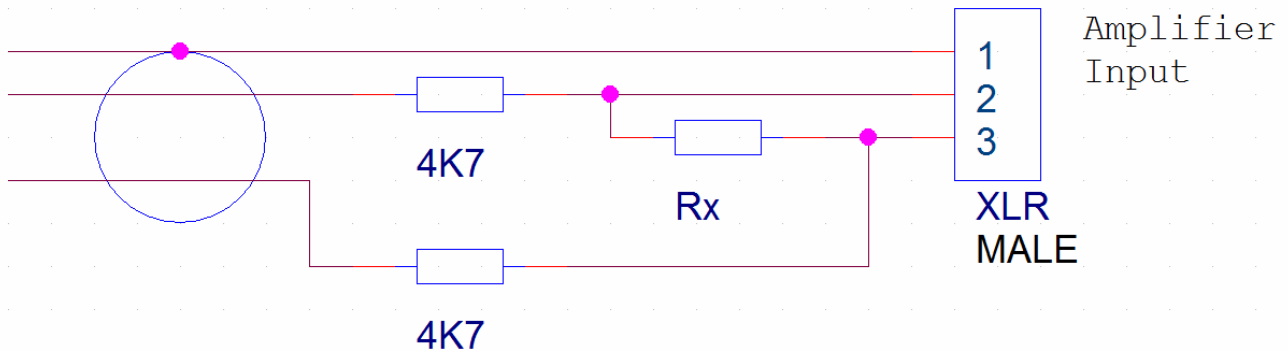
In general amplifiers have too much gain, turning down the output on both analogue and digital monitor systems would cause a reduction in the dynamic range, as this attenuates the signal but not the noise. The optimum solution is to turn down the signal at the input of the power amp, this will attenuate both the signal and any noise from the monitor system. Where this is not possible use input pads on the input of the power amp as detailed below.

For a detailed analysis of the XMon setup as an example see this document

http://www.colinbroad.com/cbsoft/tmc1/xmon/Optimise_xmon.pdf

Power Amplifier Input Pad

To optimise the signal to noise the TMC-1 only provides +/- 4dB of gain adjustment in 1/2dB steps. Where there is a input potentiometer on the amplifier you can use this as a coarse gain adjustment. Where there is none then you need to add a suitable attenuator. Below is a design for a simple attenuator with appropriate values. The attenuator can be built into the amplifier input connector.



Attenuation	Rx
-9.5dB	4K7
-11.7 dB	3K3
-14.4 dB	2K2
-17.2 dB	1K5
-20.3 dB	1K

Operation

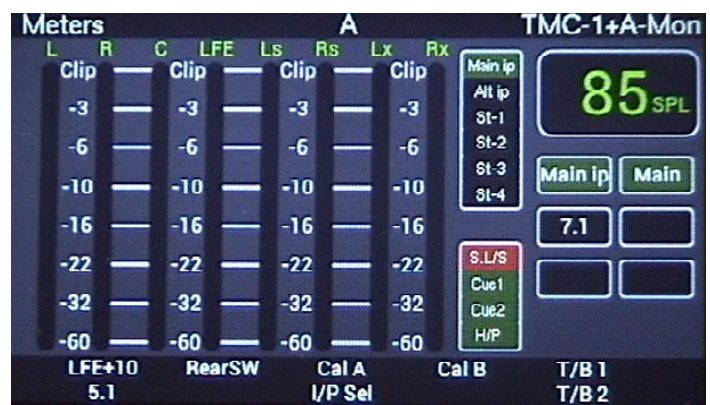
The TMC-1 control panel provides access to all the available functions of Monitoring hardware. There are a number of different pages that may be selected on the TFT Display. The Two main pages are selected by depressing the [Page] key quickly to display the screens shown below.

The legends at the bottom of the screen correspond to the button layout of the TMC-1.

Meters Page:

The Meters page is the default page. Depressing the Page key will always return to the Meters page

The functions of the 8 keys below the screen are user defined and displayed at the bottom of the screen

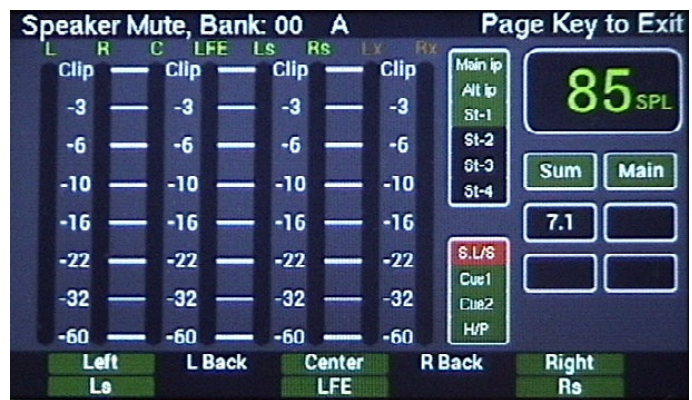


Speaker Mute:

Mute is a user key, assigned by default to the [Select] key.

Where more than 8 outputs are available use the [Mute] key to select the Bank.

The image indicates Lb and Rb muted.



Speaker Solo Page:

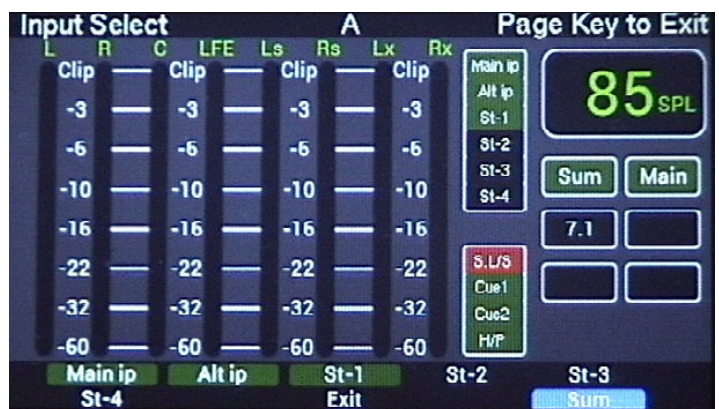
Solo is a user key, assigned by default to the [Ctrl] key.

Where more than 8 outputs are available use the [Solo] key to select the Bank.

The image indicates Centre solo.



Input Select with Sum Enabled



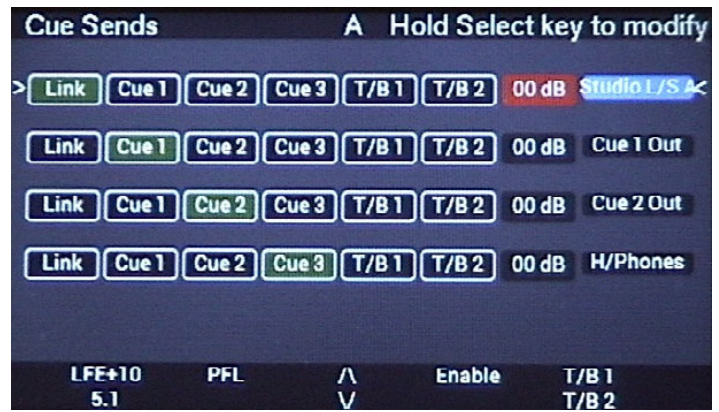
Cue Sends Page:

XMon has 5 Cue outputs, All others have 4 Cue outputs.

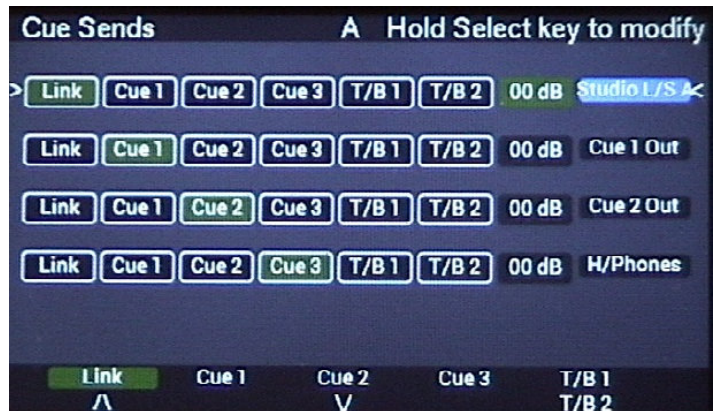
Use the [Select] key to enable the source selection and gain for the selected cue output.

[Enable] Enable/mute the selected output.

[PFL] Monitor Selected Cue output



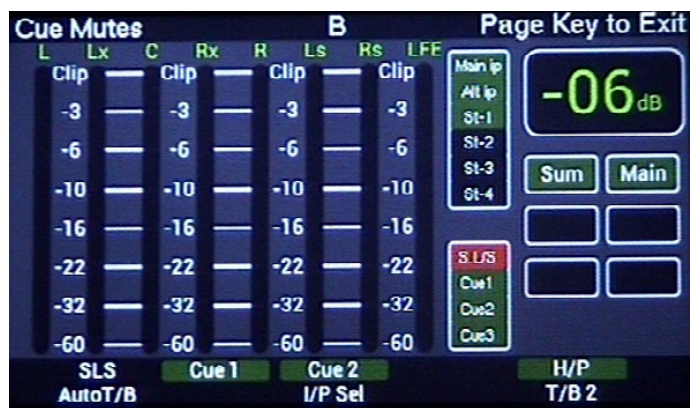
Cue Sends Page with Select Depressed



Cue Mutes

The Cue Mutes page allows you to enable/disable and adjust the gain of any of the cue outputs.

TMC-1-Penta : This page is replaced by the Cue Meter page which also meters the cue outputs.



Select Page:

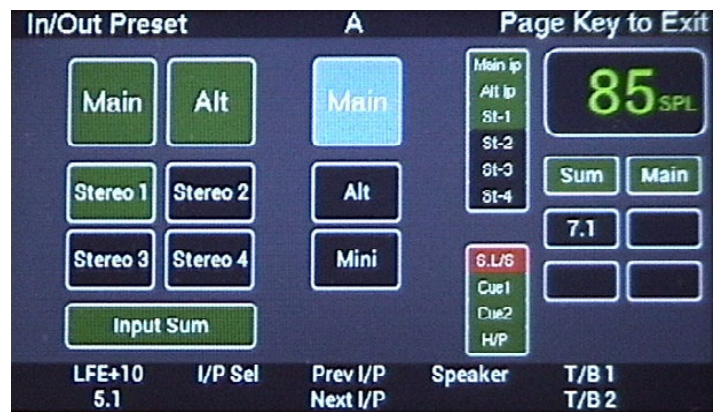
Depressed the [Select] and [Page] key will access the Page Select Screen as Shown. Keys 1-8 will access extra screens.

The current function for the keys around the knob and knob switch. Green switches may be changed from this screen Blue switches may be changed in the setup menu.



In/Out Preset

The Sum key enables/disables the Sum Mode. If Sum is not enabled, then the Input key selects the individual inputs. If Sum is enabled, the Input Inc will display the input select page.

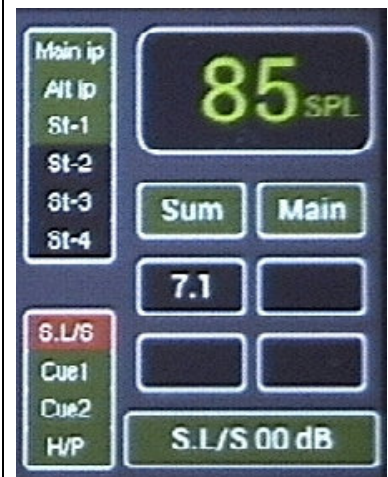


Information display: Shown Below

Having selected several pages, you will have noted that the right hand section of the display is repeated in all but one of the above displays. This Section displays the following information

NOTE: Talkback functions can be momentary or latching

- SPL Level (Green when Normal, Red when Mute or Dim Active) This display is selectable between SPL, Dolby Level or Gain.
- Selected Source including Listen back
- Mute/Dim
- Format : Mono/Stereo/5.1/7.1 /
- Talk/Back on/off, (Blue for internal T/B, Red for External T/B only)
- Studio Loudspeaker on/off
- Record/Play Indicator
- Knob control destination if not the Main output level. In this case, the knob controls Internal T/B Gain.



Format

The TMC-1 user keys allow the selection of multiple signal formats Mono, Stereo, 2.1, 5.1, 7.1, LCRS, Multi, I-Max, Auro, DTS-X, Atmos, Stereo Downmix, 5.1 DownMix. In most cases the format is used to enable/disable inputs and outputs except for the following

- Mono** Sum of Left and right Stereo Down mix signals
- St. Down** Stereo Downmix, Speaker Mute and Speaker Solo become input Mute and Input Solo. The Stereo Downmix is available as an output.
- 5.1 Down** 5.1 Downmix from 7.1 input, side and back surround are summed.

Note. The X-Mon does not support Stereo Downmix or 5.1 Downmix or input muting and the Mono is the sum of left and right only.

Auto Mode:

The Auto Mode pages (shown below) can be selected from the Select Page screen ({Select} + [Page] to access) , You can switch back to the Meters page at any time using the [Page] key alone.

The Auto mode is controlled by transport tallies; two GPI inputs are provided Play and Record and Hui via the USB port. If there is no Play tally output from your DAW you can use either MTC via the USB connector or LTC via the GPIO connector as a play tally. You can change the polarity of the GPIO inputs in the Setup menu. You can also program the User key to act as a Play or record Start/Stop.

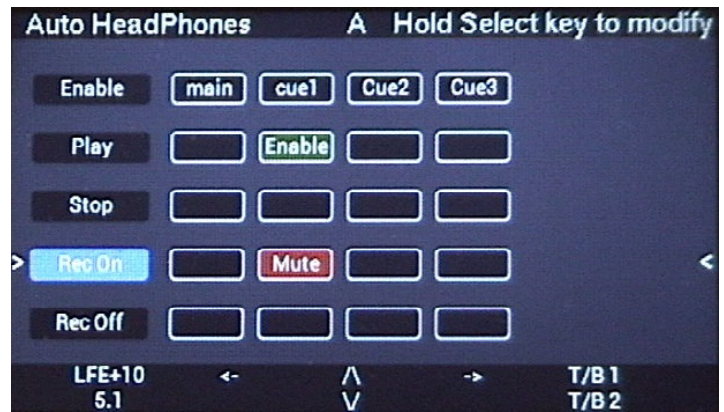
For each output there is an enable key (Blue = Enabled) and then Play Start, Play Stop, Record Start, Record Stop, where you can determine the action. This provides an equivalent to the Before/During/After selection used in the USA

<p>Auto Mute Page</p> <p>Enable/disable different outputs on state change there are three choices on change of state 1) No Change, 2) Mute, 3) Enable. The action is only performed on change. To set, select line using [<] and [>] then depress the Select key. The Enable line is used to enable disable individual columns</p>	
<p>Auto Studio L/S</p> <p>Not yet Available</p> <p>Before, During and After style monitor control of Studio L/S output. Switching on change of state as per Auto mute. To set, select line using [<] and [>] then depress the Select key for Off/Mute/Enable of the selected sources.</p>	

Auto Headphones

Not Yet available

Before, During and After style monitor control of the headphone output. Switching on change of state as per Auto mute. To set, select line using [**<**] and [**>**] and then depress the Select key to choose the sources.



Auto Talkback

The auto talkback will disable both T/B1 and T/B2 but only enable T/B1

Note. You can enable both Internal and External T/B, the External Talkback can only be controlled manually with External T/B keys. To disable all talkback's, listen back's and solo's use the Defeat key or depress the Knob when active.

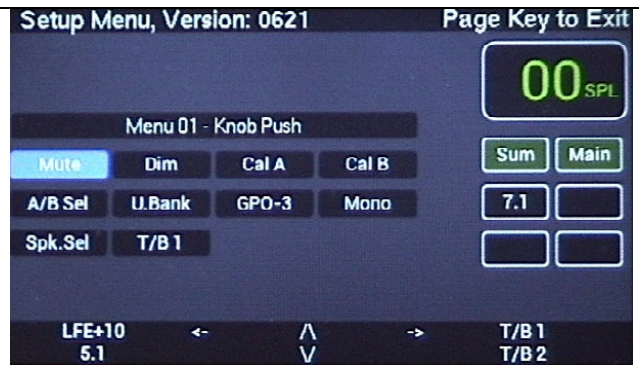
User Keys, GPIO's and Auto:

The User key can also be used as a Manual Red Light Control. At the beginning of a record pass, you can disable both Listen back and Talkback, mute the studio speakers and enable the Red light (Record/Red Light GPIO Output) from one key.

Setup Menu:

The Setup menu is selected from the Page Select ({Select} + [Page] to access). To exit the Setup page, use the Page key to return to the Meters page.

The Setup menu is described in more detail later in this manual. The [<] and [>] keys select the menu page, the [^] and [v] keys (keys [3] and [7]) change the selected value. The [Listen] key enables/disables Listen back and the [T/B] key enables/disables talkback; the associated LED indicates status.



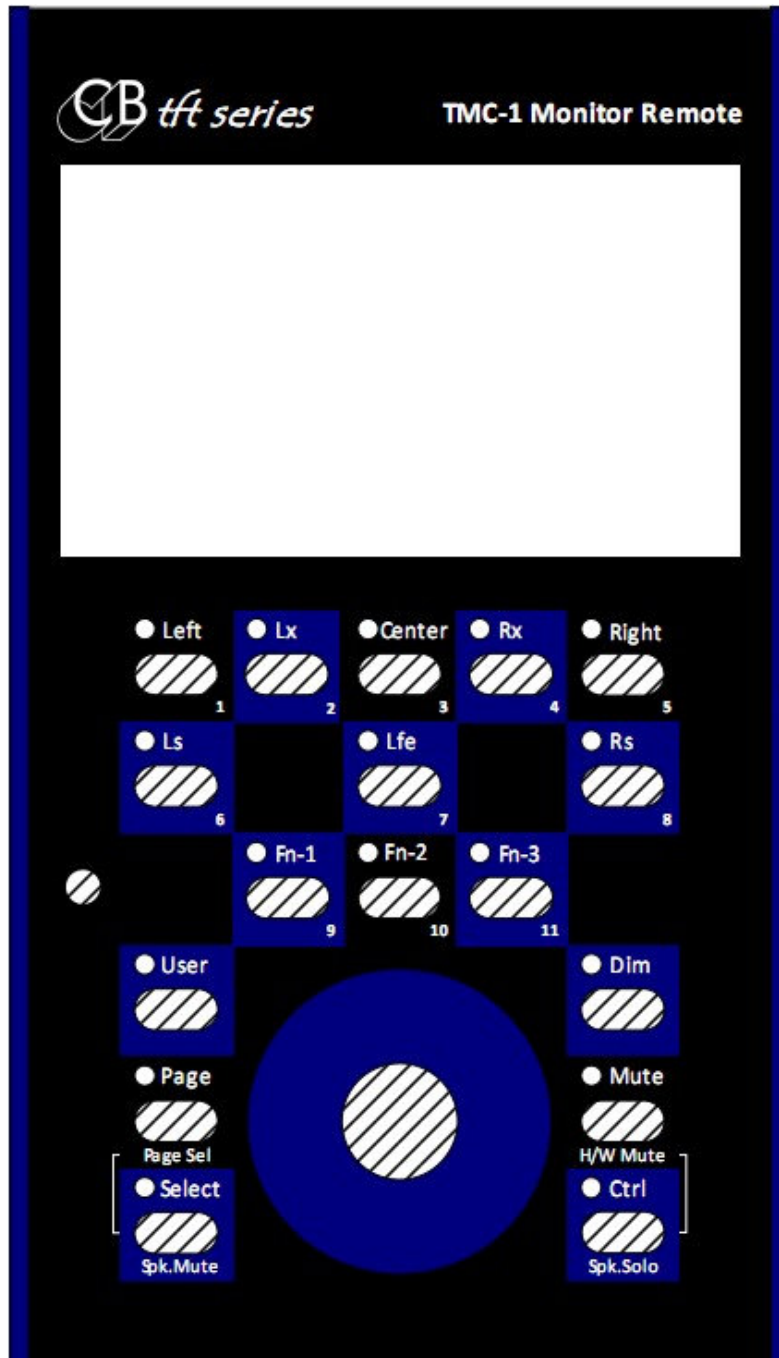
The remaining pages are available from the Select Page screen. As usual, depressing the [Page] key alone will return you to the Meters page. The most important extra page is shown below [Levels]

T/B, L/B, AFL Page

On the Talkback and Listen page you can see the gains for each input displayed, including AFL. The Green box on the lower Right of the screen is displayed whenever the Encoder is not controlling the Monitor Volume. In this case, Talkback 1 input gain has been selected and can be adjusted via the Encoder. Use the [<] and [>] keys to change the selection



TMC-1 Controls



[Mute] Key:

Mute the Monitor output, when active a Red **MUTE** icon will be displayed in the TFT.

Note: Mute will also reset any active Solo.

[Dim] Key :

Dim the Monitor output, Hold [Dim] key down to adjust the dim amount, between – 10 to -40dB in 1dB steps. A green icon with the dim value is displayed in the centre of the screen.

[Page] Key:

Select displayed TFT page:

- Use to return to the meters page, When the Meters are displayed the Page key function may be programmed from the Setup menu. Default action: Select the second Bank of user keys
- Select and Page together to display the Page select menu.

[Select] and [Ctrl] Keys:

These keys may be used with other keys to modify their behaviour, for example [Select]+[Page] to access the Select page. When used alone their action on release may be programmed from the Menu. Their Default action is as follows

[Select]: Speaker Mute

[Ctrl]: Speaker Solo

[Select] Key:

The function of this key when is dependent on the displayed page as follows

- 1) Cues Page: Use with keys [1]-[8] to select Cue Send content
- 2) Auto Pages: used with keys [1]-[8] to select auto function
- 3) Other Pages: User programmable from the Menu, default = Speaker Mute

[Ctrl] Key:

The function of this key dependant on the displayed page as follows

- 1) All Pages: used with the [Mute] key to enable the hardware mute and Soft Mute. The hardware mute is disabled with the normal Mute.
- 2) Other Pages: User programmable from the Menu, default = Speaker Solo

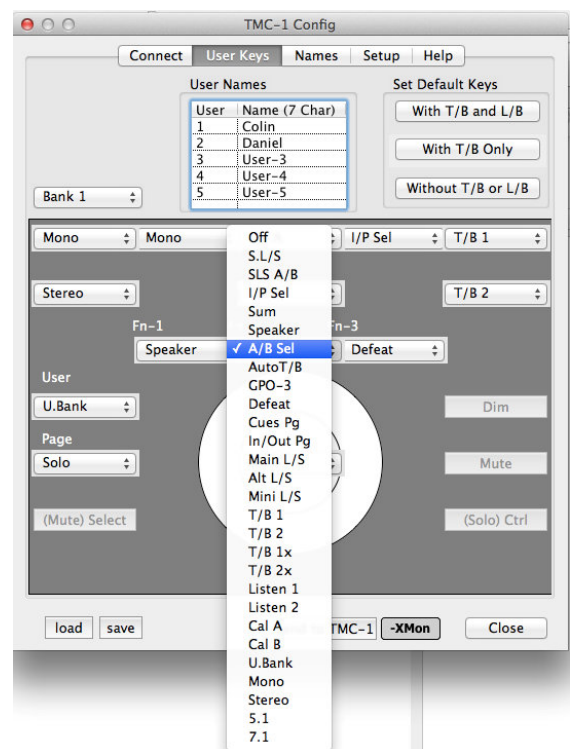
User Function Keys:

Not all users require the same functions, too many keys are confusing. The compromise that we have made is to make most keys user programmable. User Keys 1-8 below the display have two banks, you can use another key (by default the [Page] key) to select between banks. You can program identical functions on keys allowing you to change only a few keys in the second bank.

Note. Not all macros are available on all version's, the TMC-1 program will only display available macro's

A screen shot from the TMC-1 configuration tool is shown to the right. Use the Bank buttons to select the bank to program. If you just want to modify individual keys read the current setup before changing. You can save the user setup to file and download you own preferences or change them depending on the job you are currently performing.

After a factory reset the user key functions are set to their default function, you can modify the user keys directly from the TMC-1 (You can lock this in the advanced setup) by holding down the Select key or Control key and using the user key to select its function. It is easier to use the TMC-1 configuration tool which is available for Mac or Windows and connects via the USB from which you can save and recall your selections.



When programming the User keys you should remember that keys 2,3,4,7 are not available on all screens, and that keys 1-8 are used for Speaker/Stem mute or solo.

Note: Both Cal A and Cal B can be adjusted +5/-10dB when calibration mode is enabled. When Cal A or Cal B is depressed, the Cal level can then be adjusted by the main knob.

Display Keys [1] – [8]

The functions of the 8 keys in the top two rows (1..8) are used as user definable keys unless defined by the selected page of the TFT display when they will be defined by the selected page. As user keys they are arranged in two banks providing up to 16 user keys (By default the Page key selects between the banks)

[User]:

The function of the [User] key may be selected when the page select screen is displayed, Hold the select key depressed and repeated depressions of the [User key] will select and display its function, the LED follows on the function selected. The Default function of the User key is [SLS].

Function Keys: [Fn-1], [Fn-2], [Fn-3]

Switches 9, 10, 11, these Function keys can be user-defined from the page select screen (access using [Select]+[Page]) by holding the select key depressed and repeated depressions of the relevant key. The LED's follow the selected function.

The User Key and function keys are not banked as their function is only displayed in the Select Page screen.

The alternate functions of the Page, Select, Ctrl and knob are programmable from the Menu.

Function Keys - normal operation after factory Reset

[Fn-1] (9) Speaker Select

[Fn-2] (10) A/B - Select between two In/Out selections A and B, the Display shows the current selection in the middle Top.

[Fn-3] (11) Solo Defeat - Defeats both Stem Solo and Speaker Solo

Knob Push

The Knob Push action can be programmed from the Setup Menu.

Note. If any of the below are active the initial knob push will clear them and require a second knob push to perform any programmed action

Solo, Talkback, listen back, AFL, PFL and Cal Lock

When programming the User keys you should remember that keys 2, 3, 4, 7 are not available on all screens, and that keys 1-8 are used for Speaker/Stem mute or solo.

User Key function Table

User Keys-Common to All

OSC	Label	Function
0	-	No Function
	I/P Inc	If Sum Disabled: Step between inputs If Sum Enabled: Display Input Select page
	I/P Sel	Display Input Select page
3	Sum	Enable Input Sum
	Speaker	Select between Main, Alt and Mini Outputs,
	Spk Solo	Enable Speaker Solo Page Where more than 8 speakers are defined Repeated depressions of this key will increment the speaker Bank
	Spk Mute	Enable Speaker Mute Page Where more than 8 speakers are defined Repeated depressions of this key will increment the speaker Bank
7	A/B Sel	The A/B switch allows you to switch quickly between two different input selections, the current input selection is saved when you switch and recalled when you switch back.
8	AutoT/B	Enable/Disable Auto T/B and Listen Back as programmed on the Auto Mute Page

9	A/R T/B	Enable/Disable Auto Resume Talkback. The current talkback selection will be disabled when entering play and resumed when entering Stop.
10	Auto SLS	Enable/Disable Auto SLS as programmed on the Auto Mute Page
11	GP0-3	Enable/Disable GP Output 3 – The name that you assign will be displayed
12	Defeat	Defeats Speaker Solo and Stem Solo. Note. The Defeat key will also defeat any latched talkback or Listen Back.
	Cues Pg	Selects the Cues page
	In/out Pg	Selects the In/Out Page
13	Main LS	Select Main L/S, Note. The name that you assign will be displayed in the TFT Display
14	Alt LS	Select Alt L/S, Note. The name that you assign will be displayed in the TFT Display
15	Mini LS	Select Mini L/S, Note. The name that you assign will be displayed in the TFT Display
16	Main ip	Select Main I/P. Note. The name that you assign will be displayed in the TFT Display
17	Alt ip	Alternate input. Note. The name that you assign will be displayed in the TFT Display
18	I/P-3	Input 3 or Stereo input 1 Note. The name that you assign will be displayed in the TFT Display
19	I/P 4	Input 4 or Stereo Input 2. Note. The name that you assign will be displayed in the TFT Display

20	I/P-5	Input 5 or Stereo Input 3 . Note. The name that you assign will be displayed in the TFT Display
21	I/P-6	Input 6 or Stereo Input 4 . Note. The name that you assign will be displayed in the TFT Display
22	I/P 7	TMC-1-Penta Only Extra input
23	I/P-8	TMC-1-Penta Only Extra input
24	SLS	Studio Loudspeaker Cue Send Mute On/Off. To Adjust the SLS gain, Hold the key depressed and use the large knob.
25	Cue 1	Cue Send Mute On/Off. To Adjust the Cue 1 gain, Hold the key depressed and use the large knob.
26	Cue 2	Cue Send Mute On/Off. To Adjust the Cue 2 gain, Hold the key depressed and use the large knob.
	Cue 3	XMon Only - Cue Send Mute On/Off. To Adjust the Cue 1 gain, Hold the key depressed and use the large knob.
27	H/P	Head Phone Cue Send Mute On/Off. To Adjust the H/P gain, Hold the key depressed and use the large knob (Cue 3 on TMC-1-D-Mon)
2	Pset 1	Enable Preset 1 Default 7.1 Film (See presets description) the TMC-1 will display the Preset name, each time this key is depressed the preset will set the system to the calibrated level.
4	Pset 2	Enable Preset 2 Default 5.1 TV (See presets description) the TMC-1 will display the Preset name, each time this key is depressed the preset will set the system to the calibrated level.
5	Pset 3	Enable Preset 3 Default Stereo Down (See presets description) the TMC-1 will display the Preset name, each time this key is depressed the preset will set the system to the calibrated level.
6	Pset 4	Enable Preset 4 (See presets description) the TMC-1 will display the Preset name, each time this key is depressed the preset will set the system to the calibrated level.
28	T/B 1	Enable Internal Talkback 1, See Cues page for talkback routing. A quick push and release will latch if enabled (Menu 06). Whilst depressed allows Internal Talkback gain adjust.

29	T/B 2	<p>Enable Internal Talkback 2, See Cues page for talkback routing. A quick push and release will latch if enabled (Menu 06).</p> <p>Whilst depressed allows Internal Talkback gain adjust.</p> <p>Not Fitted on TMC-1-DMon</p>
30	T/B All	<p>Enable Internal Talkback To All cue Outputs, ignores cue enables.</p> <p>Whilst depressed allows Internal Talkback gain adjust.</p> <p>Not Fitted on TMC-1-DMon</p>
31	T/B 1x	<p>Enable External (Producers) talkback Mic to T/B 1 - see Cues page for talkback routing. A quick push and release will latch if enabled (Menu 06)</p> <p>(Not fitted on TMC-1-DMon)</p> <p>Whilst depressed allows External Talkback gain adjust.</p>
32	T/B 2x	<p>Enable External (Producers) talkback Mic to T/B 2 - see Cues page for talkback routing. A quick push and release will latch if enabled (Menu 06)</p> <p>Whilst depressed allows External Talkback gain adjust.</p>
33	T/B Alx	<p>Enable External Talkback To All cue Outputs, ignores cue enables.</p> <p>Whilst depressed allows External Talkback gain adjust.</p> <p>Not Fitted on TMC-1-DMon</p>
34	Listen 1	<p>Enable/Disable Listen Inputs 1, (a quick push and release will latch)</p> <p>Whilst depressed allows listen input 1 gain adjust.</p>
35	Listen 2	<p>Enable/Disable Listen Inputs 2, (a quick push and release will latch)</p> <p>Whilst depressed allows listen input 2 gain adjust.</p>
36	A/R Listen	<p>Enable/Disable Auto Resume Listen back. The current Listen back selection will be disabled when entering play and resumed when entering Stop.</p>
37	Cal A	<p>Set Output to Cal A – Default 85dB SPL (adjustable when calibrate is enabled)</p> <p>When the Cal menu is set to locking this key will disable the monitor knob when the LED is lit.</p>
38	Cal B	<p>Set Output to Cal B – Default 80dB SPL (adjustable when calibrate is enabled)</p> <p>When the Cal menu is set to locking this key will disable the monitor knob when the LED is lit.</p>

1	Cal P	Set Output to the current preset calibration level When the Cal menu is set to locking this key will disable the monitor knob when the LED is lit.
	U.Bank	Switch User keys 1-8 between Bank 1 and Bank 2,
	Pk.Hold	Enable/disable peak hold on meters
39	AFL	Enable/Disable AFL – Use when the AFL GPI is not connected
40	Sur-3dB	Adjusts Surround level -3db (Modifies Ls, Rs, Lb, Rb levels)
41	Mono	Select Mono Output, and modify output level for mono If a speaker is solo'd when Mono is enabled, it is remembered and the same speaker will be solo'd every time Mono is enabled. Note: On the TMC-1 Penta when Mono is enabled if a Centre speaker is defined the output is routed to the centre speaker. If no Speaker is defined it is routed to Left and Right Speakers.
42	Stereo	Select Left and Right speakers only, the TMC-1-Penta and TMC-1-AMon switch to Stereo display mode - L R L-SLS-R L-H/P-R
43	2.1	Select 2.1 Output
44	5.1	Select 5.1 Output, Modify Surround output levels for 5.1, defaults to -3dB.
45	7.1	Select 7.1 Output, Modify Surround output levels for 7.1
46	LRCS	Select LRCS Output, Modify Surround output levels for LRCS
	Multi	Enable all outputs
TMC1-Xmon Only		
47	Atmos	Select Atmos Output
	Cue gain	Selects "Cue Gain" page, Keys 1,2,3,4 & 5 assigned to Cue 1..Cue 5 enable and gain set when depressed
	Rear SW	When used with XPand Enable/Disable rear subwoofer output.
TMC1-Penta Only		

47	Atmos	Select Atmos Output
48	St Down	Monitor Stereo Down mix - All Inputs are enabled the Mute and Solo keys switch inputs instead of outputs.
49	Dn Mix	Monitor Multi-track Down mix
	L-R	Mono Sum with Phase inversion on right
	Swap L/R	Stereo Mix with Left and Right Outputs reversed
	MicLine	Display Mic/Line input card page, by default option card 1, can be defined in TMC1-Penta2
50	Bass-X	Enable[Lit]/Disable Bass Extension – Default is OFF
51	LFE +10	Enable extra 10dB gain on LFE channel
	Meter cues	Selects “Meters Cues” page Meters show Cue Output levels Keys 2,3,4 & 7 assigned to Cue 1..Cue 4 enable and gain set when depressed
	MicLine	Enable the MicLine Page, Meter levels, and control analogue input card
	Insert	Enable(Lit)/Disable Inserts in speaker outputs, default = Disable, for information see the TMC-1 Penta2 software 'Inserts' page.
	Slate	Enable and Adjust gain of T/B Output, Enable Internal T/B Mic
	SlateX	Enable and Adjust gain of T/B Output, Enable external T/B Mic
53	SLS PFL	Listen to SLS Cue Mix. when depressed Adjust SLS Cue Gain
	Q2 PFL	Listen to Cue O/P 2 Mix. when depressed Adjust Q2 Cue Gain
	Q3 PFL	Listen to Cue O/P 3 Mix. when depressed Adjust Q3 Cue Gain
54	H/P PFL	Listen to H/P Cue Mix. when depressed Adjust H/P Cue Gain
	Ph Source	Select “Phones Source” pages headphones – Hold this key depressed to adjust the phones volume.
52	Ph Follow	Phones Source follows monitor
	Phones	Enable/Disable headphones – Hold this key depressed to adjust the phones volume. When enabled PFL and AFL are routed to the phones
	PFL->Ph	Route PFL to Phones output Note: Follows Phones enabled/Disabled

TMC-1-DMon only		
48	St Down	Monitor Stereo Down mix
	Cue Mutes	Selects "Cue Mutes" page, Keys 1, 2, 3 & 5 assigned to Cue 1..Cue 4 enable
50	Bass-X	Enable[Lit]/Disable Bass Extension
51	LFE+10	Enable extra 10dB gain on LFE channel
	Slate	Enable Slate 1 and Adjust gain of Talkback #1 Input
	SlateX	Enable Slate 2 and Adjust gain of Talkback #2 Input
	AES Ins	AES Insert Enable/Disable for selected input Note: [Alt Enb] must be enabled
	Alt Enb	AES 1-8 Insert: Enable/Disable Alternate input on Digital sources
52	Ph Follow	Trinnov Phones Source follows monitor
	Phones	Enable/Disable headphones – Hold this key depressed to adjust the phones volume. When enabled PFL and AFL are routed to the phones output
	PFL->Ph	Connect PFL to phones Note: Follows Phones enabled/Disabled
	Ph Source	Select "Phones Source" pages headphones – Hold this key depressed to adjust the phones volume.
	Phones A/B	Switches between two input selections for the headphones
	Preset	Select "Sessions Snapshots"& "Studio Presets" Pages
	DRC	Enable/Disable DRC
53	SLS PFL	Listen to SLS Cue Mix. when depressed Adjust SLS Cue Gain
	Q2 PFL	Listen to Cue O/P 2 Mix. when depressed Adjust Q2 Cue Gain
	Q3 PFL	Listen to Cue O/P 3 Mix. when depressed Adjust Q3 Cue Gain
54	H/P PFL	Listen to H/P Cue Mix. when depressed Adjust H/P Cue Gain
	Optimize	Enable/Disable Optimize on current speaker set –Not yet implemented on D-Mon

TMC-1-AMon only		
55	I-Max	
56	Auro	
57	DTS-X	
47	Atmos	Select Atmos Output
48	St Down	Monitor Stereo Down mix - All Inputs are enabled the Mute and Solo keys switch inputs instead of outputs.
49	5.1 Down	Enable 5.1 Down Mix from 7.1
50	Bass-X	Enable[Lit]/Disable Bass Extension
51	LFE+10	Enable extra 10dB gain on LFE channel
	Rear SW	When used with XPand Enable/Disable rear subwoofer output.
	Meter cues	Selects "Meters Cues" page Meters 4-8 show SLS and H/P Output levels Keys 2, 3, 4 & 7 assigned to Cue 1..Cue 4 enable and gain set when depressed
	Slate	Enable Internal T/B Mic - Adjust/Set internal TB Mic gain – Slate O/P
	SlateX	Enable external T/B Mic - Adjust/Set External T/B Mic gain – Slate O/P
53	SLS PFL	Listen to SLS Cue Mix. when depressed Adjust SLS Cue Gain
54	H/P PFL	Listen to H/P Cue Mix. when depressed Adjust H/P Cue Gain

Knob Push

The Knob Push action can be programmed from the Setup Menu.

Note. If any of the below are active the initial knob push will clear them and require a second knob push to perform any programmed action

Solo, Talkback, listen back, AFL, PFL and Cal Lock

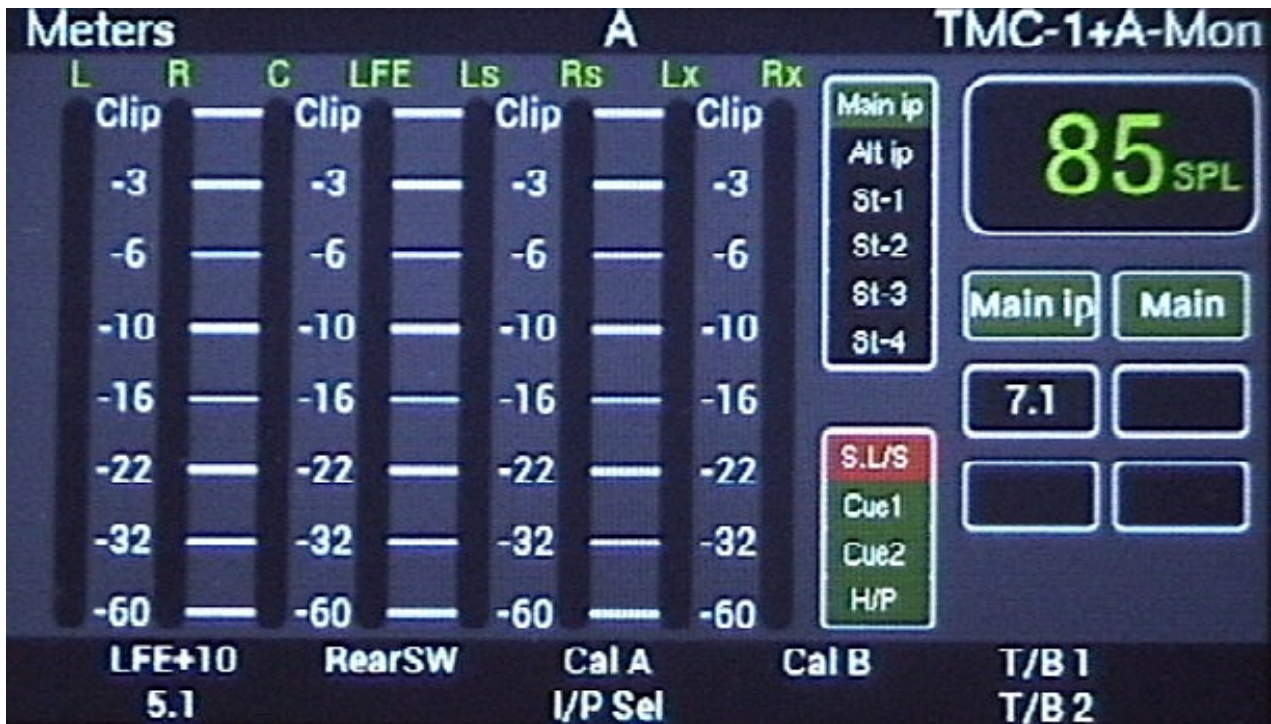
Display Keys [1] – [8]

The functions of the 8 keys in the top two rows (1..8) are used as user definable keys unless defined by the selected page of the TFT display when they will be defined by the selected page.

Meters Page

User keys: [1], [2], [3], [4], [5], [6], [7], [8]:

User programmable, see User Key for options



User Key bank 2

The default function of the Page key when selected to the Meters Page is to switch the User key bank, only the 8 keys below the TFT display are banked! To indicate this the inactive colour of the keys ins changed from Dark Grey to Light Grey as shown below.



Meter Source

The Meter source depends on the type of TMC-1, the display page selected and the monitor format.

TMC-1-XMon Meter Source

- Always: input Sum point of Channels 1-8 before the input gain calibration.

When the XMon is used for Stereo only, you can connect the Cue outputs to unused inputs to meter them. Use the TMC-1 v2-win/mac program to rename the meters.

TMC-1-Penta Meter Sources

- Normal : Input Sum point of channels 1-8 after the input gain calibration.
- Stereo: Input Sum point of Left & Right plus SLS and H/P stereo cue outputs
- Cue Sends: All four stereo cue outputs
- Speaker Mute: Current speaker bank outputs
- Speaker Solo: Current speaker bank outputs

TMC-1-DMon Meter Source

- Always: Metering is defined by the D-Mon

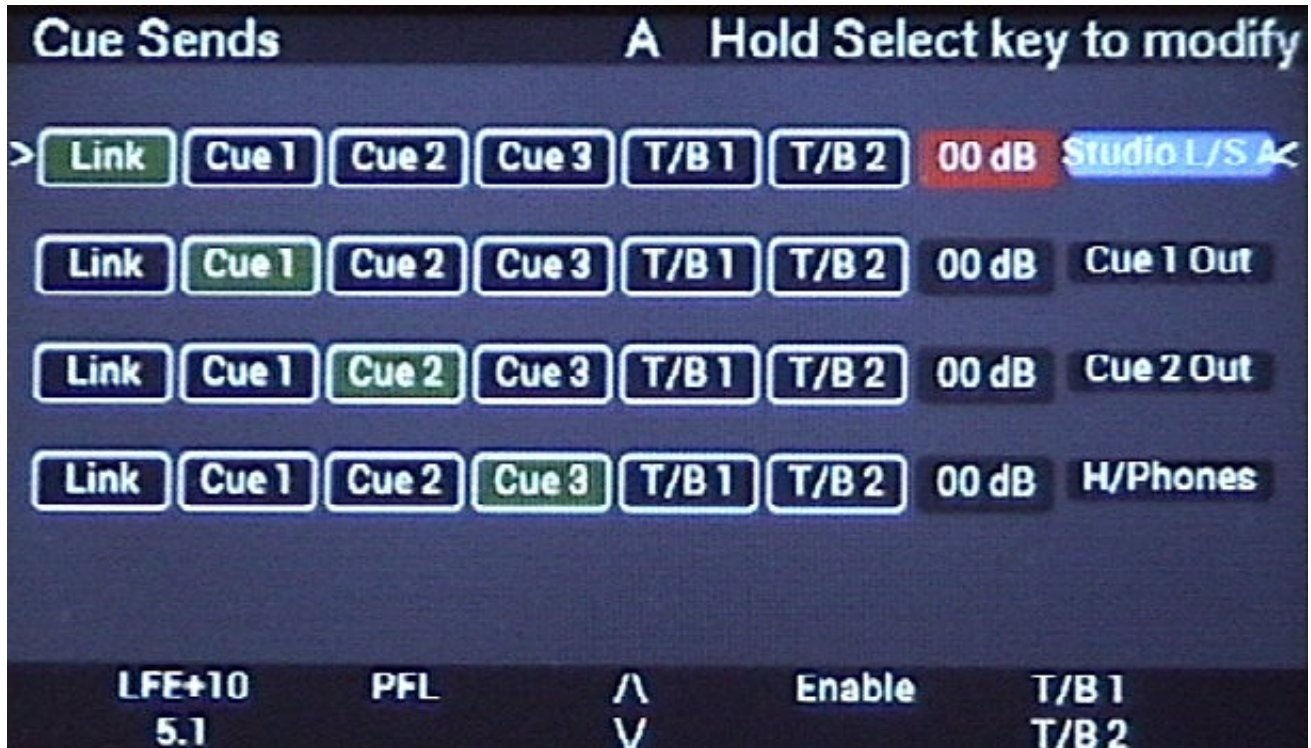
TMC-1-AMon Meter Sources

- Normal : Input Sum point of channels 1-8 after the input gain calibration.
- Stereo: Input Sum point of Left & Right plus SLS and H/P stereo cue outputs
- Cue Sends: Input Sum point of Left & Right plus SLS and H/P stereo cue outputs

Cue Sends Page

Note: The Cue Sends display is version dependant

User keys: [1], [5], [6], [8]:



[v] and [^]:

Use to select the cue to be modified

[Enable]:

Mute/Un-mute selected Cue

[PFL]:

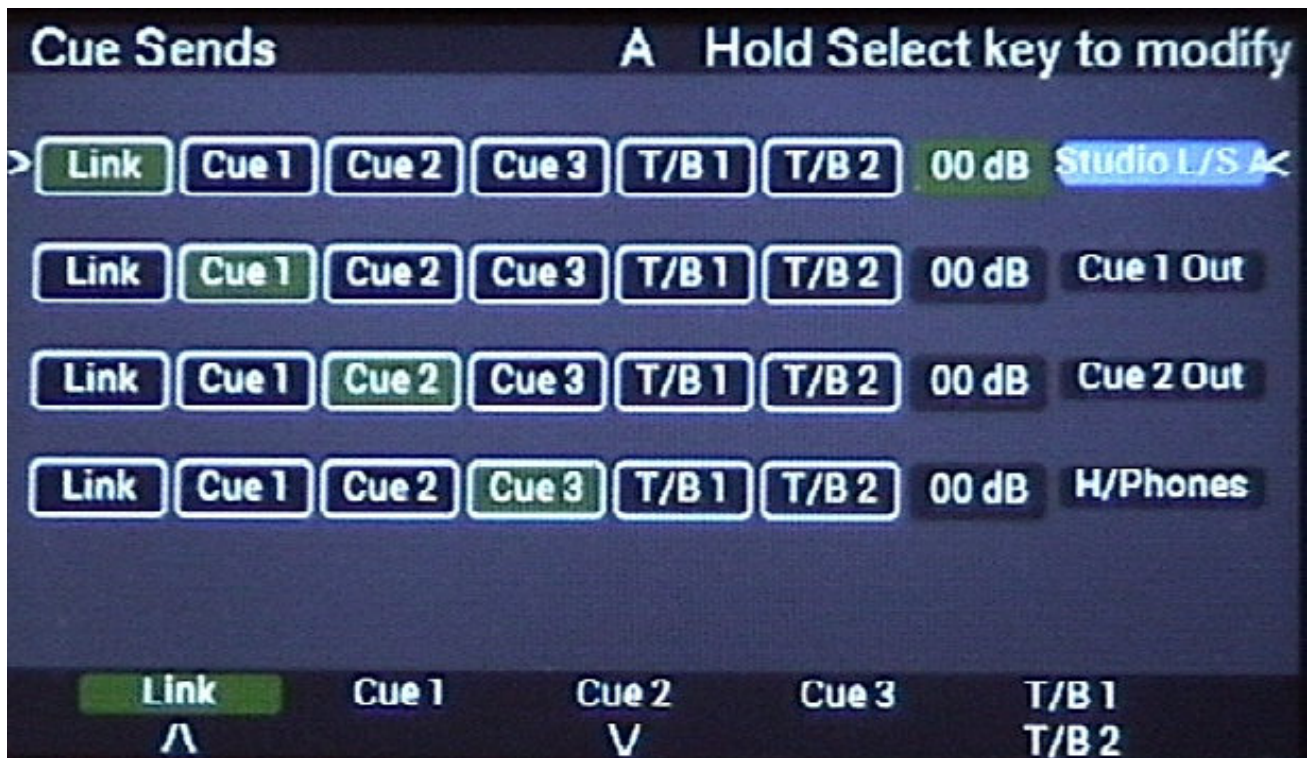
XMon Only: If Selected to Studio L/S and Menu 18 enabled, connects monitors to Stereo Input 4

Penta/D-Mon/A-Mon: Connects the Selected Cue to the speaker Output.

[Select]

Depress to display the Cue Send enable/disable keys as below

Cue Sends Display with [Select] depressed



Speaker Mute and Solo pages

To select the Speaker mute page use the [Spk Mute] user key, by default the [Select/Mute] key is programmed for this

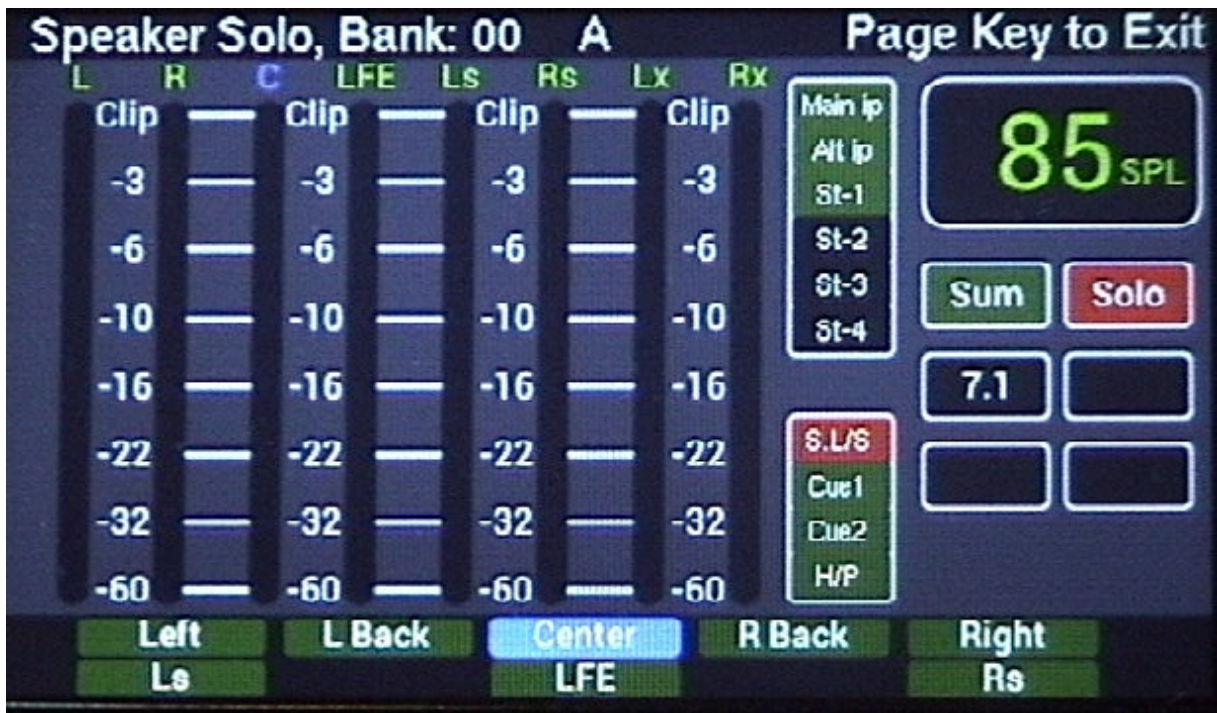
To select the speaker Solo page, press the [Spk Solo] user key, by default the [Ctrl/Solo] key is programmed for this.

Speaker Select keys [1]-[8]:

The screen now displays the speaker configuration. Keys [1] – [8] will mute a selected speaker.

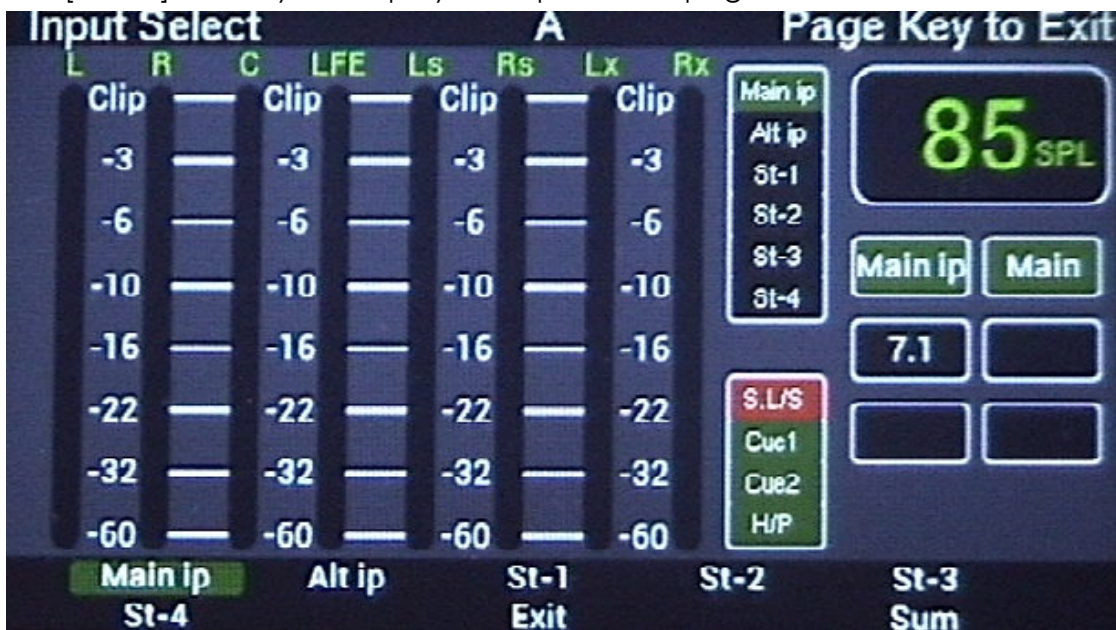
LED's [1]-[8] When selected to Speaker/Stem Mute or Solo, the LEDs will indicate which Speakers/Stems are enabled

Penta: Where more than 8 speakers are defined repeated depressions of the [Mute] or [Solo] Key will step through the speakers in banks of 8.



Input Select page

The [I/P Sel] user key will display the input select page



Input Select keys [1]-[8]:

When Sum is disabled keys [1]-[6] are used to select an individual input (Stem).

When Sum is enabled keys [1]-[6] are used to add or subtract inputs (Stems).

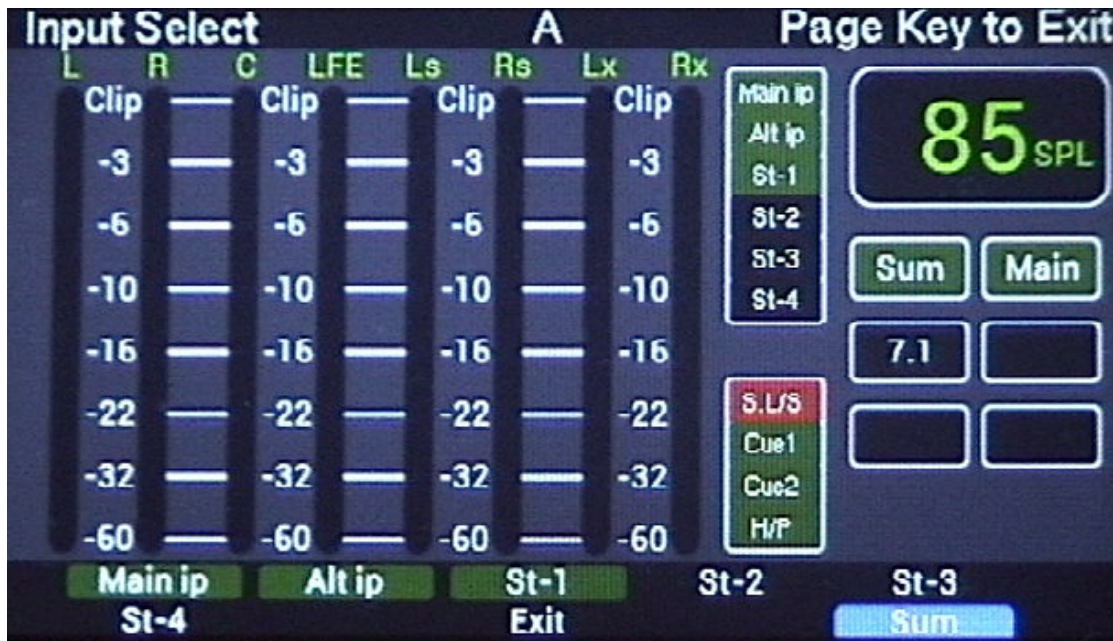
Key [8] Enables/ disables Sum

Key [7]

TMC-1-Xmon – Exit: Return to normal display

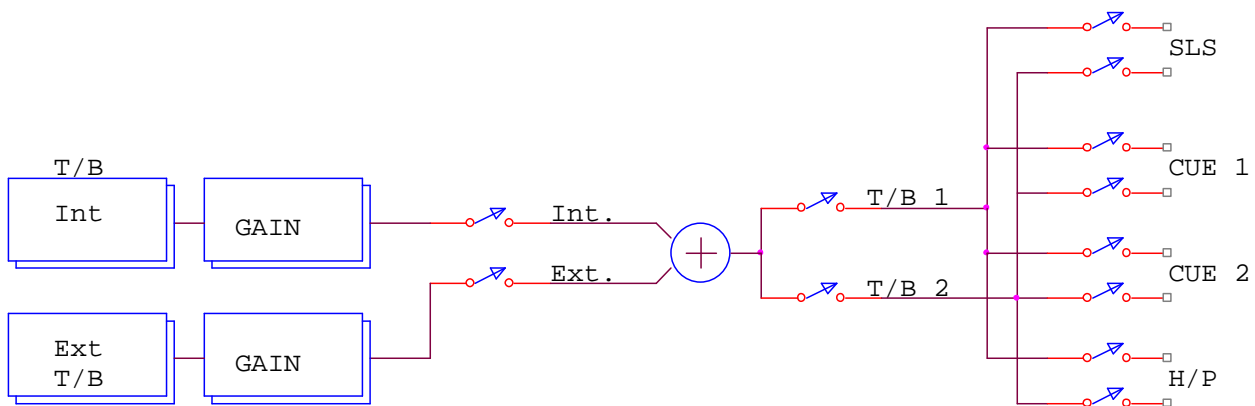
TMC-1-Penta – Pallet: Enable the Pallet Display.

Input Select page with Sum Enabled



Talkback

The XMon/A-Mon and Penta have two talkback inputs, one from the controller via the 15 Way Control cable and an external talkback input on the TB/LB/UTIL Connector. The two inputs have individual gain settings that can be adjusted from TMC-1.



The Talkback output may be routed by the TMC-1 user keys [T/B 1] and [T/B 2] and [T/B 1x] and [T/B 2x] which enable the internal or external talkback microphones. GP Inputs may also be assigned via the menu to enable the internal and external talkback. The two Talkback GP Outputs may be used to drive relays that switch the talkback output destination.

The Cue Send page is used to enable T/B 1 and T/B 2 to the cue send outputs

Internal Talkback and Listen-back Latching

When you depress and release the Talkback/Listen-back switches quickly, they latch so that a second depression will release the Talkback/Listen-back. When you hold the Talkback/Listen-back switches depressed for a longer time, the Talkback/Listen-back will turn off when the key is released.

Note. You can disable the Latching in the Advanced Menu

TMC-1 Internal/External Microphone Gain adjust

Whenever the T/B 1 or T/B 2 switch on the TMC-1 is depressed, the internal Talkback Microphone Gain is displayed at the lower right of the TFT display. The gain may be adjusted by the knob.

Whenever the T/B 1x or T/B 2x switch on the TMC-1 is depressed, the external Talkback Microphone Gain is displayed at the lower right of the TFT display. The gain may be adjusted by the knob.

You can also adjust the gain on the Levels page by selecting the input and depressing the Select key.

XMon Talkback:

The two inputs are summed within the XMon to provide a single Talkback Output available on the TB/LB/UTIL Connector.

Penta Talkback:

The Internal and External Talkback are available as separate outputs.

Internal/External Talkback and Listen-back Latching [1] and [6]

When you depress and release the Talkback/Listen-back switches quickly, they latch so that a second depression will release the Talkback/Listen-back. When you hold the Talkback/Listen-back switches depressed for a longer time, the Talkback/Listen-back will turn off when the key is released.

Note. You can disable the Latching in the Advanced Menu

TMC-1 Internal Microphone Gain adjust

Whenever the T/B 1 or T/B 2 switch on the TMC-1 is depressed, the internal Talkback Microphone Gain is displayed at the lower right of the TFT display. The gain may be adjusted by the Encoder.

TMC-1 External Microphone Gain adjust

Whenever the T/B 1x or T/B 2x switch on the TMC-1 is depressed, the external Talkback Microphone Gain is displayed at the lower right of the TFT display. The gain may be adjusted by the Encoder.

You can also adjust the gain on the Levels page by selecting the input and depressing the Select key.

Auto-T/B & Auto Mute

Auto T/B and Auto Mute are controlled by the Stop, Play and record Tallies from the Master Recorder. The TMC-1 will display a Play or record indication when either is active. The play tally can be generated from a GPI input, LTC timecode, MTC timecode or Hui tallies. The Record tally can be generated from a GPI input or Hui tally. Details of Avid S6 and Sync I/O connections are described later in this manual.

Auto Mute

Use the Auto-Mute page to enable/disable any of the cue outputs and the studio monitors on the change of state between Stop, Play, Record On and Record Off. Individual enables are provided. The [**AutoT/B**] user key may then be used to enable/disable auto mute on both auto talkback and auto Listen back. The Auto mute page may also be configured from the TMC-1v2 software which can also save and recall auto mute configurations.

Auto Resume

The [**A/R T/B**] user key Enable/Disable Auto Resume Talkback. The current talkback selection will be disabled when entering play and resumed when entering Stop.

TMC-1 Play and Record Tally Sources			
GPI	USB Hui	USB MTC	LTC
Play, Record or Stop		Play or Stop	

On Air/Record light

You can use the GPIO on the TMC-1 as both inputs and outputs, we have customers who read the record tally from Protools via USB Hui and then use the GPIO output on the TMC-1 to drive the On-Air/Record light.

Engineer Headphone Source Selection

Available on TMC-1-DMon and TMC-1-Penta only the engineers Headphone output allows the engineer to monitor different inputs and outputs without disturbing the main monitor output.

The [PH Source] user key is used to access the headphone source selection pages. Currently two pages are available with a [More/Less] key to switch between the pages.

The following user keys are provided for the D-Mon Headphone feed

- [Ph Follow]:** Headphones follow output selection, (hold down and use knob to adjust phones gain) – also available on phones source page This key also allows you to A/B between the current monitor output and the selected source.
- [Phones]:** Headphone Enable, hold down and use knob to adjust gain
- [PFL->Ph]:** Route AFL/PFL to Phones
- [Ph Source]:** Access the Phones source selection page, hold down and use knob to adjust gain.

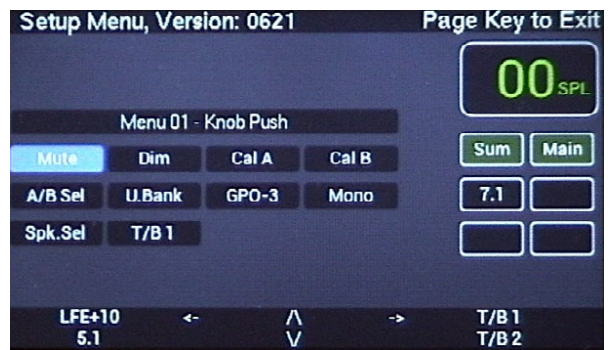
System Setup

The setup menu is entered from the page select page, depress [Select] and [Page] keys to select the Page select screen and then pressing [Setup]

Setup Menu:

The [←] and [→] keys select the menu page, the [^] and [v] keys change current selection.

Note: S/W version at top of screen



Menu 01 – Meter Order

Menu 01 - Meter Order			
L Lx C Rx R Ls Rs LFE	L C R LFE LS Rs Lb Rb	L C R Ls Rs Lb Rb LFE	L R C LFE Ls Rs Lb Rb

Although the Physical layout of the channels is fixed by the hardware the meter layout can be changed to suit the user.

L R C LFE Ls Rs Lb Rb	This follows a standard stereo pair layout
L C R LFE Ls Rs Lb Rb	This layout is good for 5.1 and 7.1 and the surrounds in stereo pairs
L C R Ls Rs Lb Rb LFE	Alternative to previous with LFE at end
L Lx C Rx R Ls Rs LFE	This matches the physical layout of the channels in XMon

TMC-1-Penta and TMC-1-AMon have a Stereo display option as follows

L R L-SLS-R L-H/P-R	Displays Main Stereo mix, SLS and H/P cue mix
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Menu 02 – Talkback Latch Enable

Menu 02 – Talkback & Listen Latch Enable		
T/B & L/B	L/B Only	Off

T/B & L/B: The Internal and External talkback keys will latch with short depressions and no latch with long depressions

L/B Only: Latching enabled on Listen back only.

Off: Latching is disabled on both Talkback and Listen back

Menu 3 – TFT Brightness

Menu 3 - TFT Bright							
0	1	2	3	4	5	6	7

TFT Brightness can be adjusted to suit ambient light levels.

Current version:

0= Full brightness, improved brightness control with no interference to the talkback

Early version

7= full brightness, there is some interference from the TFT Backlight to the talkback when not set to Max.

Menu 4 – Top Display

Menu 4 - Top Display				
Unit	LTC	MTC	HUI	Keyboard

The top Right of the Display is used for error messages and useful displays, Error messages take precedence!

- Unit:** Displays the TMC-1 Configuration: TMC-1 + XMon, TMC-1+Penta/DAD TMC-1+D-Mon, TMC-1+A-Mon
- LTC:** Linear Timecode via GPIO connector
- MTC:** Midi Timecode via USB connector – if displayed value is incorrect on pro tools change the selected display and then change back.
- HUI:** HUI position via USB connector. The TMC-1 must be selected as a HUI Controller on the Workstation
- Keyboard:** Used to check the keyboard -Hex Display of up to 8 keys

Menu 5 – HUI AFL

Menu 5 – Hui AFL	
Off	Enable

This menu Enables/Disables the HUI AFL function, use if the AFL tally flashes to disable the AFL function.

Menu 6 – Mute Monitors when Listen Active

Menu 6–When Listen Active

No Action	Mute	Dim
-----------	------	-----

Menu 7 – Cue Output when Talkback Active

Menu 7 – Talkback Enable		
Mute Cues	Dim Cues	No Change

This setting only controls cue sends where talkback is enabled, Dim Cues attenuates the cue send by 10dB

Menu 8 – Level Display Type

Menu 8 – Level Display Type		
SPL	dB	Dolby

The Main level display can be displayed a SPL, Gain (dB) or Dolby, Gain is absolute but SPL and Dolby must be calibrated.

The TMC-1-DMon also allows the same display as the D-Mon Web Page.

Menu 9 Talkback keys when Record Active

Menu 9 – T/B keys when Record Active		
Enabled	Disabled	Slate

The menu defines the action of the T/B key when record is active.

Note: The **Slate** option is only available on TMC-1-Penta and TMC-1-AMon

Menu 10 – Cal A / Cal B/Cal P Lock

Menu 10 – Cal	
Normal	Locking

- Normal: [Cal A], [Cal B] and [Cal P] Switches will preset the gain to a user defined level. The LED's will indicate if the level is calibrated.
- LOCKING: [Cal A], [Cal B] and [Cal P] Switches will preset and Lock the gain to a user defined level. The LED's will indicate if the level is locked. Depressing the key again will unlock the Gain.

Menu 11 – A / B Switch Lock

Menu 10 – A / B Switch	
Unlocked	Locked

The A/B switch allows you to switch between two input and output selections including gain and format.

- Unlocked Change the saved parameters for A and B at will
- Locked Lock the save parameters for A and B

TMC-1-Penta or TMC-1-AMon User Menu's

This menu is only available on the TMC-1-Penta and TMC-1-AMon

Menu 12 – Listen Speaker Output Assign

Menu 12 – Listen Speakers		
Left – Right	Ls – Rs	Lb – Rb

This menu determines the destination of the Listen Back microphone inputs, which can be routed to the Main, Side or Rear Speakers

TMC-1-AMon: Listen 1 and Listen 2 are summed and sent to both Left and Right

TMC-1-Penta: Listen1 is sent to Left and Listen 2 is sent to Right

Advanced Setup

To Enter the Advanced Menu Depress the [Select] key and then the [>] key or [Select] and [Setup] to enter directly.

Adv Menu 01 – Lock/Un-Lock User Keys

ADV Menu 01 - User Keys	
Un-Locked	Locked

Unlocked: The user key function can be changed by holding Select down and repeated depressions of the selected user key.

Locked: The user key functions cannot be changed

Adv Menu 02 – Calibration Mode Enable

Adv Menu 02 – Calibration Enable		
Lock All	Level 1 lock	Unlock All

Lock All Source Gain, Speaker Trim, Mono trim, 5.1 trim, Cal A and Cal B are Locked

Level 1 lock Source gain is locked on Main and Alt only, CalA, CalB and Mono trim's are Unlocked

Unlock All Source Gain, Speaker Trim, Mono Trim, 5.1 trim Cal Trim and 5.1 trim are enabled to allow SPL Setting and user preferences

Adv Menu 03– SPL/Dolby Display for 0dB Gain

Adv Menu 03 – SPL Display @ 0dB Gain											
85	83	81	79	77	75	73	71	69	67	65	63

Select the SPL (Dolby) display for 0dB Gain, for film this is 85, for Home cinema 79 and some broadcast 68.

This is used to optimise the dynamic range.

Set before calibrating the room!

Adv Menu 04– External T/B Dim

Adv Menu 04 - Ext T/B Dim	
On	Off

When the external talkback microphone does not cause feedback (Larsen), you can disable the Dim on Talkback function.

On: Dim Control Room Speakers when External Talkback is enabled

Off: No Dim with External Talkback

Note: Internal (TMC-1) Talkback will always dim the control room speakers.

Adv Menu 05 – Volume Knob push switch Function

Adv Menu 05 - Knob Push									
Mute	Dim	Cal A	Cal B	A/B Select	User Bank	GPO 3	Mono	Speaker Set	T/B 1

Volume Knob Push Switch Function

Mute: Mute Speakers on/off

Dim: Dim Speakers on/off

Cal A: Set Output to Cal A

Cal B: Set Output to Cal B

A/B Select: Select A or B Inputs

User bank: Switch User key 1-8 functions

GPO 3: GPO-3 On/Off

Mono: Enable/Disable Mono

Speaker Sel: Select between Main, Alt and Mini Speakers – you can disable the Alt speakers in the menu

T/B 1: Enable/Disable T/B 1 (Future option)

Adv Menu 06 – Page key function

Adv Menu 06 – Page Key Function						
Off	Cue Sends	In/Out	I/P Sel	Speaker Solo	Speaker Mute	U.Bank

The Page key is used to return to the Meters page from any other page.

This Menu defines the function of the Page key when the Meters Page is selected

. The default setting is U.Bank.

Menu 07 – Select Key Off function

Adv Menu 07 – Select Key OFF Function						
Off	Cue Sends	In/Out	I/P Sel	Speaker Solo	Speaker Mute	U.Bank

This menu determines the function of the Select key when not used in combination with other keys.

The default setting is Speaker Mute.

Adv Menu 08 – Ctrl Key Off function

Adv Menu 08 – Ctrl Key OFF Function						
Off	Cue Sends	In/Out	I/P Sel	Speaker Solo	Speaker Mute	U.Bank

This menu determines the function of the Ctrl key when not used in combination with other keys.

The default setting is Speaker Solo.

Adv Menu 09, 10, 11, 12, 13, 14 – GPI Inputs

Adv Menu 09 – GP0 In								
AFL/PFL	Mute	Dim	SLS Mute	Int T/B 1	Int T/B 2	Int T/B All	Ext T/B All	Off

The default function for GP0 in is AFL/PFL

Adv Menu 10 – GP1 In								
Listen 1	Mute	Dim	SLS Mute	Int T/B 1	Int T/B 2	Int T/B All	Ext T/B All	Off

The default function for GP1 in is Listen 1

Adv Menu 11 – GP2 In

Listen 2	Mute	Dim	SLS Mute	Int T/B 1	Int T/B 2	Int T/B All	Ext T/B All	Off
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The default function for GP2 in is listen2

Adv Menu 12 – GP3 In

Ext T/B 1	Mute	Dim	SLS Mute	Int T/B 1	Int T/B 2	Int T/B All	Ext T/B All	Off
--------------	------	-----	-------------	--------------	--------------	----------------	----------------	-----

The default function for GP3 in is Ext T/B 1

Adv Menu 13 – GP4 In

Ext T/B 2	Mute	Dim	SLS Mute	Int T/B 1	Int T/B 2	Int T/B All	Ext T/B All	Off
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The default function for GP4 in is Ext T/B 2

Adv Menu 14 – GP7 In

Int T/B 1	Mute	Dim	SLS Mute	Int T/B 1	Int T/B 2	Int T/B All	Ext T/B All	Off
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The default function for GP3 in is Int T/B 1

- AFL/PFL:** Enable AFL/PLF to Control room Monitors When Active
- Listen1:** Switch Listen Microphone 1 to Control room Monitors
- Listen 2:** Switch Listen Microphone 1 to Control room Monitors
- Ext T/B 1:** Switch External Talkback Microphone and T/B GP Out 1
- Ext T/B 2:** Enable External Talkback Microphone and T/B GP Out 2
- Mute:** Mute Control room Monitors
- Dim:** Dim Control room Monitors
- SLS Mute** Mute Studio Monitors when Active
- Int T/B 1:** Enable Internal Talkback Microphone and T/B GP Out 1
- Int T/B 2:** Enable Internal Talkback Microphone and T/B GP Out 2
- Off:** No action

Adv Menu 15 – AFL/PFL GPI Active level

Adv Menu 15 – AFL/PFL GP In - 0	
Active Low	Active High

When active, the Monitor Output is switched to the AFL input. This menu determines if AFL is active high or active Low. Note: Edge triggered the AFL Tally will update on the Next Change.

Adv Menu 16 – GPI Record Tally Active Level

Adv Menu 16- Rec GP In	
Active Low	Active High

Adv Menu 17 – GPI Play Tally Active Level

Adv Menu 17 - Play GP In	
Active Low	Active High

Adv Menu 18 – GPO 1 Output Function

Adv Menu 18 – GPout 1 Function		
T/B-1	T/B-2	5.1

Adv Menu 19 – GPO 2 Output Function

Adv Menu 19 – GPout 2 Function		
T/B-1	T/B-2	5.1

Adv Menu 20 – GPO 3 Active High/Low

Adv Menu 20 – GP Output 3	
Active Low	Active High

Adv Menu 21 – Maximum Gain

Adv Menu 21 – Maximum gain			
+20dB	+12dB	+6dB	0dB

To avoid excessive sound levels this parameter limits the maximum gain on speaker output before any trim is added. (Note not all systems have 20dB of gain available)

Note: On the TMC-1-Penta and TMC-1-Dmon the Digital headroom is included eg. if the Digital Headroom is 6dB and the Maximum gain is set at 0dB then the maximum gain is -6dB

Adv Menu 22 – Factory Reset

Adv Menu 22 – Factory Reset on Menu Exit					
Off	Input + Output	Input + Preset	T/B + L/B	T/B Only	NO T/B or L/B

The programmable User keys on the TMC-1 are very powerful, this gives you a selection of possible combinations

- Off:** No Action
- Input & Output** 1-8 = Input Select , Fn1-Fn3 = Speaker Set Select , User = T/B to All
- Input & Preset** 1-8 = Input Select, Fn1-Fn3 = Pset 1, Pset 2, Pset 3, User = T/B to All
- T/B+L/B:** Reset to factory and default user keys with T/B and L/B Keys
- T/B only:** Reset to factory and default user keys with T/B Keys only
- NO T/B or L/B:** Reset to factory and default user keys without T/B and L/B Keys

TMC-1-Penta: This command will not reset the input and output assignment

On all units:

Input and Speaker Names reset to defaults

User Keys Reset to defaults as selected in menu

All Gains set to 0dB-Unity

Cue routing as follows

- SLS – Main
- Cue1 – Cue1 input
- Cue2 – Cue 2 input
- Cue3 – Cue 3 input
- Head Phones – Talkback

Automation

- Play Start – Disable Talkback and Listen Back
- Play Stop –
- Record Start – Disable Talkback, Listen Back and Studio L/S

TMC-1-XMon Only Advanced Menu's

Adv Menu 23 – Alt Output Select

Adv Menu 23 – Alt Output Select	
Enable	Disable

Speaker selection control

Enable Speaker selection between Main, Alternate and Mini

Disable Speaker selection between Main and Mini only

Adv Menu 24 – Communications

Adv Menu 24 - Comms	
RS422	Midi

XMon has two serial ports, RS422 and MIDI. Either can be selected.

RS422 Communication via RS-422 pins 1, 2, 9 and 10 on the XMON connector

MIDI Test Only: Communication via MIDI pins 3, 4, 11 and 12 on the XMON connector

Adv Menu 25 – XPand Surround

Adv Menu 25 – Xpand Surround			
Not Fitted	8 Channel	5.1/7.1/7.1.4	5.1/7.1/9.1.2

XPand is used with XMon to add up to 8 extra channels to the system. This menu is used to define the function of these channels. Where only 4 extra channels are required the other for channels are used for surround bass extension and summing the rear and side surrounds for 5.1.

TMC-1-Penta Only Advanced Menu's

Adv Menu 23 – Alt Output Select

Adv Menu 23 – Alt Output Select	
---------------------------------	--

Enable	Disable	
--------	---------	--

Speaker selection control

Enable Speaker selection between Main, Alternate and Mini

Disable Speaker selection between Main and Mini only

Adv Menu 24 – Digital Headroom

Adv Menu 24 – Digital Headroom					
0dB	2dB	4dB	6dB	8dB	10dB

Whenever gain is added there is the possibility of overload, the AX32/Penta 720 have adequate internal headroom but the inputs and outputs are limited. This setting allows you to add digital headroom at the output.

When set at 0dB then a SPL setting of 85 is equivalent to 0dB gain.

When set at 6dB then a SPL setting of 85 is equivalent to -6dB gain.

See Insert makeup Gain and Analog Output for 0dBFS

Adv Menu 25 – Insert Makeup Gain

Adv Menu 25 – Insert makeup Gain					
0dB	2dB	4dB	6dB	8dB	10dB

When equalisers are enabled they can have a loss to allow for equaliser gain. This setting allows you to boost the return signal to keep the levels the same when the equaliser is enabled. See Adv Menu 15.

Adv Menu 22 – Set default Analogue Output level (On Menu Exit)

Adv Menu 22 – Analogue Output for 0dBFS			
+6dB	+12dB	+18dB	+24dB

The DAD AX32/Penta 720 output cards use relays to set the analogue output level for 0dBFS set four analogue levels. If outputs are marked as D2A in the TMC-1-penta2 application the TMC-1 will set this in the DAD AX32/Penta 720.

Adv Menu 26 – Pallet Input Selection Enable

Adv Menu 26 – Pallet I/P Selection

I/P 1-6 Only	1-7 Only	All Inputs
--------------	----------	------------

This menu determines which inputs can accessed from the Pallet

- I/P 1-6 Only** Program Main and Alt inputs from the TMC1-Penta2 programs and load input inputs 1-6 from the pallet.

- I/P 1-7 Only** Program Main input from the TMC1-Penta2 programs and load input inputs 1-6 and the Alt Input from the pallet.

- All Inputs** All inputs including Main and Alt can all be loaded from the pallet (Note any Main or Alt setting will be lost until loaded from TMC1-penta2 software.

The main reason for the separation is to allow Atmos and other immersive systems to have up to 64 inputs, the maximum width for inputs 1-6 is 12 channels

Adv Menu 27 – Write I/O Names To Penta / DAD AX/DX32

Adv Menu 27 – Write I/O names to Penta/Dad

On	Off
----	-----

The TMC-1 writes the I/O labels to the Penta/Dad/MTRX on power-up, each Name begins with 'T', users who wish to write their own names can disable this function.

Note: the internal summing points are still named!

Adv Menu 28 – Reset Penta / DAD AX/DX32 to Defaults on Menu Exit

Adv Menu 28 – Reset Penta/DAD on Menu Exit

Off	Reset to Default
-----	------------------

The TMC-1 controls the digital levels and routing within the DAD AX32/Penta. To prevent interaction with PentaMan and DADMan the TMC-1 only controls the ports that you have assigned to it. If you reassign inputs or outputs they can be left disabled or not set to unity gain.

Off No Action

Reset to Default Reset DAD AX32/Penta to default and restart the TMC-1

Note1: Reset takes about 15 seconds, the TMC-1 must then be restarted. An easy way to restart communications is to reselect the Penta/DAD from the ENET/NTP Units Page.

TMC-1-DMon Only Advanced Menu's

Adv Menu 23 – Digital Headroom

Adv Menu 23 – Digital Headroom					
0dB	2dB	4dB	6dB	8dB	10dB

Whenever gain is added there is the possibility of overload. This setting allows you to add digital headroom at the output.

When set at 0dB then a SPL setting of 85 is equivalent to 0dB gain.

When set at 6dB the then a SPL setting of 85 is equivalent to -6dB gain.

Adv Menu 24 – Define Cue Mix Using

Adv Menu 24 – Define Cue Mix Using	
D-Mon	TMC-1

To avoid confusion it is best to update the Cue Mix from either D-Mon or TMC-1 and not both! This menu may be used to disable control from the TMC-1.

- D-Mon Control of the Cue Mix is only available on the D-Mon GUI
- TMC-1 TMC-1 can enable/disable sources to the Cue mix. The D-Mon GUI will control the gains. Care must be taken as the D-Mon can also control the sources.

TMC-1-AMon Only Advanced Menu's

Adv Menu 23 – Alt Output Select

Adv Menu 23 – Alt Output Select		
Enable	Disable	5.1 Meter

Speaker selection control

Enable Speaker selection between Main, Alternate and Mini

Disable Speaker selection between Main and Mini only

5.1 Meter Use 5.1 output as Metering Output, uses the Level and calibration settings made when enabled!

Adv Menu 24 – Centre Speaker Fitted?

Adv Menu 24 – Center	
Center	Left+Right

Route Centre Signal to Left and right

Adv Menu 25 – LFE Speaker Fitted?

Adv Menu 25 – LFE	
SubWoofers	Left+Right

Route LFE signal to Left and right

Adv Menu 26 – Rear Surround Speakers Fitted

Adv Menu 26 – Rear Surround	
Lb and Rb	Ls and Rs

Route Rear surrounds to Side Surrounds

Adv Menu 27 – Communications

Adv Menu 27 - Comms	
RS422	Midi

TMC-1 has two serial ports, RS422 and MIDI. either can be selected. The A-Mon only connects via RS422 . The Midi is only for test purposes.

RS422 Normal Use - Communication via RS-422 pins 1, 2, 9 and 10 on the 15D "XMON" connector

MIDI Test Only - Communication via MIDI pins 3, 4, 11 and 12 on the "XMON" connector

Adv Menu 28 – XPand Surround

Adv Menu 28 – Xpand Surround			
Not Fitted	8 Channel	5.1/7.1/7.1.4	5.1/7.1/9.1.2

XPand is used with A-Mon to add up to 8 extra channels to the system. This menu is used to define the function of these channels. Where only 4 extra channels are required the other for channels are used for surround bass extension and summing the rear and side surrounds for 5.1.

GPIO

DB-15 Female on cable

Pin No.	GPI Bit No.	GPO Bit No.	Input/Output	Default Function	Menu Selection Use [Select]+[Setup] to access advanced menu's	Default Active	Note
1	0		Input	PFL/AFL Enable	Adv Menu 05 User GP In-0 Adv Menu 11 High/low	Low	1
9	1		Input	Listen 1	Adv Menu 06 User GP In-1	Low	2
2	2		Input	Listen 2	Adv Menu 07 User GP In-2	Low	3
10	3		Input	Ext T/B 1	Adv Menu 08 User GP In-3	Low	4
3	4		Input	Ext T/B 2	Adv Menu 09 User GP In-4	Low	5
11	5	6	In/Out	Play Tally I/O	Adv Menu13 Active High/Low	Low	6
4	6	5	In/Out	Record Tally/ Red Light I/O	Adv Menu12 Active High/Low	Low	7
12	7	4	In/Out	Int T/B 1	Adv Menu 10 User GP In-7	Low	8
5		3	Out	User GP Out 3	Active High/Low	Low	9
13		2	Out	Talkback 2 On	GP Out 2	Low	10
6		1	Out	Talkback 1 On	GP Out 1	Low	11
14		0	Out	GP Out 0 H/W Mute		Low	12
7				Ground			13
15			Input	Linear timecode -			
8			Input	Linear Timecode+			

Note1. PFL/AFL Enable

Connect to the PFL/AFL control output of your console/DAW, active low input will switch the monitor output to AFL/PFL Input.

Notes 10, 11. T/B 1, T/B2

The Internal (Engineer) and External (Producer) talkback mics are summed to one Talkback feed. T/B1 and T/B2 both enable the Internal talkback, T/B1x and T/B2x both enable the external talkback. The TMC-1 selects between two talkback routings T/B1 and T/B1x enabled T/B1 routing, T/B2 and T/B2x enable T/B2 routing as defined on the Cues page. For example T/B 1 can be routed to the Studio and Overdub Booth, and T/B 2 to the overdub Booth only.

Note 12: H/W Mute

Low when Hardware mute is enabled

Note 6, 7: Play and Record

These pins are used as Record and Play outputs from HUI tallies and GP inputs when HUI is not active. The output is disabled when Adv Menu 12 and 13 are set to high!

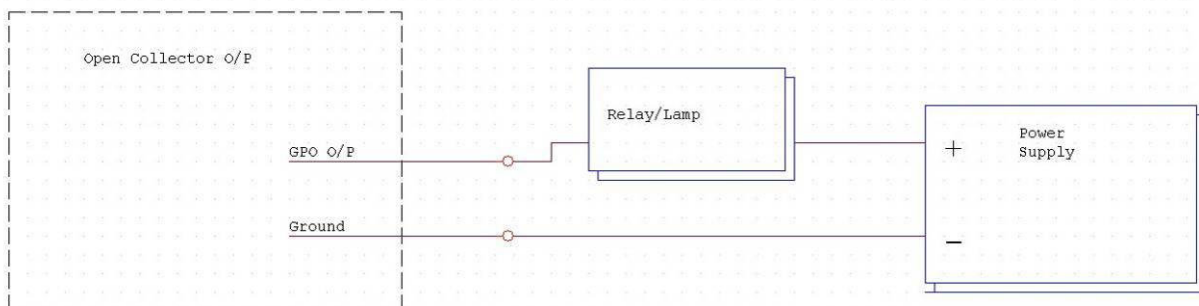
Note 7: Record

Both Play and record inputs must be active for the record to be considered active

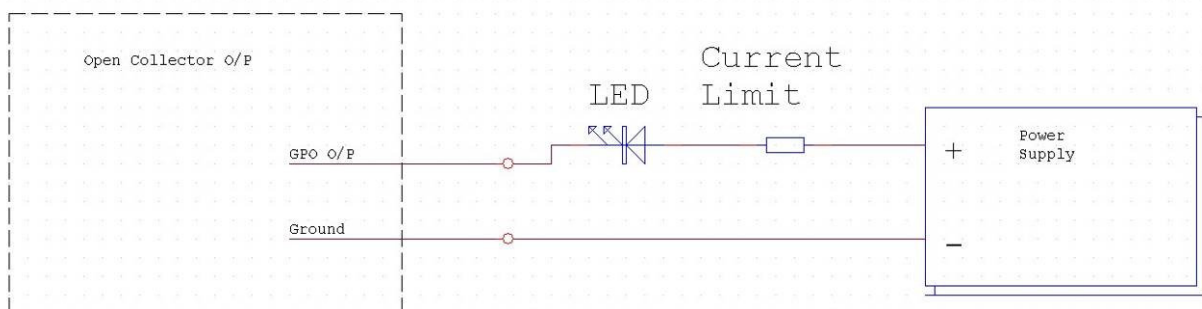
GPO Open Collector Outputs

The TMC-1 GP Outputs are Open collector and protected by a fuse, each output can sink up to 500mA but the total is limited by an internal self-resetting fuse to 750mA, the maximum output voltage is 50v.

Connecting a lamp to a Open collector outputs



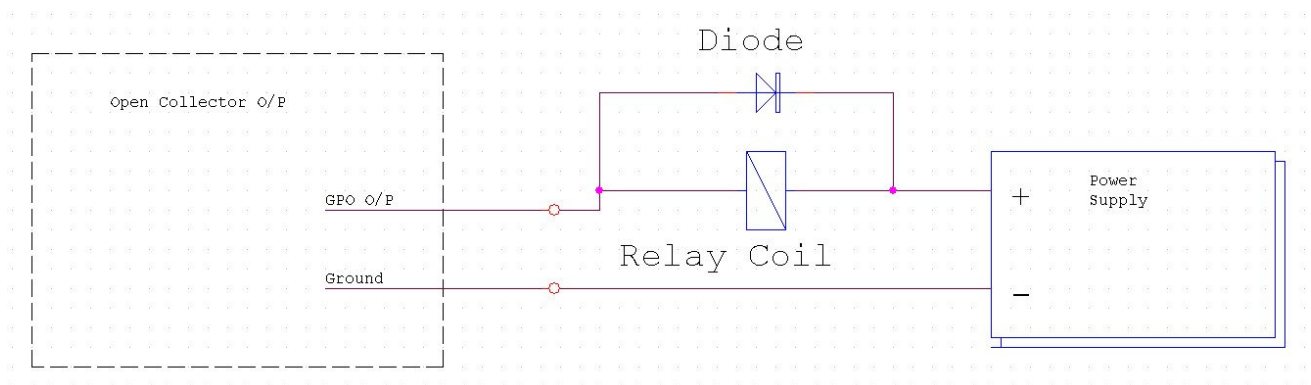
Connecting a LED to an Open Collector Output





The Current Limit resistor can be calculated typically 330R for a 5v Supply and 1K for a 12v Supply.

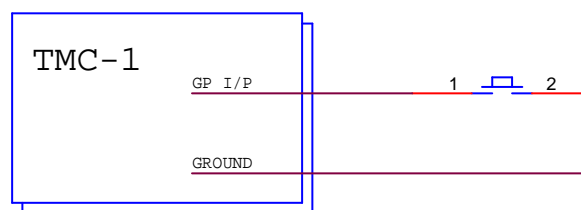
Connecting a Relay to a Open collector output (The Diode is optional)



GPI Inputs

All inputs are CMOS level, pulled up to +5v by 10K and have 10K input protection resistors.

Connecting a switch to a GPI Input



Connecting to the Avid S6

See the GPIO Section of the S6 Manual. The relevant connections are:

S-6 GPIO Function	S6 GPOut A	TMC-1 Pin	S6 GPOut B	TMC-1 GPIO Pin	Function/Note
Talkback	18	7	6	12	GPI 7 I/P
Dim	19	7	7	1 or 2 or 3 or 9 or10	Note 1
Mute/Cut	20	7	8	1 or 2 or 3 or 9 or10	Note 2
Play	22	7	10	11	Play Tally I/O
Record	23	7	11	4	Record Tally I/O

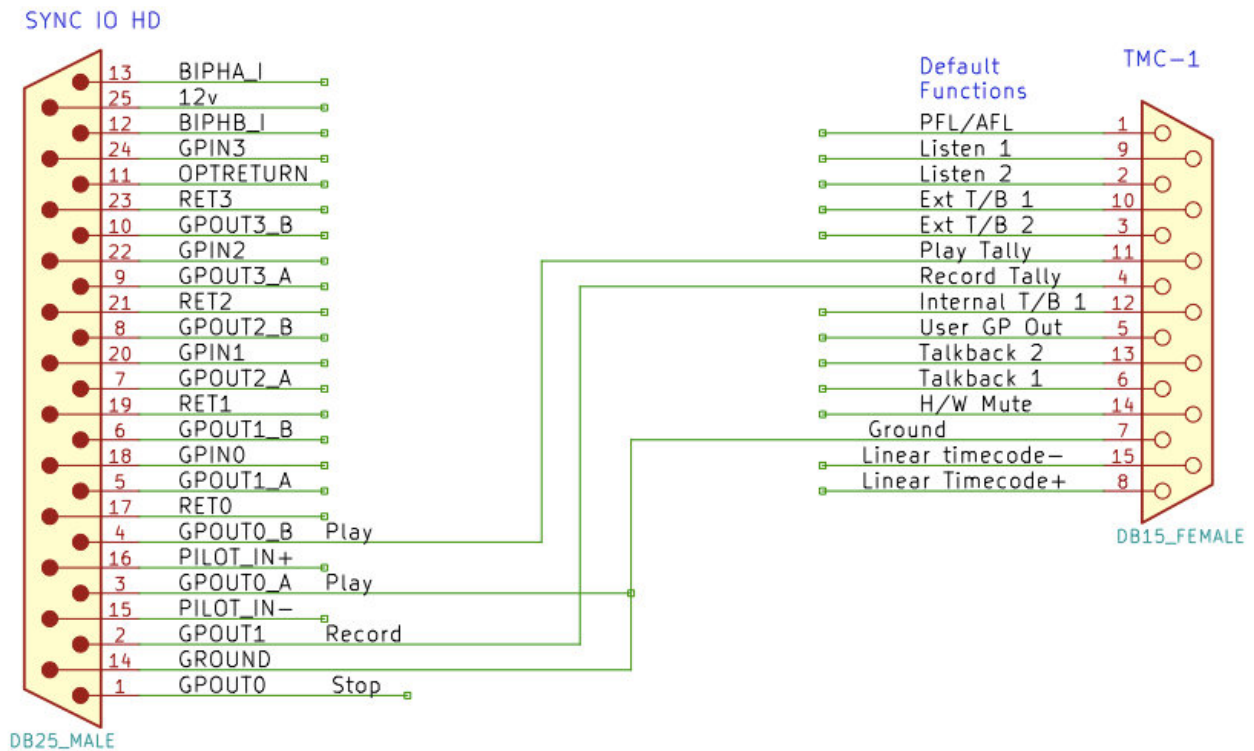
Note 1 : Dim is available as an option on any of 5 GPI inputs via menu selection

Note 2: Mute/Cut is available as an option on any of 5 GPI inputs via menu selection

Note 3: Common connection – Connect to pin 7 on TMC-1 GPIO.

Connecting to the Avid Sync IO

See the GPIO section The Avid/Protocols Sync-IO Manual



T/B Mic I/P

A 3.5mm Jack socket on the rear is enables an external Talkback mic to be connected in place of the internal T/B Mic. An internal link connects a +5v pull up resistor to power electret microphones (default) and should be removed if not required.

The second 3.5mm jack (fitted to later versions) is connected as follows:-

- Tip: GP in 2 Adv Menu 07 - User GP in 2 (Default - Listen 2)
- Ring: GP in 7 Adv menu 10 - User GP in 7 (Default - Int T/B 1)
- Sleeve: Ground

The function of the GPI inputs is determined by the appropriate advanced menu.

USB Port

Power

The TMC-1 uses about 400mA, this is within the 500mA maximum for a USB port. We recommend that the TMC-1 is the only device connected to the port. If you are not using the MTC or HUI functions, you can use a 5v USB power supply.

Configuration

Using the TMC-1-mac/win program you can set and save the User key functions, the input and output names and the cue send matrix. See the TMC-1 Configuration guide for details.

HUI Emulation

To use the HUI emulation, define the MIDI port as a HUI interface in the Workstation (DAW). The HUI Play and Record tallies will then drive the automated switching. You can check the interface by enabling the HUI positional display in the top line.

The Debug section includes a HUI Status display, if you find a key function that would be useful to include in the TMC-1, please report its code and we will look into updating the software.

MIDI Timecode

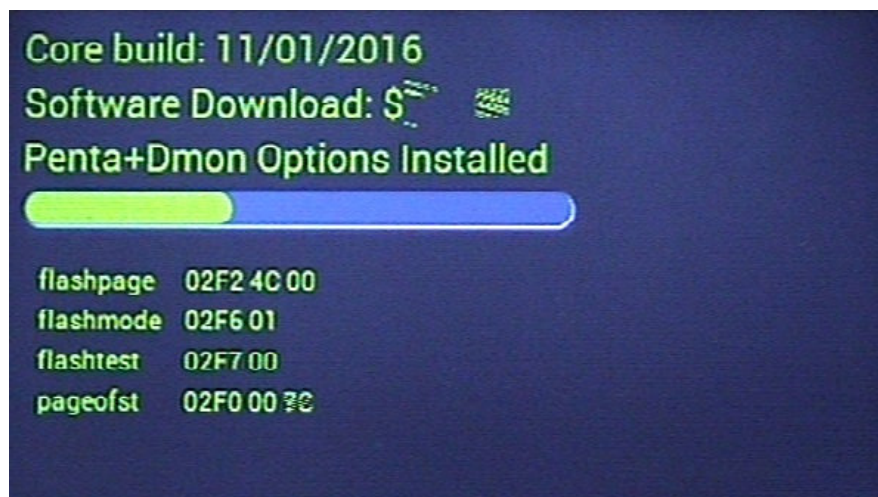
To use MTC, connect to a workstation and define it as a MIDI Port. MTC ¼ frame timecode will enable the Play tally drive the automated switching. You can check the interface by enabling the MTC positional display in the top line.

Firmware Updates

The USB Port is also used to update the TMC-1 firmware.

The image on the right shows a firmware update in progress.

Updates are posted on the TMC-1-Xmon , TMC-1-



Penta, TMC-1-DMon, or A-Mon product pages:

<http://www.colinbroad.com/cbsoft/tmc1/tmc1.html>

<http://www.colinbroad.com/cbsoft/tmc1/tmc1penta.html>

<http://www.colinbroad.com/cbsoft/tmc1/tmc1dmon.html>

<http://www.colinbroad.com/cbsoft/tmc1/amon.html>

You will find both a Mac and Windows version of “midiupd” on the same page which should be used to send firmware updates to the TMC-1. Midiupd includes instructions, you can also find the TMC-1 programming guide on the web site.

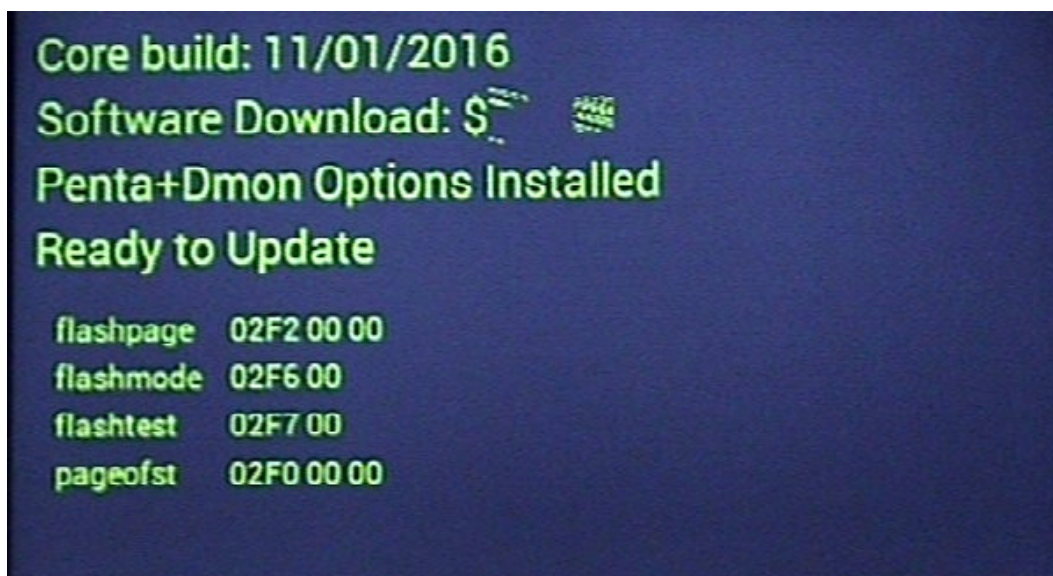
Note: the progress bar on the TMC-1 shows the total memory space available and will not reach the end. The Progress bar on “midiupd” shows the update length and will be cleared once finished

Recovery

In the case of power failure or other problems when updating the TMC-1 firmware.

1. Abort and exit from “midiupd”
2. Unplug the USB then reconnect whilst depressing [Select] and [Ctrl]. The Software Download screen will be displayed.
3. Restart “midiupd”. You will need to select the CBCore MIDI ports

The Recovery Page



Network Port

The RJ45 network port fitted to all TMC-1's is used by the TMC-1-Penta and TMC-1-DMon to communicate with the NTP Penta, DAD AX32/DX32, Avid MTRX or the Trinnov D-Mon. To setup depress [Select] and [Page] simultaneously to access the Select Page and then depress the E-Net key. to access the Discovery Page. Depressing the [->] key will access the TCP/IP page where you can enable/disable [DHCP].

The TMC-1-Penta does not need DHCP and will always switch to the same subnet as the selected device. The TMC-1-DMon and OSC require all units to be on the same subnet, where a DHCP server is available DHCP can be used to set all devices to the same subnet.

Fixed IP

- 1) You can set any IP address using the TMC-1v6 app
- 2) You can see the TMC-1 IP address on the TMC-1 Network TCP/IP page [Select]+[Page] then [E-Net].

DHCP

- 1) It will always request its current address, the IP address will change only if the current address is not available
- 2) The current IP address is displayed on the TCP/IP page
- 3) When disabled the address will remain the same
- 4) When DHCP is enabled the TMC-1 will request an ip address, if a DHCP server is found the IP Address will be set and DHCP will be turned off, this normally takes less than one second. If no DHCP server is found the ip address will revert to its original value after 5 seconds.

OSC (Open Sound Control)

OSC has been added to the TMC-1 to allow the user to design their own control surface on Tablets or mobile phones. OSC programs for example TouchOSC can be used to control the TMC-1. TouchOSC templates are available on the TMC-1 web sites to use or as a guide.

TouchOSC can be communicate directly with the TMC-1, the TMC-1 Software assumes that pages will be named as 0..9 longer names will not work correctly, once the slave s/w is written these will be forwarded to the slave. The slave software will allow a slave ip address to be specified, any commands not recognised by the TMC-1 will be forwarded to the slave ip address on port 8000. Alternatively you can use OSCulator, a OSC command router.

The functions are grouped by the prefix and the individually identified by number

User Keys

User Keys are Momentary keys made from 3 components: the switch, the Led and the label. you can use your own key label names, however it is recommended (but not essential) that they be named as OSC variables so that they may updated by the TMC-1. The user key numbers can be found in the TMC-1 Reference user key table and the list below. Not all user functions have been implemented others can be added if requested. Not all versions of the TMC-1 support all user functions. You can check the user key function, it is displayed on the to line of the TMC-1 display.

Example: [Alt input] The OSC number for the [Alt Input] is 17, therefore the three components are: key = 'tmca17', label = 'tmcu17' and LED = 'tmcn17'.

OSC Page Names

The TouchOSC page names should be the numbers 1..9 only, the TMC-1 will update the current page only, keys labels, LEDs, and faders may be repeated on multiple pages.

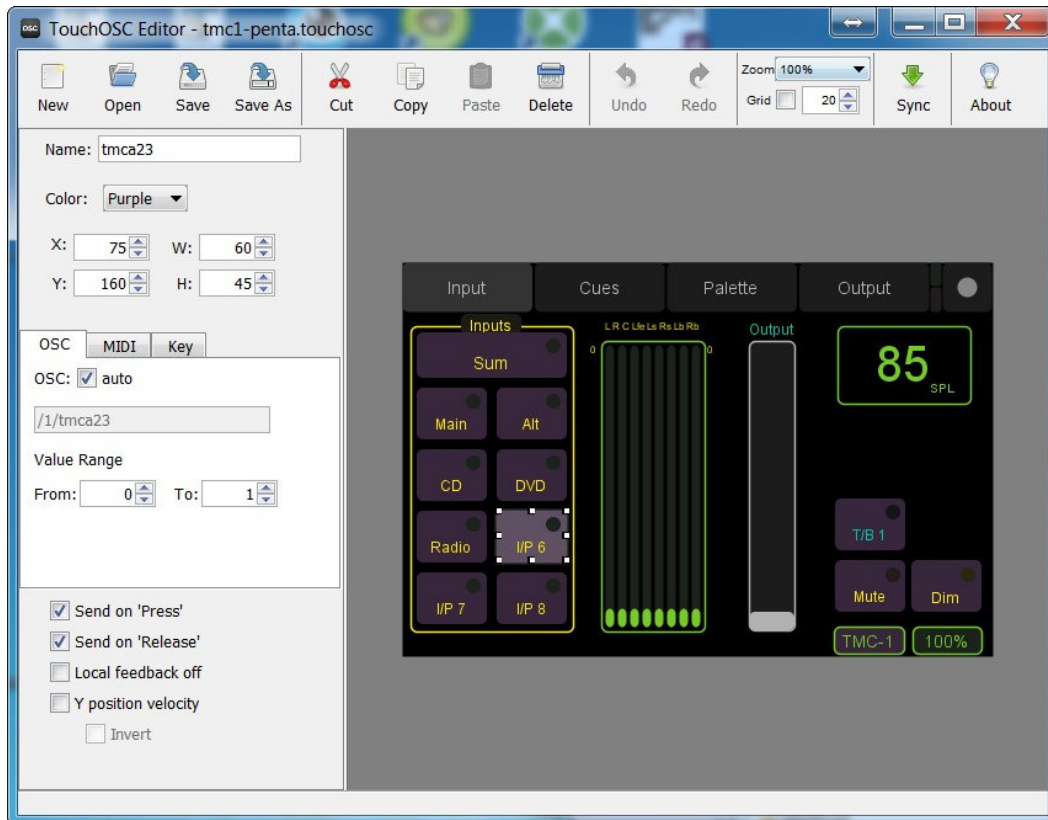
TouchOSC Push buttons should be used for the User and Speaker Solo/Mute keys.

TouchOSC rotary or fader controls can be used to control level, the value range is the default 0 to 1

TouchOSC Toggle buttons are used for defining the cue routing matrix as per example.

TouchOSC page names, the TMC-1 implementation requires that the Page names should be single digit numbers from 1 to 8, in the example the page names are 1, 2, 3, 4. The TMC-1 will display an error "OSC Page No." if a unrecognised page number is received.

The meters may be turned on and off, in the example the enable key is the heading line of the meters. The meters are enabled individually for every page. The meter enable information is held in non volatile ram. Some tablets cannot handle the meter signal and become unreliable.



You can experiment using the TouchOSC Editor, a free download from <https://hexler.net/software/touchosc#downloads>

You can download a zip file with examples http://www.colinbroad.com/cbsoft/tmc1/OSC/tmc1_OSC.zip

To run the software you will need the TouchOSC app which is available from the Apple or Google App Store for \$5.

Included in the zip file are a 3d printer file (tablet.stl) for brackets that can be used to cradle a phone/tablet on the rear of a TMC-1, TouchOSC sample apps the TMC-1-penta and TMC-1-AMon, and images of the different sample screens.

Most of the User key numbers are defined with the user key function definitions earlier in the TMC-1 Reference manual.

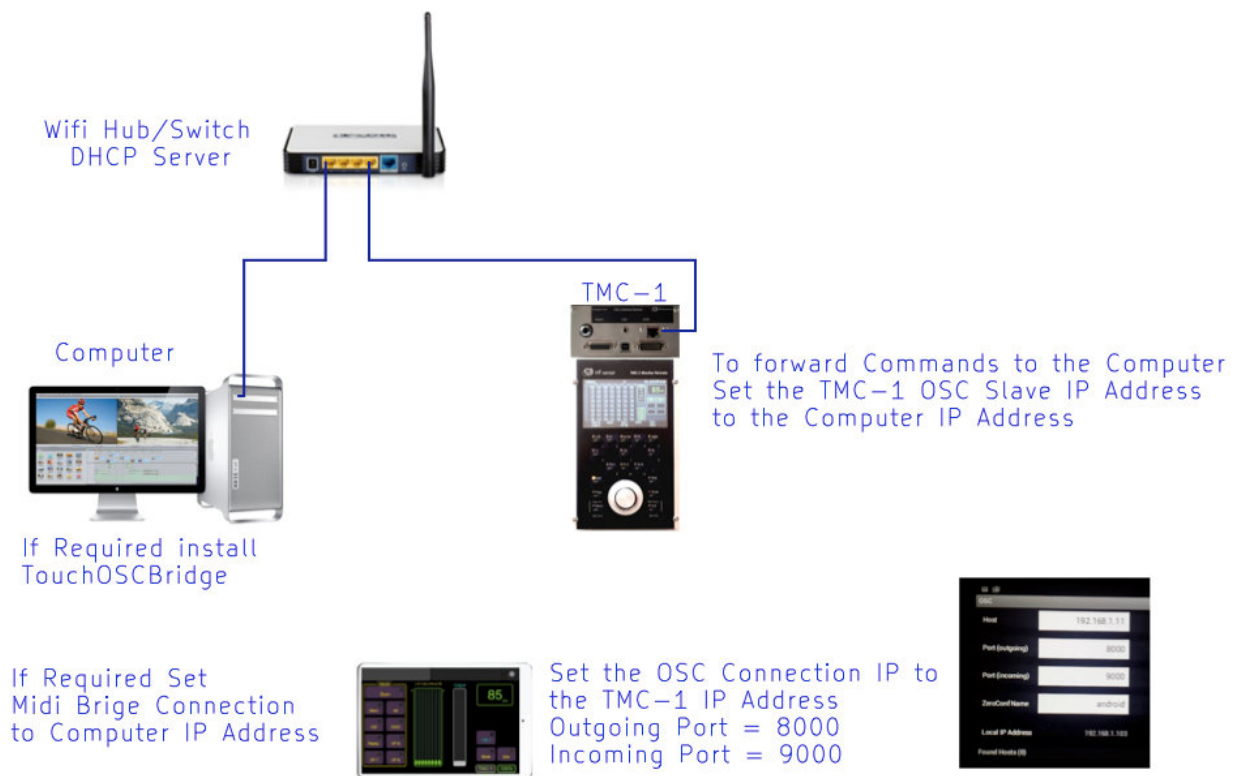
The current control codes and control types are listed below. Push Buttons are made up from three controls: Push Button, Label V, and LED. Single controls are used throughout

except for the meters which are a 8 channel multi fader.

OSC Slave O/P

The Slave OSC O/P is provided to allow OSC control of a DAW or other devices from the same tablet. The OSC slave is assumed to be on the same subnet, the final IP number is defined on the OSC Slave IP Page on the TMC-1 (Select+Page then ENet). The Outgoing Port is fixed (8000) and the Incoming Port is fixed (9000). Commands from the Tablet not recognised as TMC commands will be forwarded to the OSC Slave. Tallies from the OSC Slave will be forwarded to the Tablet.

OSC WiFi Connections



The tablet OSC commands are sent to the TMC-1 via the WiFi router/Switch. Any Midi/ Keyboard commands from the tablet are sent to the Computer via the WiFi Router/Switch.

Any unrecognised OSC Commands are forwarded by the TMC-1 using the TMC-1 OSC Slave output to the DAW via the WiFi router/switch.

Tallies flow in the opposite direction.

All devices must be on the same subnet (the first three numbers of the IP Address must be the same). Where multiple WiFi signals are available care should be taken that the tablet is connected to the correct network. In this case it can be advantageous to use a USB-Ethernet adaptor on the tablet to make a wired connection to the network.



OSC Switch, Type, Label, and LED Codes					
Function	OSC control prefix	OSC Control Type	OSC number	OSC Label Prefix	OSC LED Prefix
User keys (Not all User keys are implemented)	tmca	Push Button	See User key List	tmcu	tmcn
SPL Display			1	tmco	
SPL Type			2	tmco	
Meter Label			3	tmco	
Error Message			4	tmco	
Meters	tmcm	Multi-Fader			
Mute key	tmcb	Push Button	1		tmcp
Dim key	tmcb	Push Button	2		tmcp
L/S Mute	tmcb	Push Button	3		tmcp
L/S Solo	tmcb	Push Button	4		tmcp
Penta Palette Assign	tmcb	Push Button	5		
Meter Enab/Disab	tmcb	Push Button	6		tmcp
Update All (Refresh)	tmcb	Push Button	7		
Increment Mon level -	tmcb	Push Button	8		
Decrement Mon level +	tmcb	Push Button	9		
L/S keys	tmcd	Push Button	1...16	tmcq	Tmct
Monitor level	tmcc	Fader/Rotary	1		
Cue 1 level	tmcc	Fader/Rotary	2		
Cue 2 Level	tmcc	Fader/Rotary	3		
Cue 3 Level	tmcc	Fader/Rotary	4		
Cue 4 level	tmcc	Fader/Rotary	5		
Cue 5 level (XMon Only)	tmcc	Fader/Rotary	6		
Phones Level (Penta Only)	tmcc	Fader/Rotary	6		
Internal T/B level	tmcc	Fader/Rotary	7		
External T/B level	tmcc	Fader/Rotary	8		
Listen 1 level	tmcc	Fader/Rotary	9		
Listen 2 Level	tmcc	Fader/Rotary	10		
AFL Level	tmcc	Fader/Rotary	11		
Slate Level	tmcc	Fader/Rotary	12		
SLS Cue routing	tmce	Toggle Button	1..6		
Cue Out 1 routing	tmce	Toggle Button	7..12		
Cue Out 2 routing	tmce	Toggle Button	13..18		
H/PCue Routing	tmce	Toggle Button	19..24		



H/P Cue Routing (XMon only)	tmce	Toggle Button	25..30		
TMC-1-Penta Only					
	OSC control prefix	OSC Control Type	OSC number	OSC Label Prefix	OSC LED Prefix
Palette PFL	tmcf	Push Button	1..32	tmcr	tmcs
Penta Analog Input					
Mic/Line 1-8	tmcf	Push Button	33-40	tmcr	tmcs
Mute 1-8	tmcf	Push Button	41-48		tmcs
48v 1-8	tmcf	Push Button	49-56		tmcs
Polarity 1-8	tmcf	Push Button	57-64		tmcs
PFL 1-8	tmcf	Push Button	65-72		tmcs
Input Name			41-48	tmcr	
Gain 1-8	tmcc	Fader/Rotary	17-24		
Meter 1-8	tmcc	Fader	25-32		

OSC User Key Numbers

OSC Control prefix = tmca, OSC Label Prefix = tmcu, OSC LED Prefix = tmcn

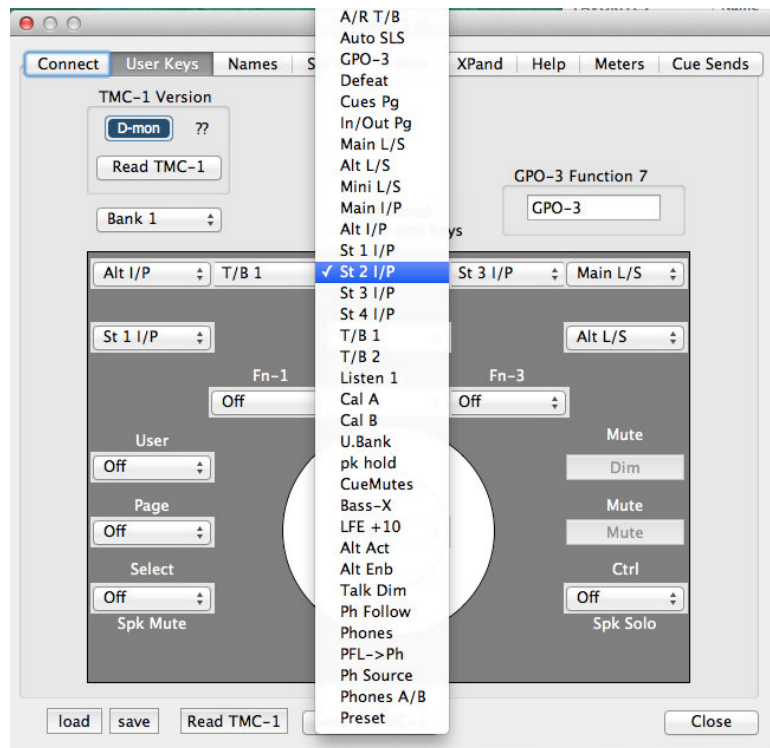
No	User Key	No	User Key	No	User Key	No	User Key	No.	User Key
1	Sum	16	Main I/P	31	T/B 1x	46	LCRS		
2	Cal P	17	Alt I/P	32	T/B 2x	47	Atmos		
3	Pset 1	18	I/P 3	33	T/B Allx	48	St.Down		
4	Pset 2	19	I/P 4	34	Listen 1	49	5,1 Down		
5	Pset 3	20	I/P 5	35	Listen 2	50	Bass X		
6	Pset 4	21	I/P 6	36	AR Listen	51	LFE +10		
7	A/B	22	I/P 7	37	Cal-A	52	Ph Follow		
8	Auto A/B	23	I/P 8	38	Cal-B	53	SLS PFL		
9	AR T/B	24	SLS	39	AFL	54	Cue 1 PFL		
10	Auto SLS	25	Cue 1	40	Sur-3dB	55	Cue 2 PFL		
11	GPO3	26	Cue 2	41	Mono	56	H/P PFL		
12	Defeat	27	H/P	42	Stereo	57	Imax		
13	Main LS	28	T/B 1	43	2.1	58	Auro		
14	Alt LS	29	T/B 2	44	5.1	59	DTSx		
15	Mini LS	30	T/B All	45	7.1	60			

Setting the TMC-1 user key functions

After a factory reset the user key functions are set to their default functions, you can change them using the TMC-1-Mac.Win App.

Note. These user key functions can also be set on the TMC-1 directly by holding the Select or Ctrl key depressed and clicking on the User key.

Note. You can Lock the User keys in the Advanced Setup.

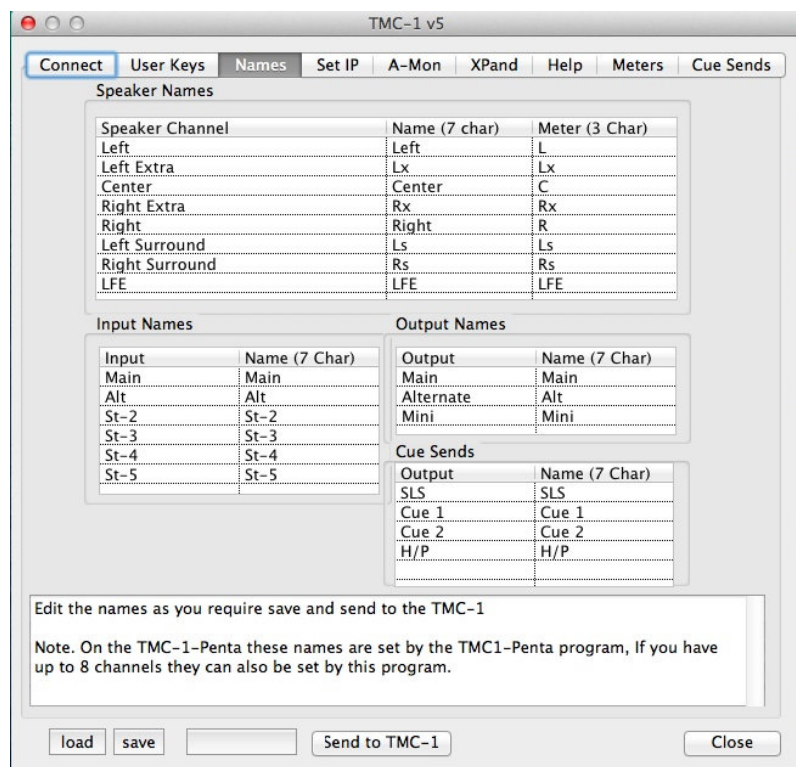


Setting the Input, Output, Speaker, Meter and User Names

After a TMC-1 Factory Reset the names are set to their Default values, you can change them using the TMC-1-win/mac app. The Input and Speaker names are limited to 7 characters, the Meter names to 3 characters.

Note: Although the names and key functions are saved in the same file they are updated individually

Note: On the TMC-1-Penta these names are also set from the TMC1-Penta2 App.



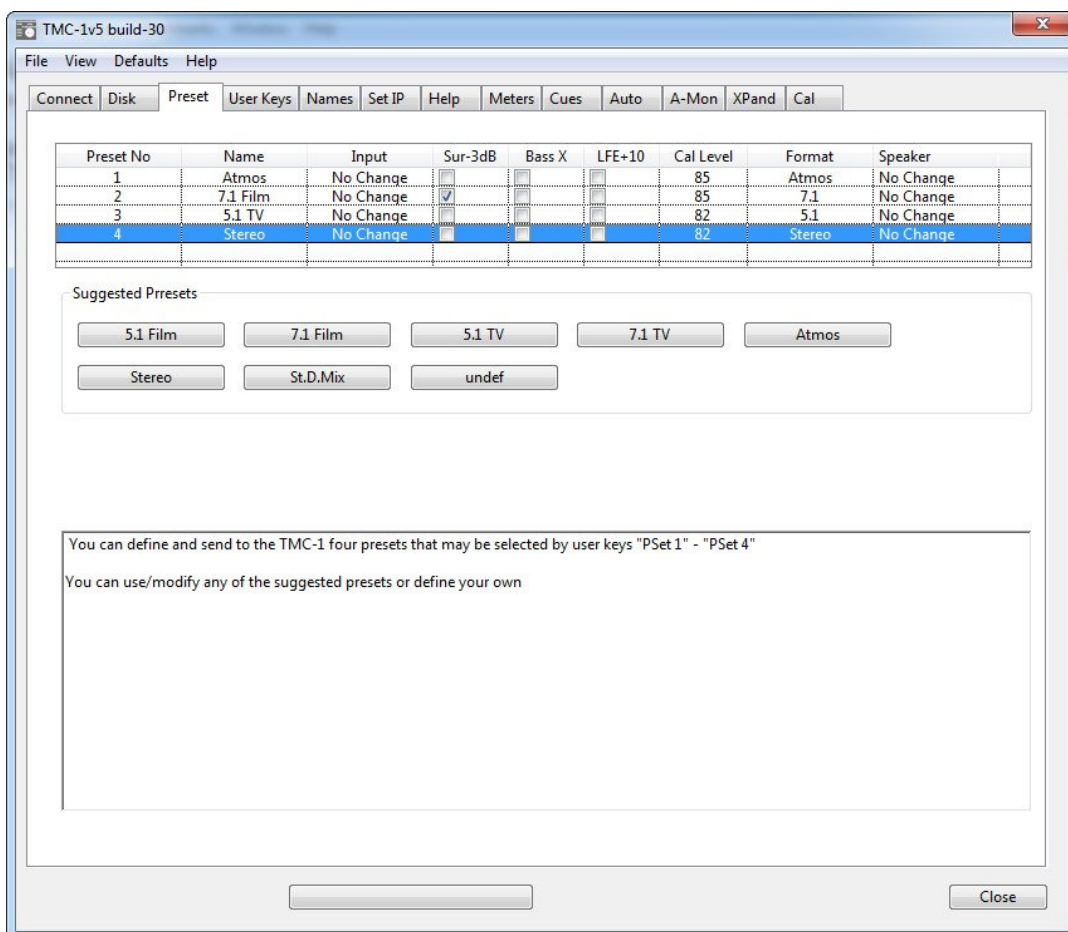
Presets

The TMC-1 now includes four Presets, User keys [Pset 1] -[Pset4] are used to select the presets. On Factory Reset presets 1, 2 and 3 are configured as 7.1 Film, 5.1 TV, and Stereo DownMix.

The Presets may be configured using the TMC-1v6 Preset page as shown below. The Presets are used to set a number of variables simultaneously as follows

- Name** Displayed at the Top of the TMC-1 TFT screen with the A/B selection.
- Input** A single Input may be selected or No Change
- Sur-3dB** Used to select between Film or TV Surround levels
- Bass-X** Enable/Disable Bass Extension
- LFE+10** Enable 10dB extra gain on LFE channel
- Format** Select Monitoring format
- Speaker** Select Speaker set or no change

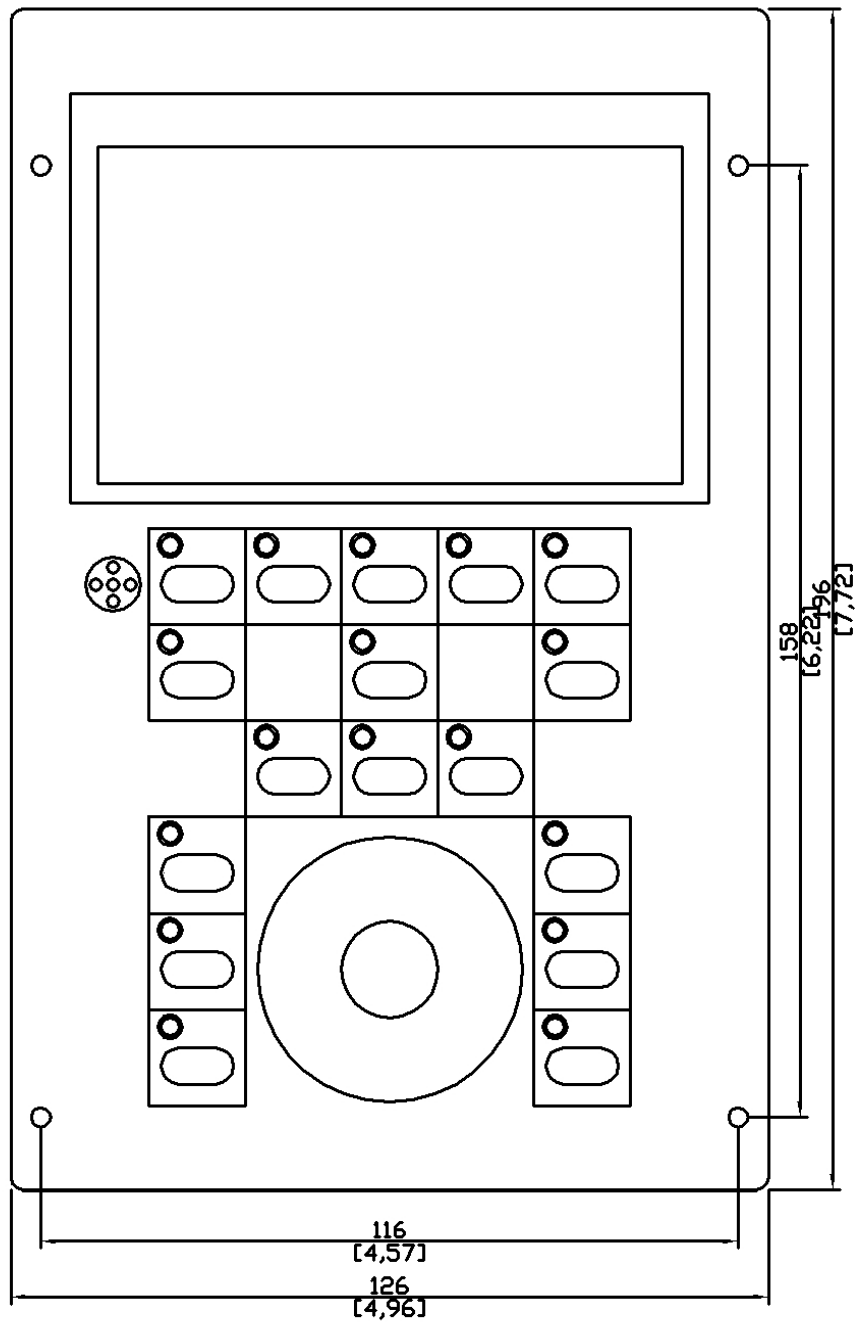
The Suggested Presets may be used to select predefined presets which may then be modified as required



Presets are supported by the OSC interface.



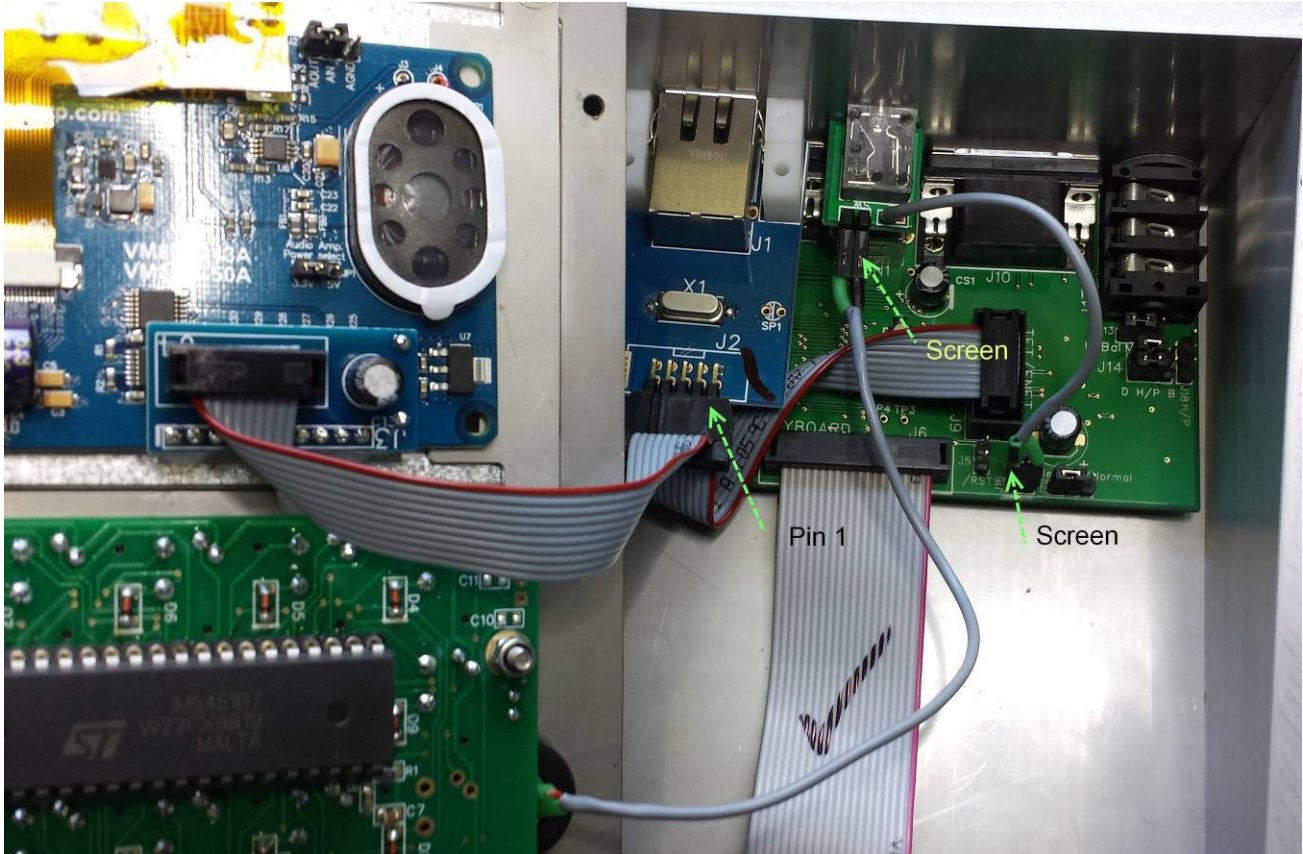
Dimensions



When mounting into a panel, a cut-out of 190 x 124 mm or 7.48" x 4.88" should be made. There is a 1mm overhang on each side and a 3mm overhang at Top and bottom.

TMC-1 Internal Connections

The Picture below show the internal connections – please note the orientation of the Mic and Ethernet connections



Talkback & Headphones Connector (XMon)

Corrected XMon 15 pin Connections			
Pin No.	In/Out (XMon)	Function	Note
1	Input	RS422 Input +	Midi over RS422 or MIDI Optical used, NOT both! See RS422/MIDI select in TMC-1 menu. XMon uses RS422 by default, Midi is used for software updates A-Mon uses RS422 only XPand uses RS422 only
9	Input	RS422 INPUT -	
2	Output	RS422 Output +	
10	Output	RS422 Output -	
3	Output	MIDI Output -	
11	Output	MIDI Output +	
4	Input	MIDI Input -	
12	Input	MIDI Input +	
5	Ground	Headphone Ground	Avid Doc incorrect
13	Output	Headphone Left	Avid Doc incorrect
6	Ground	Headphone Ground	Avid Doc incorrect
14	Output	Headphone Right	Avid Doc incorrect
7	Ground		
15	Input	TMC-1 Talkback Mic	
8	Ground	TMC-1 Talkback Mic	J13 between pins 1 and 2 on TMC-1

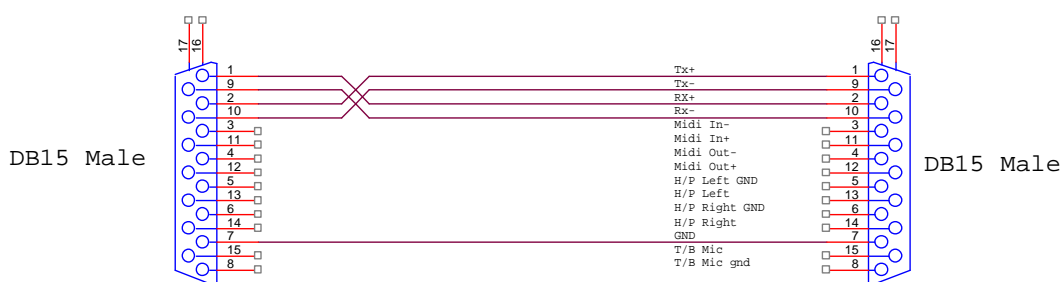
TMC-1 HD15 (VGA) Connector

TMC-1 HD15 (VGA-DCC) Connector			
Pin No.	In/Out (TMC-1)	Function	Note
1	Output	TMC-1 T/B Mic +	
6	Unbalanced Ground	TMC-1 T/B Mic Gnd	Default Jumper J13 between pins 1 and 2
	Balanced Output	TMC-1 T/B Mic -	Option Jumper J13 between pins 2 and 3 – Use Pin 7 for Screen
11	Input	Midi Rx-	
2	Input	H/P Right I/P	
7	Ground	H/P Right Gnd	
12	Input	Midi Rx+	
3	Input	H/P left I/P	
8	Ground	H/P left Gnd	
13	Input	RS422 Rx+	Midi over RS422 or MIDI Optical See RS422/MIDI select in TMC-1 menu. XMon uses RS422 by default, Midi is used for software updates A-Mon uses RS422 only XPand uses RS422 only
4	Output	Midi Tx-	
9			
14	Output	RS422 Tx+	
5	Input	RS422 Rx-	
10	Output	RS422 Tx-	
15	Output	Midi Tx+	

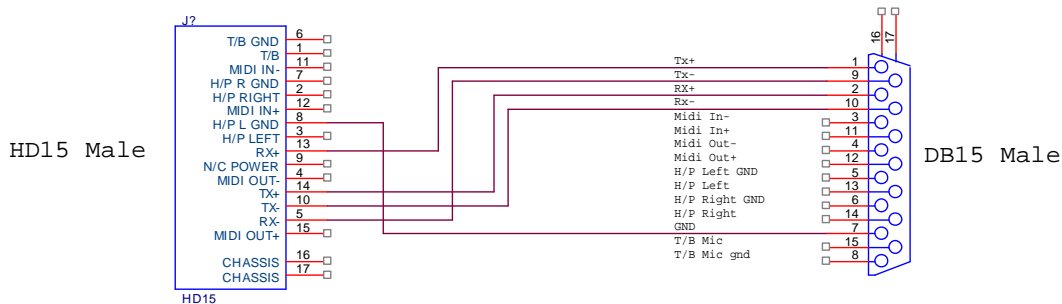
Connecting a Avid Icon Console to the MTRX/DadAX32/NTP Penta

The Icon console may be connected via the XMon connection, the diagram below shows the connections to the DB15 connector fitted to early TMC-1's and the HD15 connected to current units

ICON/D-COMMAND/D-CONTROL CABLE
MIDI OVER RS422
USING Original DB15 Connector on TMC-1



USING New HD15 Connector on TMC-1

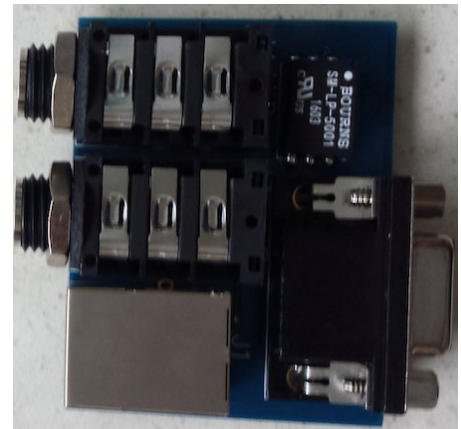


TMC-1-XMon/A-Mon RJ45 Breakout Box

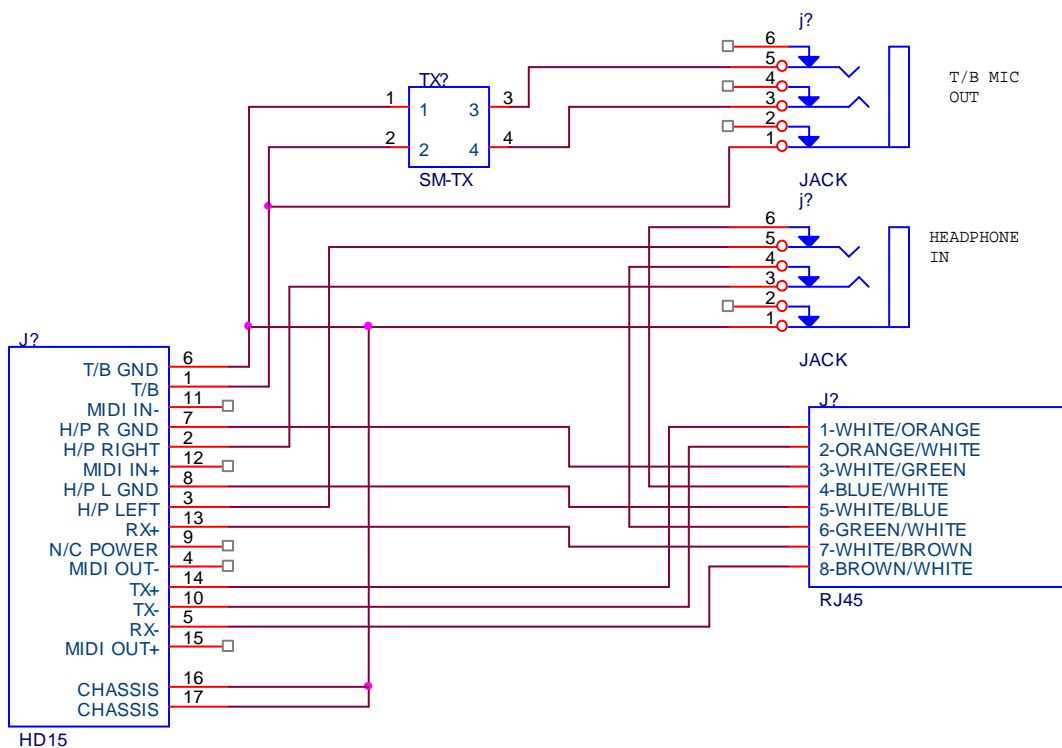
Available as an Option

A large number of studios are now flood wired with CAT5/CAT5e/CAT6 STP/TP cable. The circuit below is for the optional breakout box to connect the HD-15 on the TMC-1 to a RJ-45

There should be no problem connecting the RS422 control via Ethernet cable, depending on the cable type and cable length it may also be possible to feed the Headphones down the same cable – if not then use a audio cable and connect to the Headphone in socket



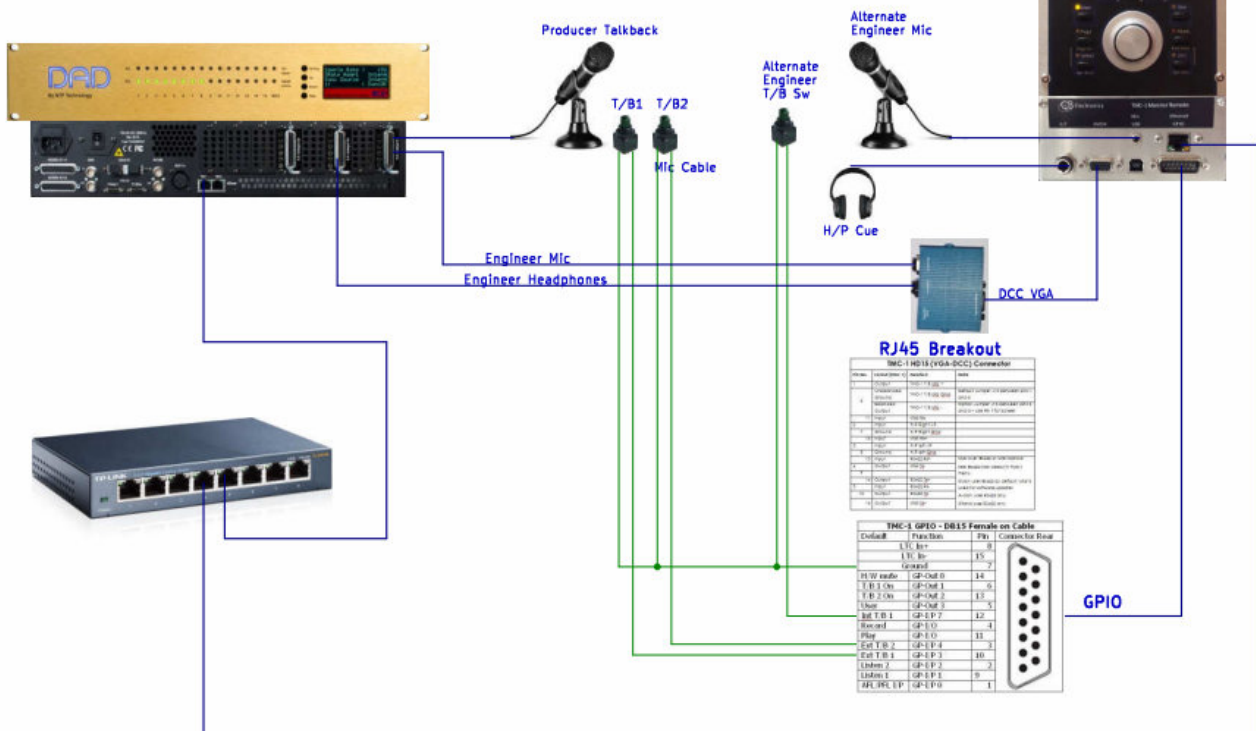
Note: The T/B Mic output should be fed via audio cable or possibly a separate STP Cat5e/Cat6 cable.



AMON/XMON RJ45 BREAKOUT BOX

Connecting the TMC-1 Headphones and Talkback Microphone to the DAD Ax32, NTP Penta 720 and Avid MTRX

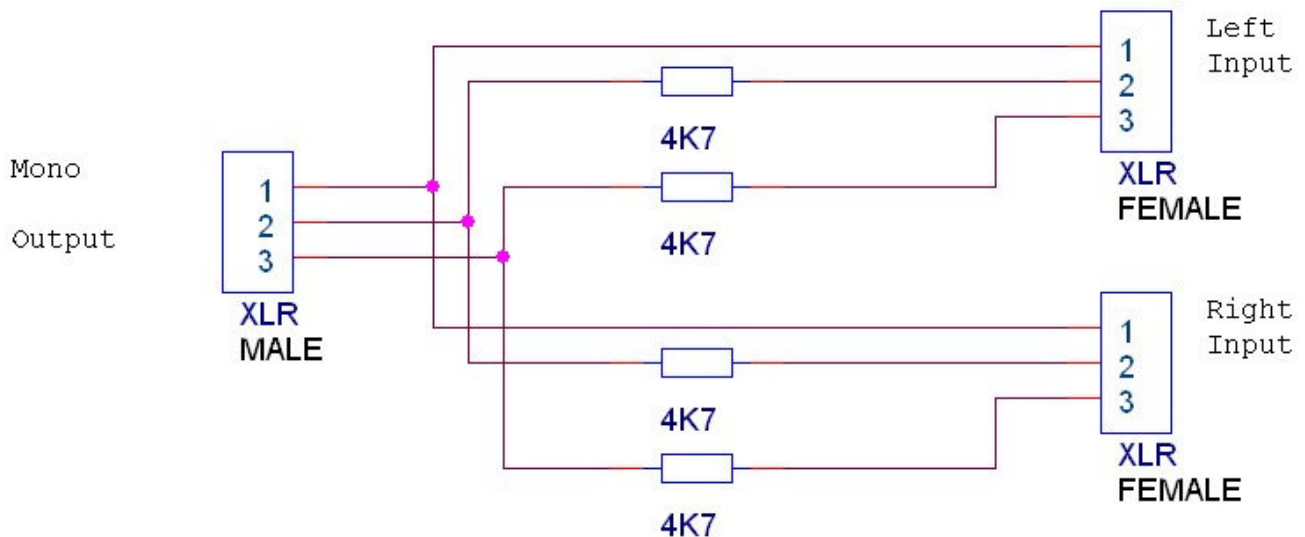
Connecting the TMC-1 Headphones and Talkback Microphone To The DAD AX32, NTP Penta 720 or Avid MTRX Analog IO



The Internal talkback Microphone and Headphones connect directly to XMon and A-Mon. When using the TMC-1-Penta and TMC-1-DMon the user should connect these to the appropriate analogue inputs and outputs. Using the CB RJ45 Breakout box makes this easier by bringing the connections out to two 1/4" Jack Sockets.

Single Mini Speaker

In a recent installation there was space for only one mini speaker (Too many video monitors). Although it is possible to switch to mono every time, we decided to mono the output with a simple combiner as shown below.



Glossary

Listen 1, Listen 2

Listen back channels, microphones installed in the Studio, machine room or overdub booth which can be monitored on the control room speakers.

L/B1, L/B2, L/B 1+2

Listen back channels 1 and/or 2 are enabled

T/B 1, T/B 2, T/B 1+2

Talkback channels 1 and/or 2 are enabled,

Mono

Mono is enabled: The mono attenuator is enabled, user programmable attenuation from 0dB to 4dB in 0.5dB steps.

SLS-A, SLS-B

Studio Loudspeaker selection A or B

There are two user keys associated with the Studio Loudspeakers SLS Mute and SLS A/B, SLS A/B allows you to switch quickly between two Studio Loudspeaker Selections

Fn-1, Fn-2, Fn-3

Keys 9, 10, 11 originally labelled Lb, Back, Rb these are now Function Keys and will in the future be labelled Fn1, Fn2, Fn3.

H.Mute

Hardware Mute, normal mute function and the Hardware mute GPO is active to drive mute relays to protect your speakers and ears from digital noise and power on/off clicks

)

Customer Questions

<p>How do I switch easily between any two Inputs?</p>	<p>Use the [A/B Sel] user switch. You can also use the [Sum] user switch independently on both A and A giving a total of 4 selections/combinations</p>
<p>Unexpected L/B, talkback, SLS or Monitor Enable/mute</p>	<p>Check Auto-Mute</p>
<p>My Level is locked and when I try to change it "Cal Locked" is displayed</p>	<p>Repeated depressions of the [Cal A] or [Cal B] keys will Lock and Unlock the Gain Control</p>
<p>D-Mon Phones O/P mutes when Talk Back is enabled</p>	<p>Talkback mutes the main output, If the D-Mon engineers phones source is set to 'Output Follow' it will mute! Change with the TMC-1 [Ph Source] user key (hold key depressed to change gain) or on the D-Mon Gui</p>
<p>I have assigned the insert in and out on the inserts page, but they are not working</p>	<p>Check that the inserts are assigned as required on the Main out, Alt out and Mini out pages</p>



Error Message "OSC Page No."	Check the Page Name, to work with the TMC-1 this must be a single digit number from 1 to 8
Error Message "User Keys Locked"	You can Lock/Unlock the user keys in Advanced Setup Menu
Error Message "Cal Locked"	The Cal keys locks the level, you can Lock/Unlock Cal in the Setup Menu
When selected to 5.1 the left and Right Surrounds are at -3dB	The default surround level for 5.1 is -3db (correct when using 5.1 in a 7.1 room). You can adjust this in calibration mode whilst depressing the 5.1 key.