

COMPOSER

The Audio Interactive
Dynamics Processor
Model MDX 2100

VERSION 2.2 March 1995

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CONTROLS

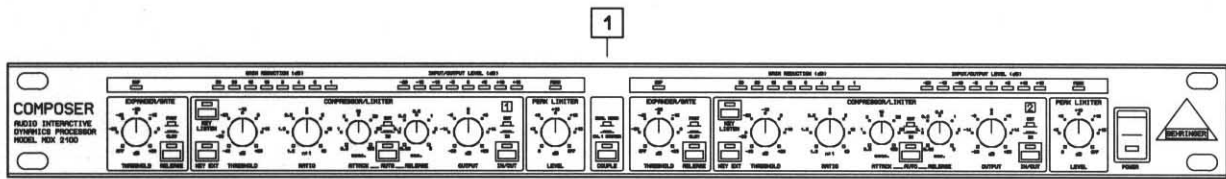


Fig. 11 The control surface of the COMPOSER

The Behringer COMPOSER has two identical channels. Each channel is equipped with 5 push button switches, 7 rotary controls and 18 LEDs. The COUPLE switch is for stereo operation:

1 COUPLE switch

The COMPOSER converts to stereo mode by engaging the COUPLE switch, where the left channel assumes the control of both audio paths, whereby the control voltage of channel 2 will be replaced with that of channel 1. By depressing the COUPLE switch, you override all the controls and switches of channel 2 with the exception of the IN/OUT and the KEY LISTEN switch. Channel 1's controls completely take over the functions of channel 2.

5.1 EXPANDER/GATE SECTION

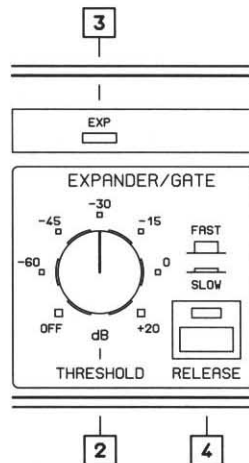


Fig. 12 Control surface of the Expander/Gate section

2 THRESHOLD control

This control sets the level below which expansion occurs. The range of this control lies between -70 and +20 dB.

3 EXP LED

This LED illuminates when expansion occurs.

4 RELEASE switch

So that the Expander/Gate can be adjusted to the programme material, you can choose between a slow or fast release time. When this switch is depressed, the expander responds with a SLOW release.

As a general rule percussive material with little or no ambience is processed using the FAST release mode, whereas signals with long decay or with heavy ambience require the SLOW release mode.

COMPRESSOR SECTION

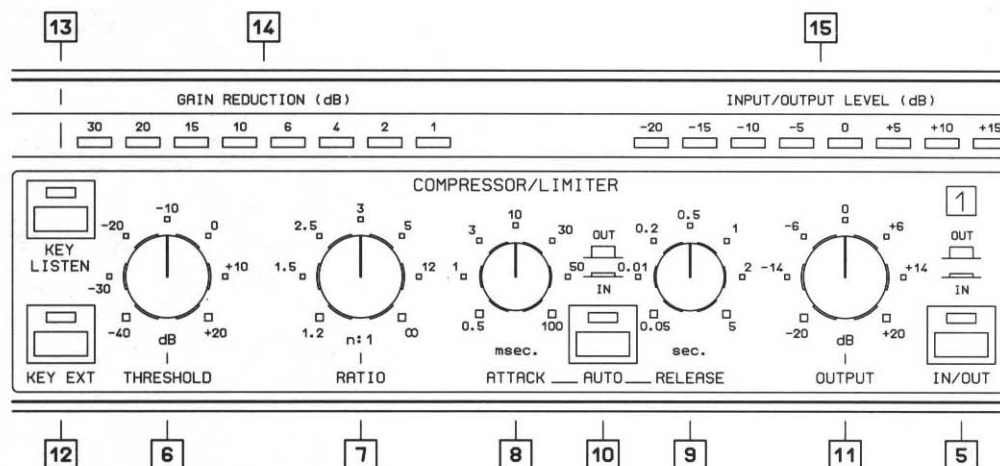


Fig. 13 Control surface of the Compressor section

5 IN/OUT switch

This switch activates the relay and engages the corresponding channel. The switch has a "Hard Bypass" function. This means that when the switch is not depressed (OUT) or the unit is turned off, the input to output connections are direct. The IN/OUT switch is used to make direct A/B comparisons between source material and the processor's effected signal.

6 THRESHOLD control

This control sets the threshold point for the compressor section. It has a range of -40 to +20 dB. The "Soft Knee" characteristic is applied to the signal exceeding the threshold point by a maximum of 10 dB. Above 10 dB, the signal would experience "Hard Knee" compression.

7 RATIO control

The RATIO control determines the ratio between the input and output level for all signals exceeding the threshold point by more than 10 dB. The control range can be adjusted from 1.2:1 to infinity:1.

8 ATTACK control

The ATTACK control determines the rate, by which the compressor responds to the signal which exceeds the threshold. This control can be adjusted from 0.5 to 100 milliseconds.

9 RELEASE control

The RELEASE control determines the rate, that the compressor returns to unity gain, after falling below the threshold level. This control can be adjusted from 0.05 to 5 seconds.

10 AUTO switch

By activating the AUTO switch, the ATTACK and RELEASE controls are disabled and the attack and release rates are automatically derived from the programme material. This function allows for unobtrusive musical compression of signals or mixes with widely varying dynamics.

11 OUTPUT control

The OUTPUT control allows for the increase or decrease of the output signal by a maximum of 20 dB. Thus, a level loss due to the compression or limiting process can be compensated for.

Please note when using the **LEVEL** control of the Peak Limiter section, that the **OUTPUT** control of the Compressor section precedes the Peak Limiter section. If the **OUTPUT** control is set too high, this can result in continuous peak limiting (see item 16 "LEVEL control").

12 KEY EXT switch

When activated, this switch severs the connection between the audio input and the sidechain path, whilst at the same time allowing an external signal to be sourced at the KEY RETURN jack on the rear panel.

13 KEY LISTEN switch

Using this switch will enable you to connect the key control signal to the audio output, whilst at the same time muting the audio input. This function provides you with the ability to monitor the key signal, that is returned via inserted equalisers or other external processors. The KEY LISTEN function will assist you with tuning equaliser parameters for example.

Please note when the KEY LISTEN switch is engaged, the audio processing facility of the respective channel is disabled. When this function is active, a visual indication will be provided by the switches LED, which will blink.

14 GAIN REDUCTION meter

The 8-stage GAIN REDUCTION meter indicates the actual gain reduction and displays this in a range of 0 to 30 dB.

15 INPUT/OUTPUT LEVEL meter

This 8-stage INPUT/OUTPUT LEVEL meter constantly monitors the level of the input or output signal level depending on the position of the IN/OUT switch. The displayed level range lies between -20 to +15 dB. When the switch is in the OUT position, the meter monitors the input signal, whereas in the IN position the output signal is monitored. The meter is referenced to an operating level using the switch provided at the rear of the unit which is able to select between -10 dBV and +4 dBu.

5.3 PEAK LIMITER SECTION

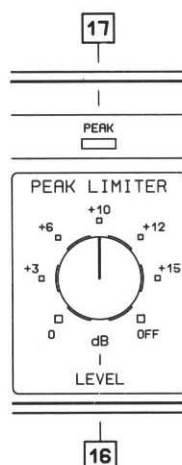


Fig. 14 Control surface of the Peak Limiter section

16 LEVEL control

This **LEVEL** control sets the absolute point by which the output signal is not allowed to go beyond. This limiter responds with unparalleled speed ("zero" attack) and is able to control even the fastest peak signals without allowing any audible distortion. If the output signal is excessively high, it will cause the limiter to identify clipping. If this occurs for more than 20 ms the overall output gain will be reduced for a period of 1 second. This will avoid heavy and audible distortion.

If you use the Peak Limiter as a protective device, to prevent harmful transients appearing on the output, the LEVEL control should be adjusted relative to the OUTPUT control of the Compressor section. This will ensure that the Peak Limiter section only operates when absolutely necessary. If you deliberately drive the Peak Limiter excessively, creative effects can be achieved.

17 PEAK LED

When the Limiter function occurs, the PEAK LED illuminates.

THE BACK PANEL LAYOUT OF THE COMPOSER

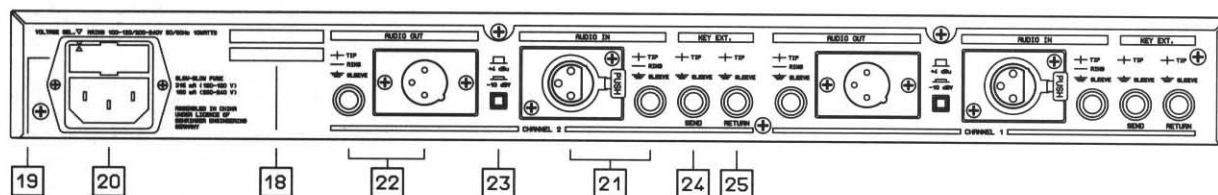


Fig. 15 The back panel layout of the COMPOSER

18 SERIAL NUMBER

Please take the time to make a note of the serial number in the space provided on the enclosed warranty registration card. Put the instruction manual in a safe place and return the completed warranty registration card to us within 8 days of purchase, making sure that the dealer stamp has been acquired.

19 FUSE HOLDER/VOLTAGE SELECTOR

Please note that, depending on the mains voltage supplied to the unit, the correct fuse type and rate must be installed.

Please note that the AC voltage selection is defined by the position of the fuse holder. If you intend to change the operating voltage, remove the fuse holder and twist it by 180 degrees before you reinsert it. Matching the two markers monitors the selected voltage. Before you connect the unit, please make sure that the displayed voltage corresponds to your mains supply.

20 MAINS CONNECTOR

Please use the enclosed mains cable to connect the unit to the mains power supply.

21 AUDIO IN

These are the COMPOSER's audio inputs.

22 AUDIO OUT

These are the COMPOSER's audio outputs.

23 OPERATING LEVEL switch

This switch allows the COMPOSER to be adapted to various operating levels. You can choose between the home recording level (-10 dBV) or the professional studio level (+4 dBu). This automatically changes the metering of the unit to represent the nominal levels and permits the COMPOSER to work to its optimum dynamic range.

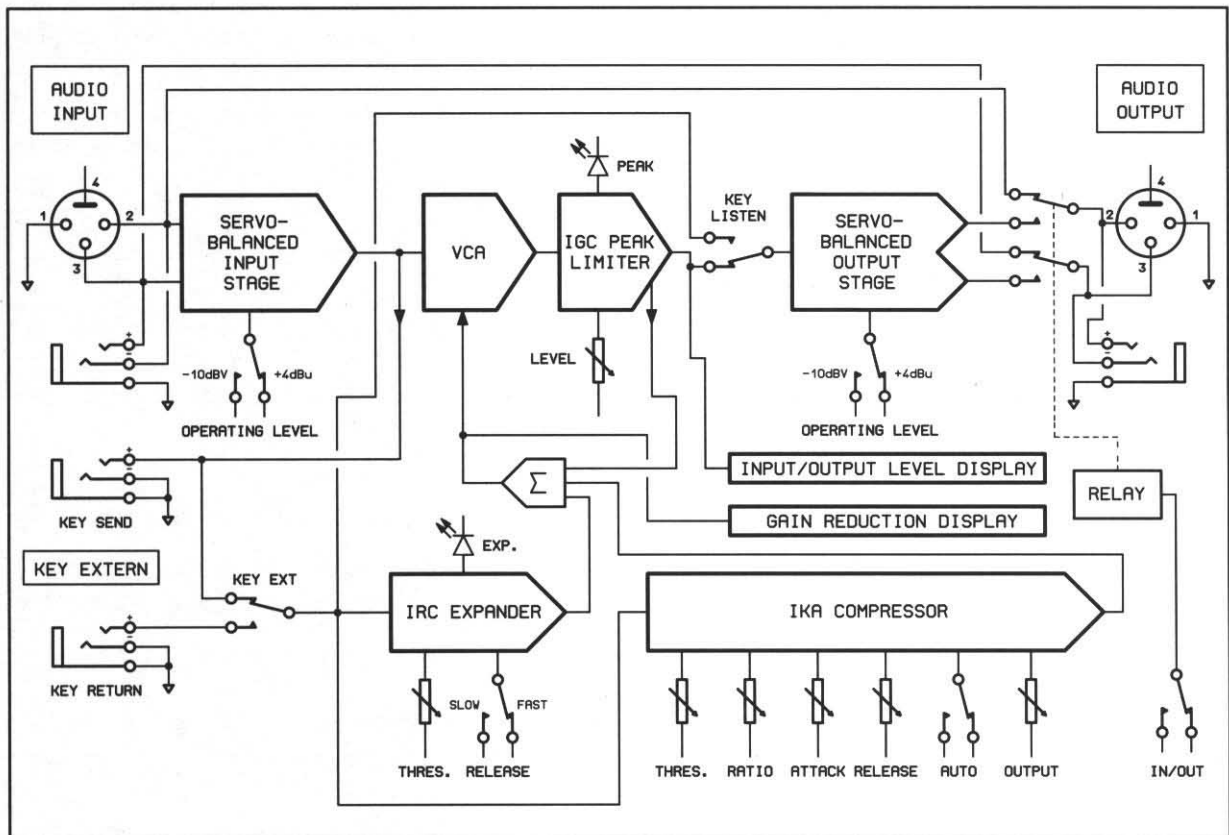
24 KEY SEND

This is the unbalanced key signal output for the connection of external units.

25 KEY RETURN

This is the unbalanced key signal input for the connection of external units.

BLOCK DIAGRAM



SPECIFICATIONS

AUDIO INPUT

Type	RF filtered, servo-balanced input
Impedance	60 kOhms
Nominal Operating Level	+4 dBu/-10 dBV switchable
Max. Input Level	+21 dBu balanced and unbalanced
CMR @ 1 kHz	+40 dB

KEY INPUT

Type	DC de-coupled, unbalanced input
Impedance	>20 kOhms
Max. Input Level	+21 dBu

AUDIO OUTPUT

Type	Electronically servo-balanced output stage (optional transformer-balanced). Automatic level correction for unbalanced use (correction: 6 dB).
Impedance	<40 Ohms, balanced and unbalanced
Max. Output Level	+26 dBm balanced, +21 dBm unbalanced
Bandwidth	5 Hz to 50 kHz, +0, -1 dB
THD @ +4 dBu	0.01 % typ.
THD @ +20 dBu	0.1 % typ.
IMD (SMPTE) @ +10 dBu	0.01 % typ.
Noise & Hum, unity gain	>-93 dBu
Noise & Hum, fully off	>-97 dBu
Crosstalk @ 20 kHz	>-85 dBu
CMR @ 1 kHz	>60 dB

KEY OUTPUT

Type	DC de-coupled, unbalanced output
Impedance	<100 Ohms
Max. Output Level	+20 dBu

EXPANDER/GATE SECTION

Type	IRC (Interactive Ratio Control) Expander
Ratio	programme dependent
Threshold	variable (OFF to +20 dB)
Attack	<1 ms/50 dB
Release	variable (SLOW: 100 ms/1 dB / FAST: 100 ms/100 dB)

COMPRESSOR SECTION

Type	IKA (Interactive Knee Adaption) Compressor
Threshold	variable (-40 to +20 dB)
Ratio	variable (1.2:1 to ∞ :1)
Attack	variable (0.5 to 100 ms/20 dB)
Release	variable (0.05 to 5 s/20 dB)
Auto	programme dependent attack and release
Output	variable (-20 to +20 dB)

PEAK LIMITER SECTION

Type	IGC (Interactive Gain Control) Peak Limiter
Attack (Clipper)	"zero" attack
Release (Programme Limiter)	approx. 1 s

FUNCTION SWITCHES

In/Out	Relay controlled hard-bypass
Key Extern	Switching to the external key input
Key Listen	Monitoring the external key input
Couple	Linking both channels for stereo operation

INDICATORS

8 element GAIN REDUCTION meter	1/2/4/6/10/15/20/30 dB
8 element INPUT/OUTPUT LEVEL meter	-20/-15/-10/-5/0/+5/+10/+15 dB
LED indicator for each function switch	

POWER SUPPLY

Mains Voltages	100-120/200-240 VAC 50-60 Hz
Power Consumption	9 Watts
Fuse	315 mA (100-120 V); 160 mA (200-240 V) slow-blow
Mains Connection	Standard IEC receptacle

PHYSICAL

Dimension	13/4" (44.5 mm)H * 19" (482.6 mm) * 8.5" (217 mm)
Net Weight	3 kg
Shipping Weight	4.3 kg