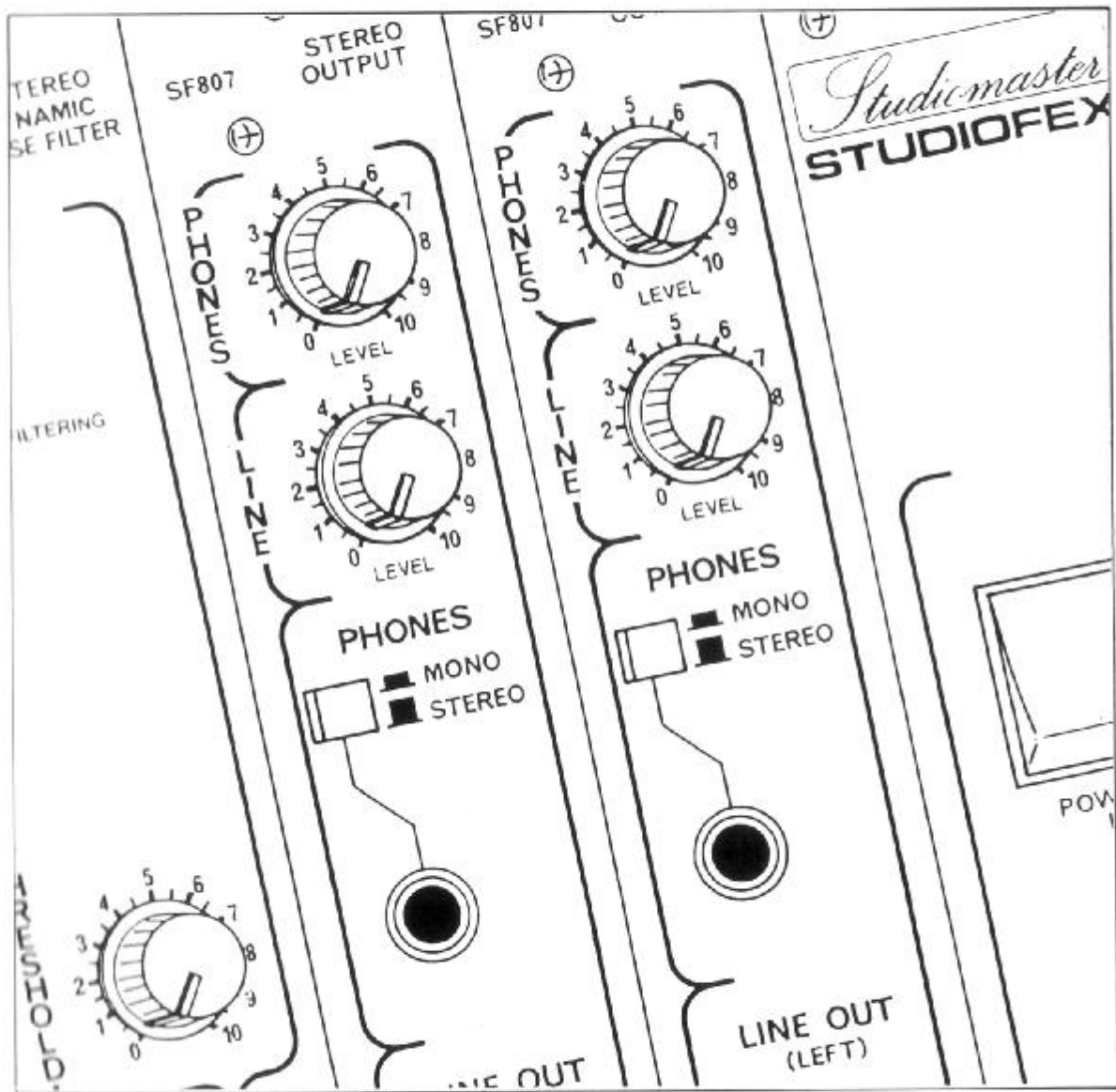


Studiomaster Studiofex SF801

Stereo Compressor



Owners Manual

SF801 Stereo Compressor

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STUDIOFEX is a fully modular studio effects system which brings together both the features and the performance which today's music demands. To get the best from the **STUDIOFEX SF801 STEREO COMPRESSOR**, familiarise yourself with all of its features by reading these instructions thoroughly.

Please also read the instructions which are supplied with the STUDIOFEX MOTHER UNIT.

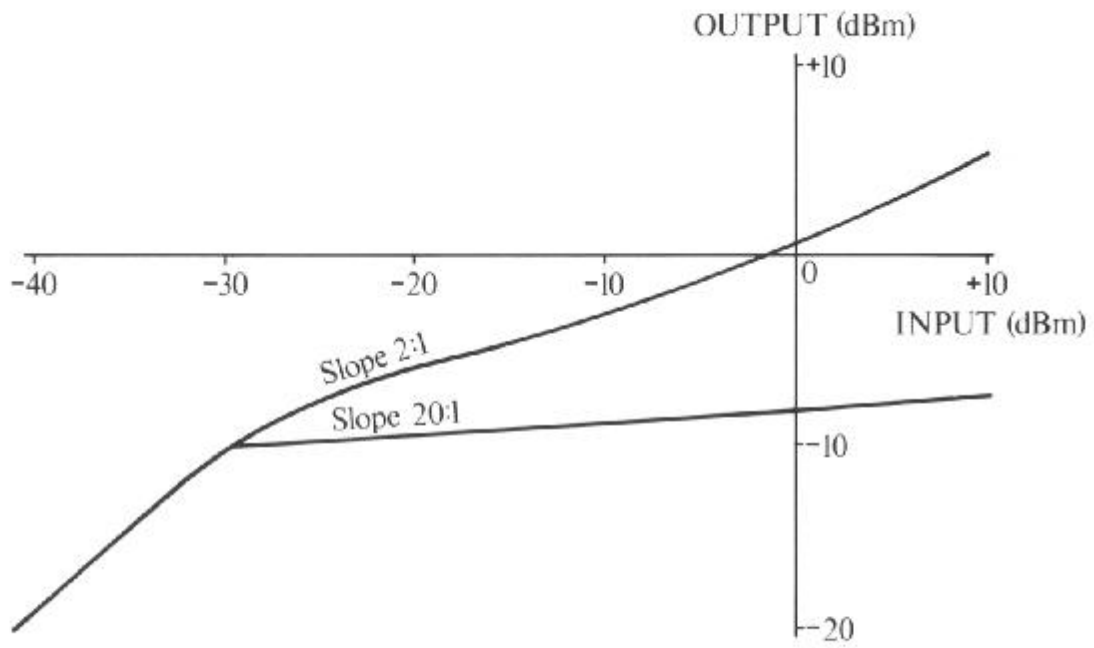
Function

The **COMPRESSOR** is like an automatic gain control which is turned down when the signal level becomes too high. This usually allows a higher average level to be recorded on to tape without distortion. Higher levels mean an improved signal-to-noise ratio, which is a very important consideration when dealing with imperfect media such as tape and vinyl which have a limited dynamic range. A compressor also helps to keep varying signal levels under control. The compression action takes place only above a pre-determined level called the **THRESHOLD**. Below this level, the signal is unaffected.

Above this **THRESHOLD** level, a change of level at the input will result in a lesser change in level at the output. The ratio between these two values (sometimes referred to as "slope") is usually variable. For example, a change in input level of 6dB might result in a 2dB change at the output, indicating that the compression **RATIO** is 3:1.

A compressor has two main parts: a variable gain amplifier and a detector, or **SIDECHAIN**. The sidechain takes some of the "through" signal, amplifies it and depending on the signal level, applies a control signal to the variable gain amplifier.

The compressor has many uses other than squeezing a large dynamic range into a medium with a limited dynamic range. The SF801 **STEREO COMPRESSOR** includes many features which extend the creative possibilities.



Transfer characteristics

Fig 1

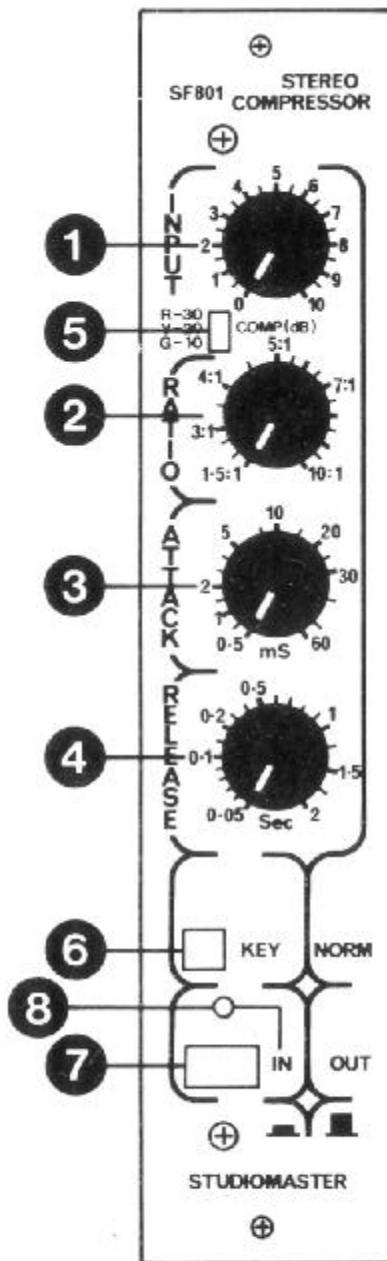
Features

FRONT (see FIG 2)

- 1 The **INPUT** control determines the level of the drive signal into the compressor. As it is turned further clockwise, more compression will take place.
- 2 The **RATIO** control determines how much the output level will be changed in relation to a change in the input level.
- 3 The **ATTACK** control varies the speed at which the compressor reduces its gain when the input level suddenly increases.
- 4 The **RELEASE** control determines how quickly the gain recovers to normal when the signal drops in level.
- 5 The **COMPRESSION** LED indicates how much compression is taking place. It is OFF when there is no compression, turning to GREEN with 10dB compression through YELLOW with 20dB compression to RED with 30dB compression.
- 6 The **KEY** button allows an external treatment to be applied to the **SIDECHAIN**.
- 7 The **IN/OUT** button allows the compressor to be in-circuit or bypassed. When depressed, the compressor is in-circuit.
- 8 The **IN** LED indicates when the compressor is in-circuit.

REAR (see FIG 3)

- 9 **LEFT** channel **INPUT** jack socket.
- 10 **RIGHT** channel **INPUT** jack socket.
- 11 **LEFT** channel **OUTPUT** jack socket.
- 12 **RIGHT** channel **OUTPUT** jack socket.
- 13 **SIDECHAIN ACCESS** jack socket.
- 14 Module identification label.
- 15 Sidechain access label.



Front

Fig 2 Rear

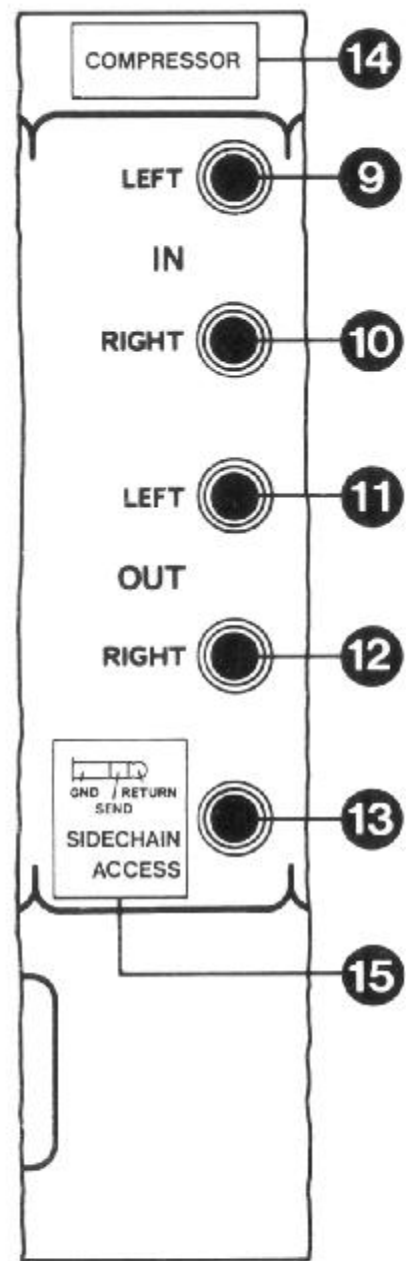


Fig 3

All jacks are wired Tip = Signal, Sleeve = Ground, with the exception of the SIDECHAIN ACCESS which is wired Tip = Return, Ring = Send, Sleeve = Ground.

Operation

MODULE IDENTIFICATION

A sheet of labels is supplied. Cut the COMPRESSOR name from the label sheet and stick it above the modules' jack sockets at the rear of the MOTHER UNIT (as shown in FIG 3 - 14). The KEY printing on the rear panel should be covered by applying the SIDECHAIN ACCESS label (as shown in FIG 2 - 15).

INSTALLATION

To install the SF801 STEREO COMPRESSOR module into the mother unit, firstly make sure that the power is switched off. Then locate the circuit card of the module squarely into the top and bottom guide slots at the desired position in the mother unit. Gently slide it in. If the module comes to a stop part of the way in, gently move it from side to side so that the rear of the card is guided into the rear guide slots. Now push it fully in. If resistance is felt at this stage, remove the module, and check that the wafer connector has not become damaged. Once the module's front panel is located flush with the front of the mother unit, fix it in place with the special posidrive screws supplied with it. The bushes into which the screws are fitted are initially unthreaded, so when first used some resistance will be felt as the special screws cut a thread.

NOTE: Make sure the screws go in straight. DO NOT overtighten. Use only the screws provided: STUDIOMASTER Part No FX07018.

CONNECTIONS

The mother unit incorporates a signal routing system which routes the output from a module to the input of the module to its right. The

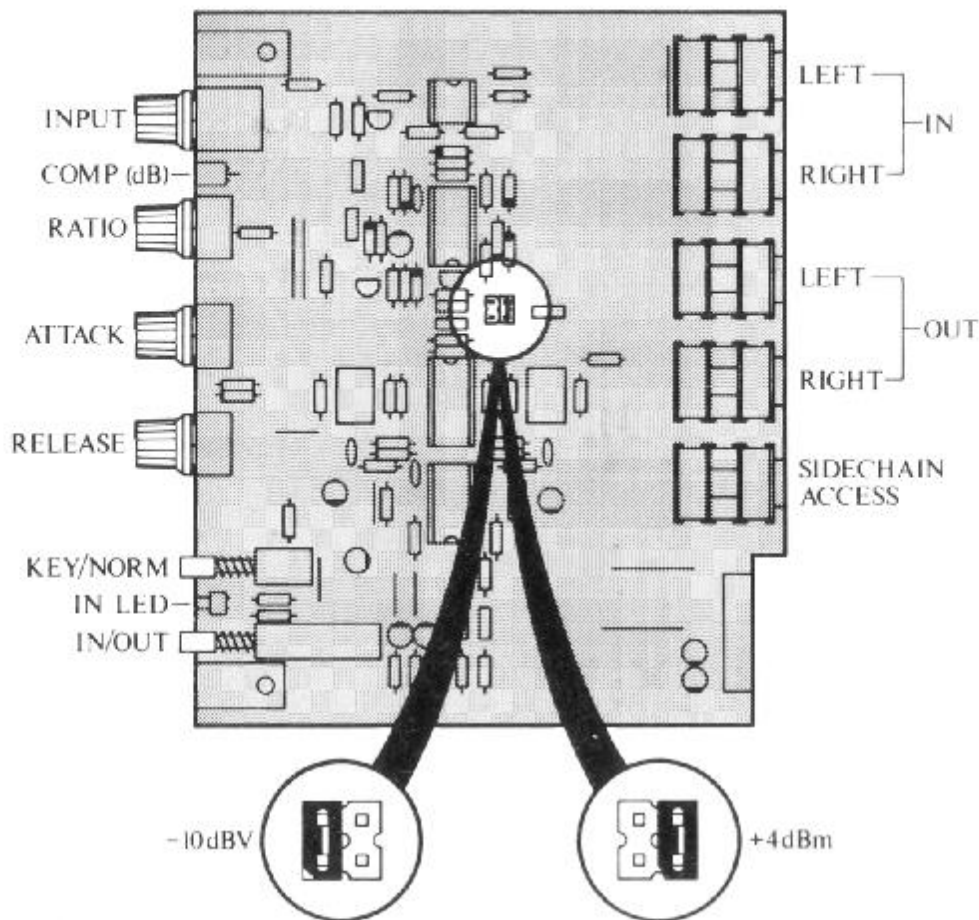
modules are therefore permanently connected in a "daisy-chain" fashion. If a signal is applied to a module left of the compressor, and extracted from a module right of the compressor, then simply pressing the IN/OUT button will bring compression into the daisy-chain. Alternatively, the input and output sockets may be connected via jack leads directly to mixing console insert points or to a patchbay. The SF801 is a stereo device, but it has a single sidechain, so it cannot be used as two separate compressors. Single channel operation is possible simply by leaving the unused channel unconnected. Take care that the unused input does not receive any other signal (such as from the routing system) or the compression action will be disturbed. The best way of preventing this occurring is to insert a dummy jack plug in the unused input.

The KEY button brings the SIDECHAIN ACCESS socket into circuit. This is a stereo socket which allows the compressor to be triggered by a signal applied to the Tip contact of the jack plug. The normal sidechain signal is an output on the Ring contact, so that some treatment can be incorporated into the sidechain.

OPERATING LEVELS

The Studiofex SF801 has been designed with adequate headroom for operation at +4dBm, but has sufficient dynamic range to allow operation at -10dBV. The output level at the onset of compression can be chosen by the user by moving an on-board link (see FIG 4). The two positions are referred to as +4dBm and -10dBV which are the optimum operating levels. To alter the setting, switch off the mother unit and remove the module. Locate the black bridging link and pull it off, then replace it on the other pair of pins. Replace

the module in the mother unit.



Level selection

Fig 4

POSITION IN THE SIGNAL CHAIN

The compressor will normally be patched into a mixing console insert point, although it may be required on the main console outputs. Generally, the compressor is placed near the beginning of the signal chain, since any noise generated before the compressor will be lifted in level by the compressor action. This applies even more to recording, where it will be more satisfactory to compress during the recording process than at mixdown. If the compressor is used in a chain in the mother unit, it should generally be positioned towards the left.

Applications

DYNAMIC RANGE REDUCTION

Since one of the perils of compression is the problem of lifting the noise floor, it is important to consider that the amount of compression which can be applied will be limited by how noisy the source is. This will thus determine the maximum setting of the INPUT control. Otherwise, in a quiet part, it may be found that the noise level will rise obtrusively. More than 15dB of compression will rarely be needed, so the COMPRESSION LED lighting RED should be taken as a warning that too much compression is being applied. The Studiofex SF800 STEREO GATE patched in after the SF801 is very useful for eliminating noise lifted by the compressor during quiet parts.

For keeping vocal levels under control, a RATIO of around 3:1 with an ATTACK time of perhaps 5ms and RELEASE of 150ms will be a good setting to start from. A bass guitar will require a longer RELEASE time of perhaps 500ms to prevent distortion occurring.

MIX THICKENING

By passing the main mixing console outputs through the SF801, a mix can be made to sound more like one sound than a collection of separate sounds. This effect is called MIX THICKENING. A low RATIO of 2ms and a RELEASE of about 350ms should produce a satisfactory result.

LIMITING

The SF801 can be used as a limiter to act as a "safety net" to prevent any high signal levels from saturating the recording tape. For this purpose, a higher RATIO of up to 10:1, and a faster ATTACK of 500µs, will be required. The

INPUT control should be adjusted so that only the loudest signal peaks cause any indication of compression on the COMPRESSION LED. The resulting overall signal level will then never exceed the level at which compression is indicated. Any recording levels can now be set closer to the limit, making better use of available dynamic range.

Special Effects

Most of the time, the compression action is required to be inaudible. However, the compressor can have some special side-effects. For instance, advancing the ATTACK control and reducing the RELEASE setting will increase the percussiveness of a sound, an effect particularly suited to the bass guitar. A RATIO of 5:1, ATTACK of 30ms and RELEASE of 150ms with a high INPUT setting will produce a punchy "disco" effect on complete mixes.

The SIDECHAIN ACCESS socket can be used for "ducking" a signal passing through the compressor by applying the controlling vocal signal to the sidechain jack "tip" connection. If one instrument, such as lead guitar, is used to duck the remainder of the mix, then a very powerful guitar effect is produced.

Frequency conscious compression is produced by patching an equaliser such as the Studiofex SF803 PARAMETRIC EQUALISER into the sidechain. If the equaliser is adjusted to the sibilance region of 6kHz (cut or boosting for effect is optional) then de-essing will take place on a vocal signal, although the Studiofex SF810 DE-ESSER will do the job more effectively.

Specifications

Frequency Response : 20Hz to 20kHz (+/-1dB)
 T.H.D. : 0.07% (1kHz, 0dBm)
Output Noise, Min Gain : -89dBm (DIN Audio)
Output Noise, Max Gain : -70dBm (DIN Audio)
Maximum Output Level : +17dBm into 600ohm
 +21dBm into 10kohm
Input Impedance : 60kohm
Crosstalk : -94dB @ 1kHz
 -72dB @ 10kHz
 Ratio : 1.5:1 to 10:1
Compression Range : 30dB
Input Threshold Range : -40 to -11/-28 to 0dBm
Output Threshold : -11/0dBm
Attack Time : 500µs or 60ms
Release Time : 50ms to 2s

Notes

Service

Should your **STUDIOFEX SF801 STEREO COMPRESSOR** develop a serious fault, DO NOT attempt to rectify it yourself. Service work should only be carried out by qualified and experienced Service Engineers.

For this work to be done, consult the dealer from who you purchased your SF801 or alternatively contact the Service Department at the address below:

The Service Department

STUDIOMASTER
Studiomaster House
Chaul End Lane
Luton
Bedfordshire LU4 8EZ
ENGLAND

TEL: 0582 570621
INTERNATIONAL TEL: +44582 570621
TELEX: 825612 STUDIO G
FAX: 0582 570242
INTERNATIONAL FAX: +44582 570242

Or in U.S.A. and Canada:

STUDIOMASTER INC.
1340-G Dynamics Street
Anaheim
CA-92806
U.S.A

TEL: (714) 524 2227
FAX: (714) 524 5096

The contents of this manual are correct at the time of going to press. The manufacturer reserves the right to change specifications and features without prior notice.

STUDIOMASTER

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CA 92806. Tel: (714) 524 2227 Fax: (714) 524 5096