

TUBE-TECH SMC 2B/M

Stereo Multiband Compressor

Description:

The **TUBE-TECH multiband compressor SMC 2B/M** is three-band stereo compressor. The two x-over frequencies are each made with a single RC circuit thereby preserving optimum summation of the three bands at the output.

The x-over frequency between the low band and the mid band is variable from 60Hz to 300Hz or 240Hz to 1200Hz and the x-over frequency between mid band and the high band is variable from 1,2kHz to 6kHz.

The signals from the three bands are then fed to the three separate side chain circuits, each common for left and right channel. After processing, the three signals goes to a gain control, separate for each band and, are thereafter summed and send to the output gain, controlling the entire output level for all three bands.

Compressor:

The compressors are of the optical device type. It has controls for ratio, threshold, attack and release.

COMPRESSOR CONTROLS:

RATIO: The ratio control varies the ratio by which the input signal is compressed. If the ratio selected is 2:1, and the input signal increases 10 dB, the output signal is only increased by 5 dB.
The ratio control is continuously variable from 1,5:1 to 10:1.

THRESHOLD: The threshold is the point where the compressor begins to respond. It is defined as the point where the gain is reduced by 1 dB.
The threshold is continuously variable from off to -20 dBU.

ATTACK: The attack control chooses how fast/slow the compressor responds to an increase in the input signal.
The attack control is continuously variable from 1 to 100 milliseconds.

RELEASE: The release control chooses how fast/slow the compressor responds to a decrease in the input signal.
The release control is continuously variable from 0,07 to 2,5 seconds.

COMP in/out: This switch controls a relay that bypasses the whole unit.

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OUTPUT GAIN:

The gain control is used to "make up" for the gain loss, which takes place when the unit is compressing. The gain control is continuously variable from off to +10 dB.

BALANCE:

The balance control is used to compensate for the difference between channel 1 and channel 2. The balance control has a range of +/- 1,5dB.

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ADJUSTMENT PROCEDURE:

CAUTION:

Before making any adjustment let the unit heat-up at least 10 min.

Always check the DC voltages at the power supply.

- 1) The DC voltage in TP201 shall be +280V (265-295).
- 2) The DC voltage in TP203 shall be +15,0V (14,7-15,3).
- 3) The DC voltage in TP204 shall be -15,0V (14,7-15,3).

ADJUSTMENT OF PSU:

- 1) The DC voltage in TP202 shall be +240V.
Adjust with P202.

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ADJUSTMENT OF BASIC GAIN:

- 1) Set the “**OUTPUT GAIN**” on “**+10**”.
- 2) Set the Low-Mid and High “**Gain**” on “**+10**”.
- 3) Apply a signal of 1 kHz, -20,0 dBU to input.
- 9) Adjust the preset “**Gain**” P1 (P101) (on amp/psu PCB) to an output reading of 0,0 dBU.

ADJUSTMENT OF COMPRESSION:

LOW BAND:

- 1) Turn all the THRESHOLD-controls fully counter-clockwise.
- 2) Turn the **LOW BAND GAIN**-control fully clockwise.
- 3) Turn the **MID BAND and HIGH BAND GAIN**-control fully counter-clockwise.
- 4) Set the **X-OVER LOW** at 300 (1,2k).
- 5) Set the **X-OVER LOW** multiplier at x4.

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- 6) Apply a signal of 100 Hz, (approx. -20 dBU) to the input and adjust the input level for an output reading of 0,0dBU.
- 7) Move the jumper on the low band side chain PCB to “ADJUST” and observe that the output level has dropped to -10,0 dBU in both channels.
- 8) If this is not the case, adjust the balance P 6 to an equal reading for both channels.
- 9) Adjust the gain reduction with P 5, to obtain a drop of -10,0 dB.
- 10) Repeat step 8 and 9.
- 11) Adjust the low band display with P 7 so the green -10 LED turns on and the green -7 LED just turns off

MID BAND:

- 1) Turn all the **THRESHOLD**-controls fully counter-clockwise.
- 2) Turn the **MID BAND GAIN**-control fully clockwise.
- 3) Turn the **LOW BAND and HIGH BAND GAIN**-control fully counter-clockwise.
- 4) Set the **X-OVER LOW** at 60 (300).
- 5) Set the **X-OVER LOW** multiplier at x1.
- 6) Set the **X-OVER HIGH** at 6k.
- 7) Apply a signal of 400 Hz, (approx. -20 dBU) to the input and adjust the input level for an output reading of 0,0dBU.
- 8) Move the jumper on the low band side chain PCB to “ADJUST” and observe that the output level has dropped to -10,0 dBU in both channels.
- 9) If this is not the case, adjust the balance P 6 to an equal reading for both channels.
- 10) Adjust the gain reduction with P 5, to obtain a drop of -10,0 dB.
- 11) Repeat step 9 and 10.
- 12) Adjust the mid band display with P 7 so the green -10 LED turns on and the green -7 LED just turns off.

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HIGH BAND:

- 1) Turn all the **THRESHOLD**-controls fully counter-clockwise.
- 2) Turn the **HIGH BAND GAIN**-control fully clockwise.
- 3) Turn the **LOW BAND and MID BAND GAIN**-control fully counter clockwise.
- 4) Set the **X-OVER HIGH** at 1,2k.
- 5) Apply a signal of 10 kHz, (approx. -20 dBU) to the input and adjust the input level for an output reading of 0,0dBU.
- 6) Move the jumper on the high band side chain PCB (top most PCB) to "ADJUST" and observe that the output level has dropped to -10,0 dBU in both channels.
- 7) If this is not the case, adjust the balance P 6 to an equal reading for both channels.
- 8) Adjust the gain reduction with P 5, to obtain a drop of -10,0 dB.
- 9) Repeat step 7 and 8.
- 10) Adjust the high band display with P 7 so the green -10 LED turns on and the green -7 LED just turns off.

CALIBRATING OF GAIN POTS:

When any of the gain potentiometers have been replaced, they will need to be re-calibrated, to minimise the level difference between the two channels.

Two resistors on each gain pot, are used to adjust the channel difference:

R24, R124 at **OUTPUT GAIN**

R21, R121 at **HIGH GAIN**, R22, R122A at **MID GAIN**, R123, R123 at **LOW GAIN**

HIGH, MID and LOW band potentiometers:

Only one gain pot is calibrated at a time. The two others are turned fully anticlockwise (off).

- 1) Turn the **OUTPUT GAIN** at max. gain (clockwise).
- 2) Turn the gain on the band to be calibrated, at max. gain (clockwise) and check that the difference between the two channels, are less than 0,1dB.
- 3) Set the gain pot to "0" dB.
- 4) The potmeter in the channel with the lowest level is adjusted to match the other channel, by changing the resistor, until the level is within 0,1dB.
The resistance range is normally within 274K Ω to 510K Ω

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- 5) The difference between channels shall be within 0,5dB
- 6) Repeat step 2-5 for the two other bands

OUTPUT GAIN potentiometer:

- 1) Turn the **OUTPUT GAIN** on max. gain (clockwise) and check that the difference between the two channels, are less than 0,1dB.
- 2) Set the gain pot to "0" dB.
- 3) The potmeter in the channel with the lowest level is adjusted to match the other channel, by changing the resistor, until the level is within 0,1dB.
The resistance range is normally within 274K Ω to 510K Ω
- 4) The difference between channels shall be within 0,5dB

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TECHNICAL SPECIFICATIONS SMC 2B:

<u>Input impedance:</u>	> 2 kOhm
<u>Output impedance:</u>	< 60 Ohms
<u>Frequency-response @ -3dB:</u>	5 Hz to 60 kHz
<u>Distortion THD @40 Hz:</u>	
<u>0 dBU:</u>	< 0,15 %
<u>10 dBU:</u>	< 0,15 %
<u>maximum output (1 % THD):</u>	+26,0 dBU
<u>maximum input (1 % THD):</u>	+21,0 dBU

<u>Cross talk</u>	< -40dB
<u>CMRR @ 10KHz</u>	< -60dB

<u>Gain:</u>	
Master:	off to +10 dB
Low, Mid & High band:	off to +10 dB
Tracking:	< 0,5dB

<u>Gain (master version):</u>	
Master:	-1 dB to +10 dB
Low, Mid & High band:	-1 dB to +10 dB
Tracking	< 0,1 dB

<u>X-over frequencies</u>	x1	x4
Low & Mid band	60 to 300 Hz	0,24 to 1,2 KHz
Mid & High band:	1,2 to 6 KHz	

<u>X-over frequencies (master version)</u>	
Low & Mid band x1	60, 100, 150, 200, 250, 300 Hz
x4	0.24, 0.4, 0.6, 0.8, 1, 1.2 KHz
Mid & High band:	1.2, 2, 3.2, 4, 6 KHz

<u>Compressor</u>	
<u>Ratio:</u>	1,5:1 to 10:1
<u>Threshold:</u>	off to -20 dBU
<u>Attack:</u>	3mS to 200mS
<u>Release:</u>	0,06 S to 2S

<u>Tubes</u>	
ECC 81	4 pcs
ECC 82	2 pcs
ECC 83	2 pcs

Dimensions

Height: 2 units

132 mm / 5,2"

Width:

483 mm / 19"

Depth:

205 mm / 8,1"

Weight

Net:

6,2 Kg / 13,7 lbs

Shipping:

7,5 Kg / 16,5 lbs

Power requirements

@ 115 V / 230 V AC, 50-60 Hz

30-45W

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