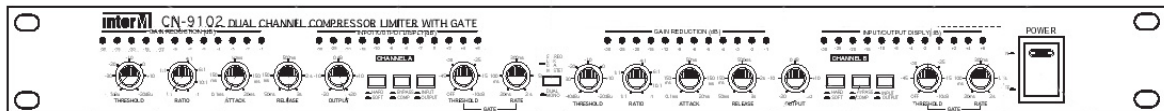


Operating Manual

CN-9102

Dual-Channel Compressor/Limiter with Gate



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interM

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Welcome

A personal welcome to you from the management and employees of Inter-M

All of us here at Inter-M are dedicated to providing you with the highest quality products and the best value.

We sincerely trust this product will provide you with years of satisfactory service, but if anything is not to your complete satisfaction, we will endeavor to make things right.

Welcome to Inter-M, and thank you for becoming a part of our worldwide extended family!

Unpacking

Although your CN-9102 is neither complicated nor difficult to operate, we recommend you take a few minutes to read this brief manual and familiarize yourself with the important information regarding product features, setup and operation.

As with most electronic devices, we strongly recommend you retain the original packaging. In the unlikely event the product must be returned for servicing, the original packaging (or reasonable equivalent) is required.

Warnings




Environment

Never place this product in an environment that could alter its performance or reduce its service life. Such environments are usually characterized by high levels of heat, dust, moisture, or vibration.

Safety

1. Read these instructions carefully.
2. Follow all instructions.
3. Keep all warnings.
4. Do not operate this apparatus near water.
5. Clean only with a damp cloth.
6. Do not block any of the ventilation openings.
7. Install only in accordance with the instructions in this manual.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades, with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it is attached to the apparatus.
11. Use only the attachments/accessories specified.
12. Use only with a cart, stand, tripod, bracket, or table specified, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid overturning.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

| | |
|--|---|
|  <p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p> |  <p>This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p> |
| <p>WARNING</p> <p>To prevent fire or shock hazard, do not expose the unit to rain or moisture.</p> |  <p>This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.</p> |
| <p>Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.</p> | |
| <p>Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.</p> | |
| <p>*Do not install this equipment in a confined space such as a book case or similar unit. *The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. *Worded: "WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING-WATER AND MOISTURE: Unit should not be used near water(e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings."</p> | |

Operation

Make certain that speakers and input sources are properly connected before switching on.

Keep volume levels turned down before switching on.

NOTE: The system's operation is delayed by approximately three seconds after pressing the power switch. This is due to the built-in protection circuitry, designed to protect speakers and other system components.

CN-9102 Dual Channel Compressor/Limiter with Gate

Features

High-Quality, versatile, easy-to-use dual channel compression unit

Consistently great sounding performance for studio recording, live sound or broadcast use.

Offers Ratio, Attack and Release Controls to fully customize performance for your individualized needs.

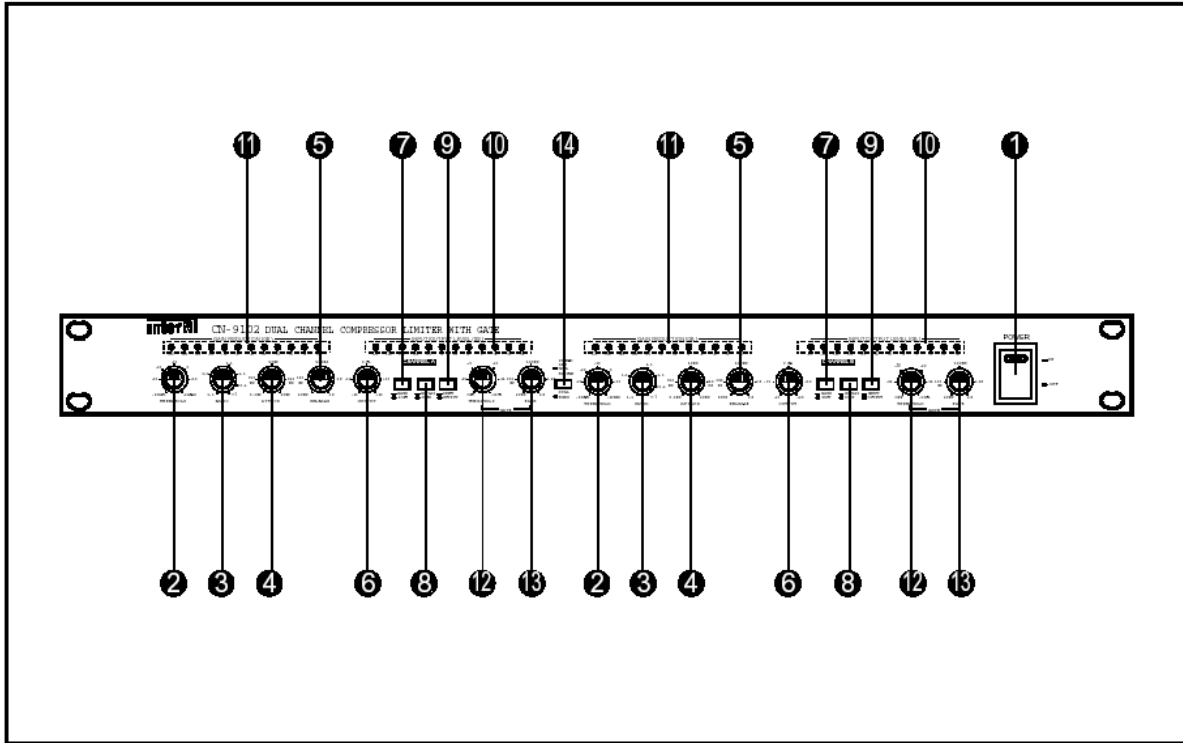
Choose Hard Compression or Soft Knee dynamics.

Two fully independent channels for use as two separate units, or linked for stereo operation.

Fully independent noise gates with threshold and rate controls.

Precision metering, side chain for ducking or keying of events.

Front Panel Controls



1. Power Switch

This switch is used to turn the unit on and off. When the unit is on, the integrated Power Indicator LED is lit.

2. Limiter (Threshold) Controls

This knob provides continuous control of the Threshold level of the integrated compression circuitry, over a range of -40dB to $+20\text{dB}$. Soft knee compression is applied to signals which exceed the threshold setting by up to 10dB . Hard knee compression is applied to signals which exceed the threshold setting by more than 10dB .

3. Ratio Control

This knob provides continuous control of the degree of compression applied once the threshold level has been exceeded, over a range of $1:1$ to $\infty:1$. A ratio of $1:1$ corresponds to zero compression. A ratio of $10:1$ indicates that once the input signal has exceeded the threshold level, an additional 10dB of input level will result in 1dB of output level. See Fig. 1 below.

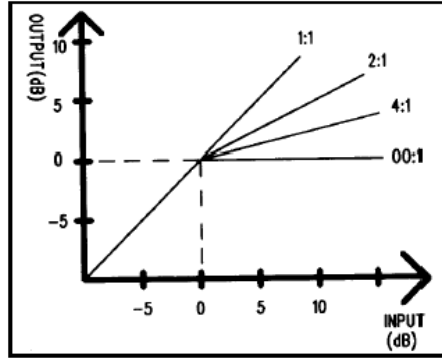


Figure 1 – Compression Ratio

4. Attack Control

This knob is used to control the amount of time before the compression circuitry takes effect after the threshold has been exceeded, adjustable from 0.1 milliseconds to 200 milliseconds.

5. Release Control

This knob is used to control the amount of time before the gain returns to normal after the input signal drops below the threshold level, adjustable from 50 milliseconds to 3 seconds.

6. Output Control

This knob is used to control the level of the output signal, increasing the signal by a maximum of 20dB. This can be helpful in compensating for loss of level caused by the compression/limiting process.

7. Soft/Hard Knee Selector

This switch selects between “hard knee” and “soft knee” compression processes.

HARD KNEE compression: when the input signal rises above the designated threshold set by the Threshold Control (2), the signal is immediately compressed at the full ratio selected by the Ratio Control (3).

SOFT KNEE compression: when the input signal begins to rise above the designated threshold set by the Threshold Control (2), compression will start at a lower ratio than selected by the Ratio Control (3), reaching the full ratio only at higher input levels.

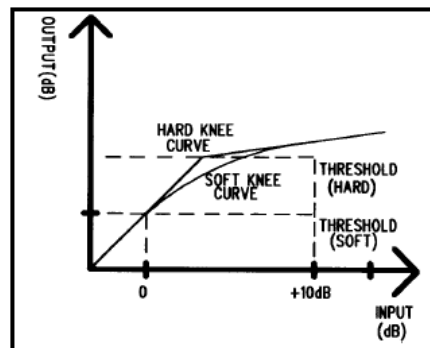


Figure 2 – Soft Knee and Hard Knee Compression

8. Bypass Switch

This switch bypasses the compression circuitry completely. It is useful for comparing the compressed signal with the original signal.

9. In/Out Switch

This switch selects the source displayed on the Input/Output meters (10), determining whether the meters are monitoring the (uncompressed) input level or the (compressed) output level.

10. Input/Output Level Meter

This 12-segment LED meter monitors the level of the (uncompressed) input signal or the (compressed) output signal, as selected by the In/Out Switch (9). In the IN position the input signal is monitored. In the OUT position the output signal is monitored. The meter is referenced to an operating level of either -10dB or $+4\text{dB}$, as selected by the rear-panel operating level switch.

11. Gain Reduction Meter

This 12-segment LED meter monitors the level of the actual gain reduction, displayed in a range of -1dB to -30dB .

12. Threshold/Gate Control

This knob controls the input signal level at which the noise gate will be opened when in gating mode, or closed when in ducking mode, over a range of ∞ to -10dB . When using the CN-9102 for normal noise removal applications, it is recommended that this control be set to the lowest setting possible to avoid loss of desired signal.

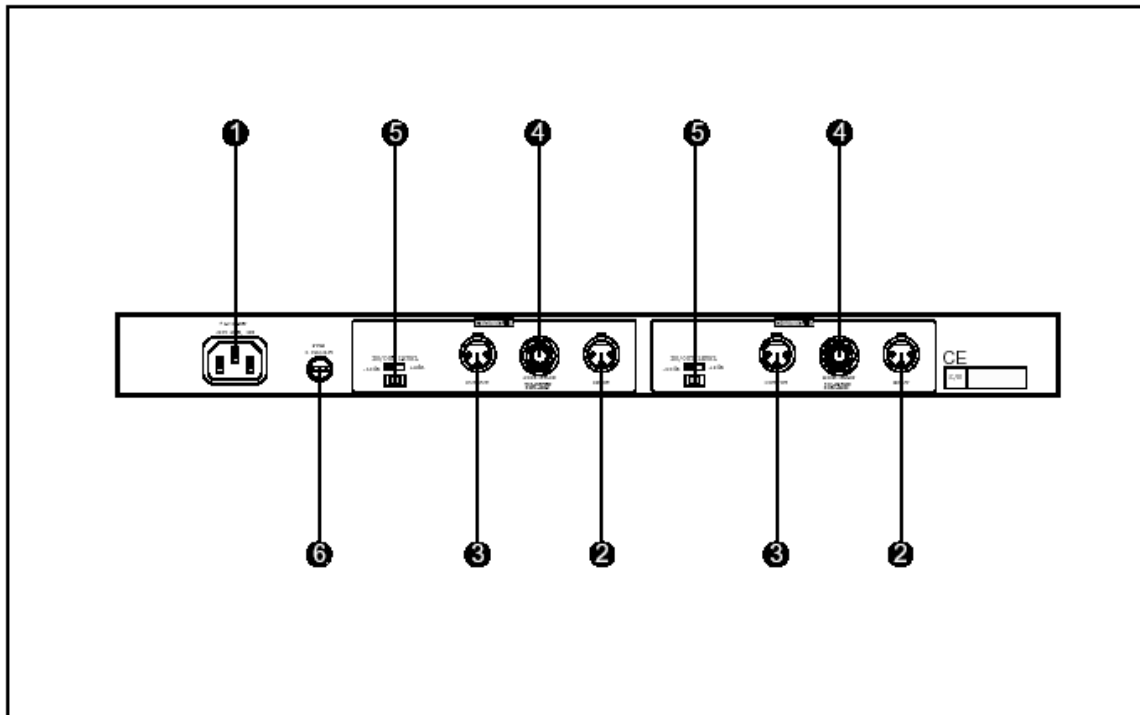
13. Rate/Gate Control

This knob controls the rate at which the gate closes once the input signal has fallen below the threshold level, variable from 20 milliseconds to 2 seconds.

14. Stereo Link Switch

This switch links the two channels of the CN-9102 together to function in stereo mode. When the stereo link is active, both channels are operated by the controls of Channel A. Both channels are still monitored to determine when the signal exceeds the threshold level.

Rear Panel Controls



1. AC Power Input

Connect a standard three-pin AC cable to this connector.

2. Audio Input

These are balanced audio inputs on three-pin XLR connectors. Pin 3 is low, pin 2 is high, and pin 1 is ground.

3. Audio Output

These are balanced audio outputs on three-pin XLR connectors. Pin 3 is low, pin 2 is high, and pin 1 is ground.

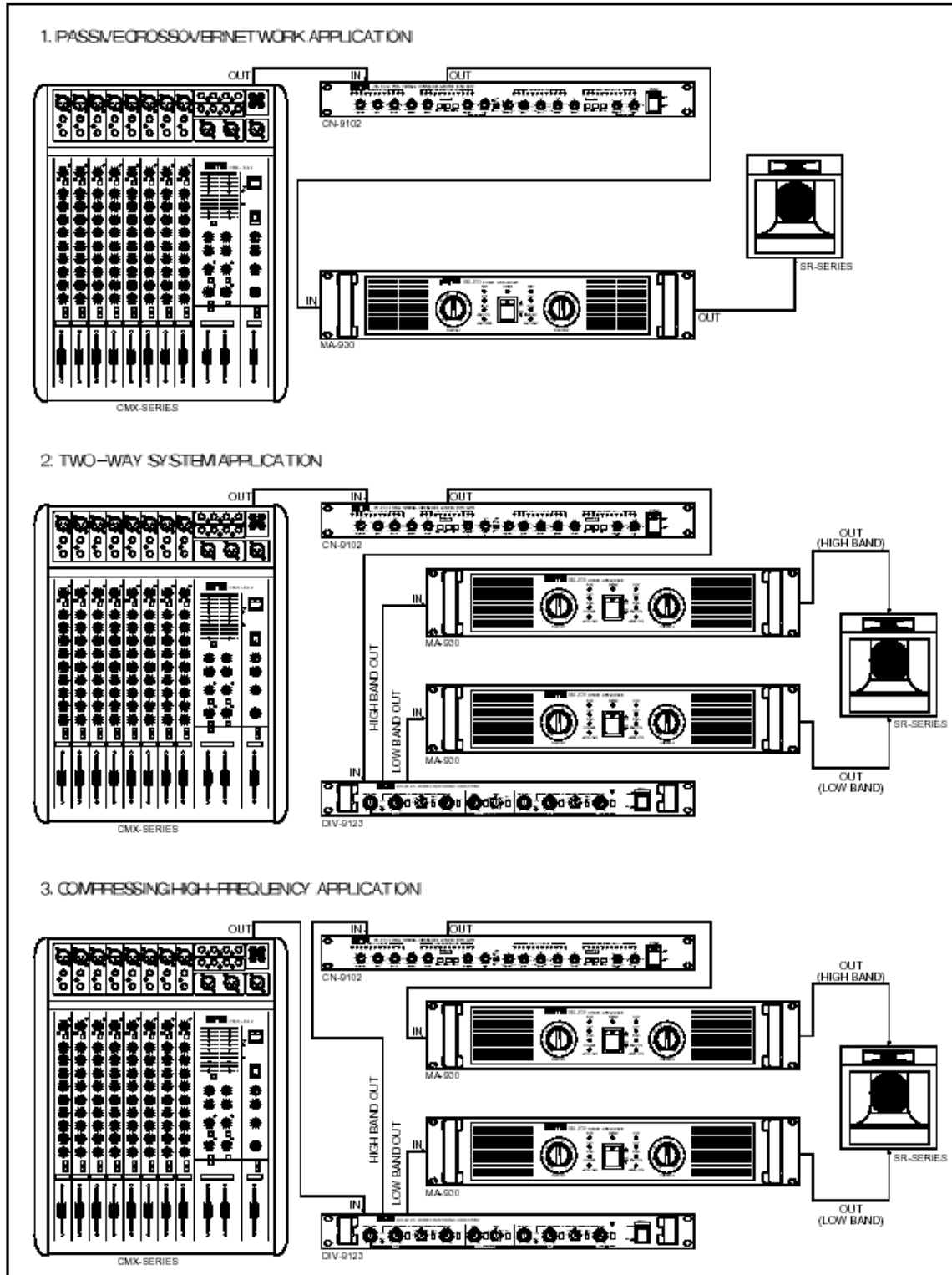
4. Side Chain

These are unbalanced inputs on 1/4" phone jacks, provided for the input of an external side-chain or key-in signal used to trigger the compression/limiting function.

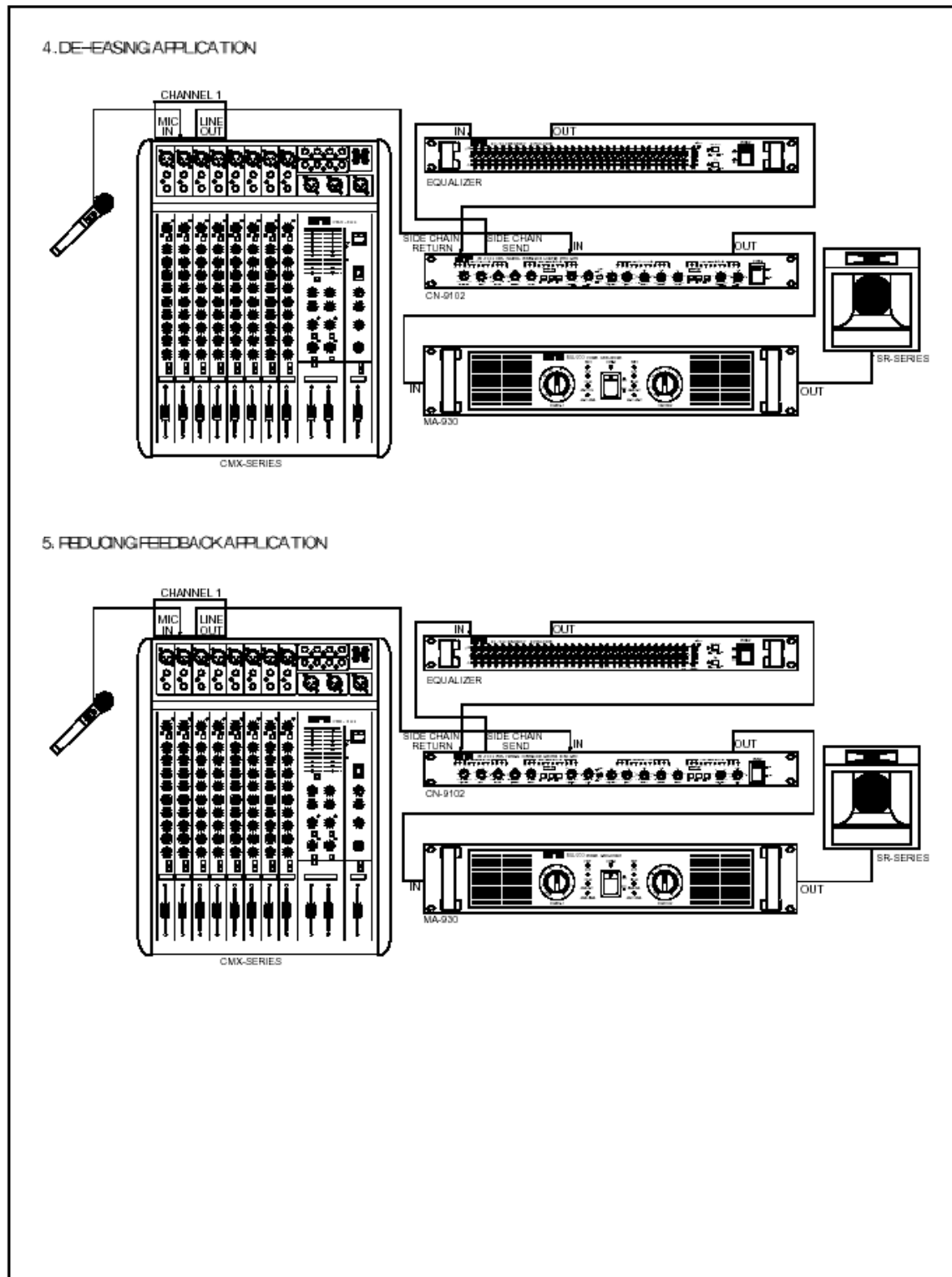
5. Operating Level Selector

This switch determines the operating level of the CN-9102. You can choose the professional studio level of +4dB or the consumer level of -10dB. The front-panel Input/Output level meter changes to reflect the setting selected by this switch.

Applications



Applications



Specifications

Audio Input

| | |
|-------------------------|-----------------------------------|
| Type | Electronic balanced input |
| Impedance | 47k Ω |
| Nominal Operating Level | +4dBv/-10dBu, switchable |
| Maximum Input Level | +20dBu balanced/unbalanced @+4dBv |

Side Chain

| | |
|----------------------------|----------------------------------|
| Type | Unbalanced Tip=return, Ring=send |
| Impedance | >22k Ω , <150 Ω |
| Maximum Input/Output Level | +20dBu |

Audio Output

| | |
|--------------------------|-------------------------------------|
| Type | Electronic balanced output |
| Impedance | <75k Ω , balanced/unbalanced |
| Maximum Input Level | +21dBm |
| THD | < 0.1% |
| Noise & Hum @ Unity Gain | > -94dBu |
| Crosstalk | > -85dBu |
| Frequency Response | 5Hz – 50kHz |

Gate Section

| | |
|-----------|---------------------------|
| Threshold | Variable (-60dB to -10dB) |
| Rate | Variable (20msec to 2sec) |

Compressor Section

| | |
|-----------|--------------------------------|
| Type | Hard and soft knee, switchable |
| Threshold | Variable (-40dB to +20dB) |
| Ratio | Variable (1:1 to ∞ :1) |
| Attack | Variable (0.1msec to 200msec) |
| Release | Variable (50msec to 3sec) |
| Output | Variable (-20dB to +20dB) |

Indicators

| | |
|---------------------------------|--|
| 12-LED Gain Reduction Meter | -30/-25/-20/-15/-12/-9/-6/-5/-4/-3/-2/-1 |
| 12-LED Input/Output Level Meter | -30/-25/-20/-15/-10/-6/-4/-2/0/+2/+4/+6 |

| | |
|------|-------------------------------|
| Fuse | 160mA (120VAC), 80mA (220VAC) |
|------|-------------------------------|

GENERAL

| | |
|-------------------|---|
| Power Source | 100 –240VAC, 50/60Hz |
| Power Consumption | 19W |
| Weight | 3.5 Kg (7.7 lbs) |
| Dimensions | 482(W) x 44(H) x 280(D) mm 19(W) x 1.75(H) x 11(D) in. |

Specifications and design subject to change without notice for improvements.



Inter-M, Ltd. (Korea) began operations in 1983.

Since then, Inter-M has grown to become one of the largest manufacturers of professional audio and commercial sound electronics equipment in the world.

Inter-M has gained worldwide recognition for its own branded products, as well as private label manufacturing of electronics sold under other names (OEM).

The company is no longer just a Korean company, but rather a global company that is truly international in scope, with factories and offices in Korea and China, and sales and marketing operations located in Japan, Europe, and the U.S.A.

With more than 850 employees around the globe, Inter-M is well-poised for further growth and expansion.

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