



CB Electronics TMC-1-XMon Monitor Remote

Use with the TMC-1 Guide

Provisional





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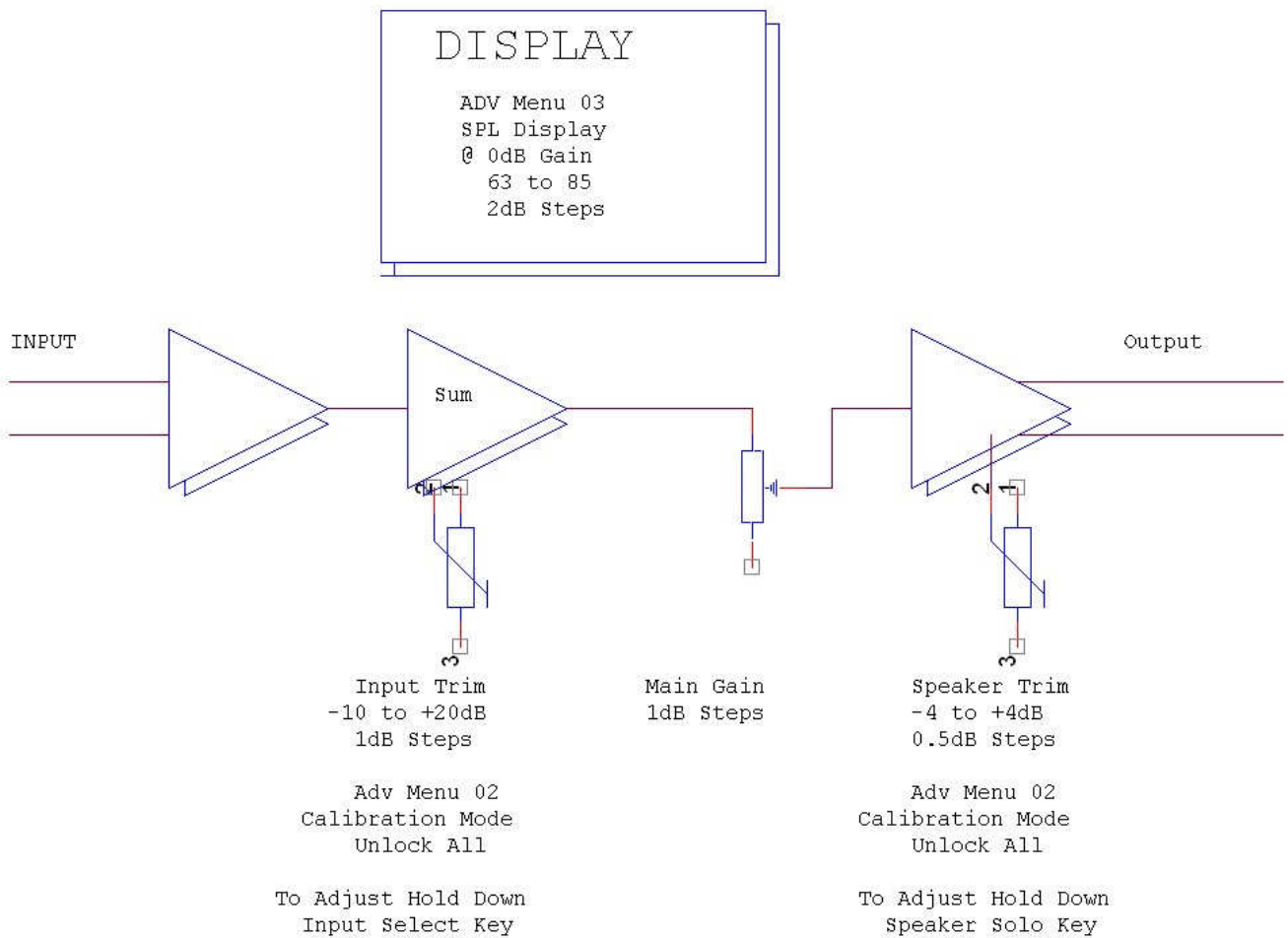
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XMon

TMC-1-XMon User guide

This document only describes connection details and setup considerations when using XMon and should be used with the TMC-1 User guide.

TMC-1-XMon Gain Structure





Stereo input to cue sends

Apart from the Link to the Monitor output there is no provision on the A-Mon to route a stereo input independently to the cue sends. One option is to parallel Cue input 3 with Stereo input 3 and name Cue input 3 appropriately.

Monitoring Cue Sends

There is no provision on the A-Mon to monitor the cue sends. One option would be to connect a Cue output to a stereo input and label the input appropriately.

Bass Extension

There is no provision on the XMon for Bass Extension however you can use GPO-3 as follows

GPO-3

One of our customers used the GPO-3 Output to enable and disable the Bass extension on his Speakers. He used TMC-1-Win/mac to rename the GPO-3 Indication to Bass-X

XPand Surround Bass Expansion

XPand has built in Summing and filtering for Surround Bass extension

Surround Switching

There is no provision on XMon for Surround switching, However the TMC-1 provides the following.

5.1

You can set a trim to reduce the surround gain when the Rear Speakers are added to the surround.

You can assign a GPO to be active when 5.1 is selected and use this to drive a relay to switch the rear speakers to the side.

XPand 5.1

When used with XPand it can be used to switch the Rear Surround to Side surround.

HD15 Connector (XMon)

The current version of the TMC-1-XMon uses a HD15 connector and are supplied with a conversion cable to connect with XMon.

Talkback Microphone and Headphone

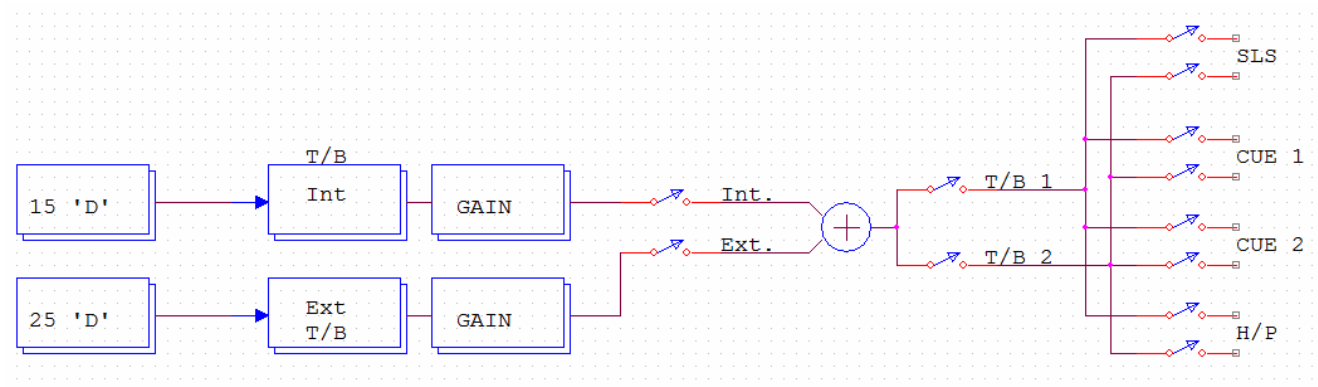
The TMC-1 provides a analogue Talkback Microphone with preamp and Headphone connection which are connected to the HD15 connector. To use connect to Analogue Inputs and outputs on the D-Mon

Internal Talkback Microphone

An electret mic amplifier is provided on the TMC-1, normally connected to the internal microphone. A 3.5mm Jack on the rear is provided to that a suitable external "Laptop Mic" may be used. The mic output is on the HP15 pin "XMon" connector and may be configured with a balanced or unbalanced output. When using the TMC-1 microphone with the switches on the TMC-1 the mechanical coupling causes a click on turn off. There are a number of solutions to this:

- 1) Use an external switch connected to the GPIO input on the TMC-1
- 2) Connect an external Mic to the 3.5mm jack on the rear of the TMC-1 or directly to the XMon
- 3) Use the Auto-mute commands to disable the Talkback on entering Play and/or Record.

Talkback and Slate routing



Listen Back Microphones

Use Omni-directional microphones for Listen back, PZM or Boundary effect microphones should work well.

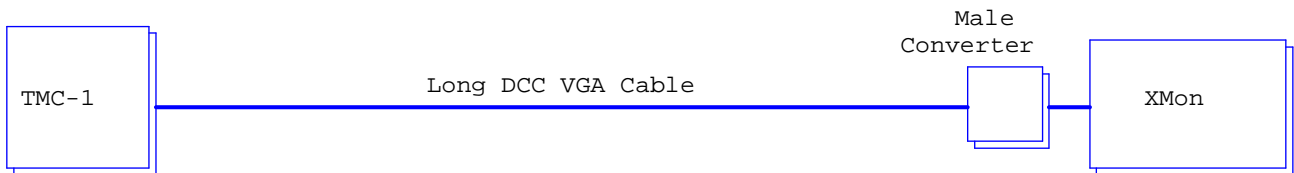
Headphone Jack

The headphone jack is connected directly to the 15 pin "XMon" connector. The input is unbalanced with two ground returns.

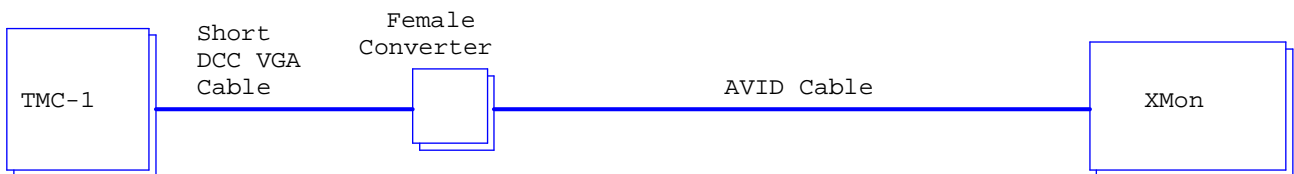
Connecting the TMC-1 to XMon

The original TMC-1 used a 15 pin D connector and a games cable which is no longer available. The latest versions of the TMC-1 use a 15pin HD 'D'connector for the remote. The TMC-1 is supplied with a converter box to allow easy connection to the X-Mon. Where very long cables are used (>15m) we recommend using a separate Talkback Mic cable to prevent cross talk between the Mic input and the digital signals resulting in noise on the talkback feed.

Connecting the TMC-1 to XMon using a long DCC VGA Cable



Connecting the TMC-1 to XMon using the Avid XMon cable



Male/Female Converter



RJ45 Breakout card

A pair of RJ45 breakout boards can be ordered for use with both A-Mon and XMon





Optimising XMon performance

XMon cannot be considered as a standalone device but as part of a monitor system consisting of the XMon, Power amps and Speakers.

The main gain section of XMon uses digital gain control to provide a gain range of +31dB to -95db. As can be seen on the chart below, to optimize the signal-to-noise ratio, it is important that XMon is run at between 0dB and +10dB gain for normal levels.

XMon Noise and Distortion at different gains						
Measured with +4dB gain and speaker trim set at -4dB (0dB overall)						
Gain	-30dB	-20dB	-10dB	0dB	+10dB	+20dB
Noise	-95dB	-94dB	-94dB	-93dB	-83dB	-73dB
Output Level, Signal to Noise and distortion						
measured with +4dBm @ 2KHz Input (-16dB on XMon Meters)						
	-26dBm	-16dBm	-6dBm	+4dBm	+14dBm	+24dBm
Signal to Noise	66dB	76dB	86dB	97db	97dB	97dB
THD+Noise	0.116%	0.040%	0.016%	0.011%	0.016%	0.061%

The Speaker trim section of the XMon provides a gain range of 0dB to -63.5dB in 0.5db steps. As can be seen in the chart below, the signal-to-noise remains the same for the first 4dB of attenuation but then the noise floor levels out so that the signal-to-noise degrades as attenuation is increased.



Speaker attenuation, Signal to Noise and distortion

Measured with +4dBm input @ 2KHz Input and +4dB gain

Speaker Trim	0dB	-2dB	-4dB	-6dB	-8db	-10dB	-12dB	-14dB	-16dB
Noise	-88.3	-90.2	-92.5	-93	-93.5	-93.8	-94.1	-94.2	-94.5
Output Level	+8dBm	+6dBm	+4dBm	+2dBm	0dBm	-2dBm	-4dBm	-6dBm	-8dBm
THD+Noise	0.009	0.009	0.009	0.009	0.009	0.010	0.012	0.014	0.016
Signal to Noise	96.3	96.2	96.5	95	93.5	91.8	90.1	88.2	86.5

Note. The increase in distortion at increased attenuation is largely due to the noise content

The factory default settings of the TMC-1 XMon controller are as follows:

Main Gain Section +4dB gain.

Speaker Trim -4dB

Overall gain 0dB

Speaker trim range is restricted to +/- 4dB

Input makeup gain +20dB to -10dB

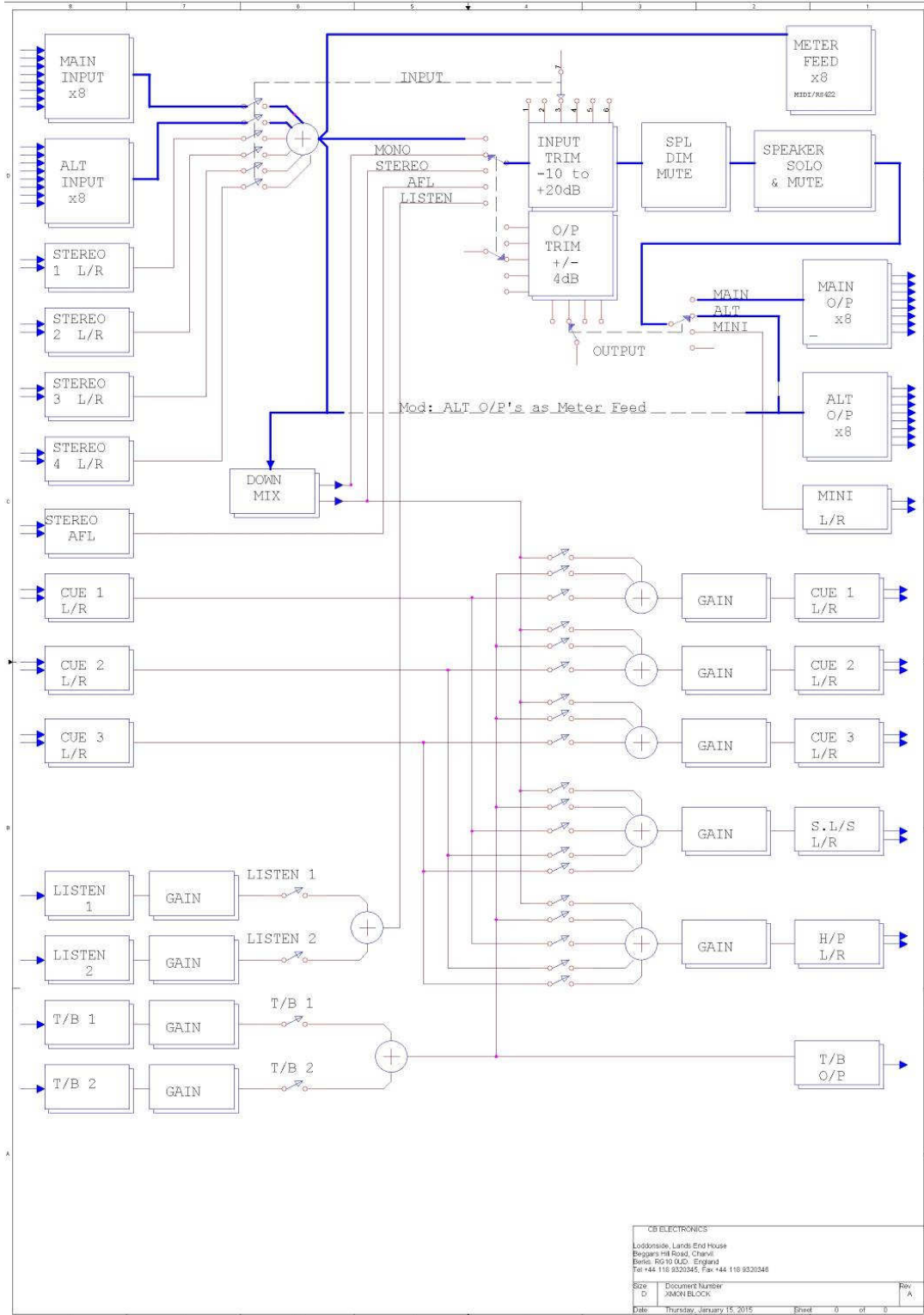
XMon Metering

The default setting provides 5dB of analogue headroom above the digital clip point when set in this mode (XMon clips at approximately +25dBm).

The X-Mon updates a channel every 2.5mSec, all channels are updated in 20mSec.



XMon Block Diagram





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