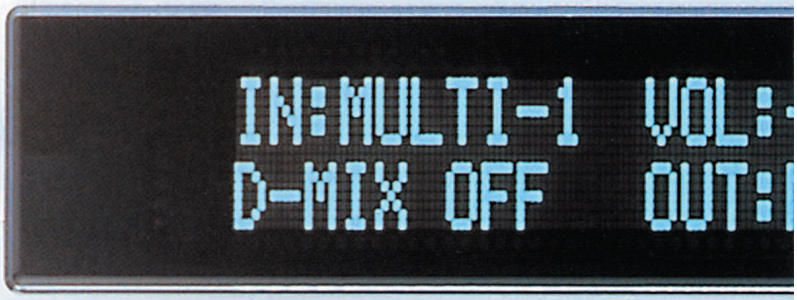
LUXMAN

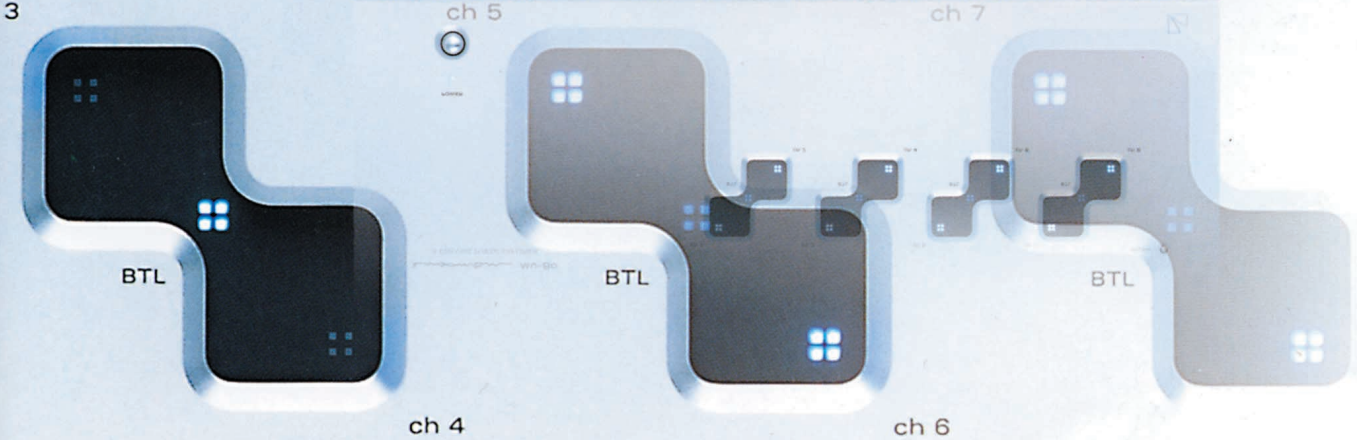
MULTI-CHANNEL CONTROL AMPLIFIER

CU-80

8-CHANNEL POWER AMPLIFIER

MU-80





LUXMAN CORPORATION

CU-80

MULTI-CHANNEL CONTROL AMPLIFIER

Beautiful Sound Contributed by High-Grade Multi-Channel

Here we would like to introduce the high-grade pure audio multi-channel that could bring you high-end stereo phonic reproduction in the same dimension. The CU-80, which was built by Luxman by pouring its enthusiasm and heart in sound, is the high-grade control amplifier handling the multi-channel input (2 independent systems) in the biggest size of 8 inch. For operating all the channels under the equivalent conditions while maintaining the high sound quality, the CU-80 has installed the optimized ※LECUA-WM§ through controlling via computer the high purity electronic control attenuator of ※LECUA§ self-developed by Luxman which was built in stereo control amplifier on C-70. It is the confident product for handling the output of all channel balance and which was equipped with analog down mix circuit using for dealing with some supposed varieties of channel environments.

Demonstration of indefatigable driving force

The MU-80, which can completely handling the 8 inch balance/unbalance inputs, is an 8 inch analog power amplifier directly inheriting the tradition of Luxman. Like CU-80, the MU-80 has built itself into a power amplifier through installing the DNF version2.2 circuit of the latest generation and aiming at becoming an amplifier combining strength and transparency. The powerful amplifier circuit, which could give the biggest output (when the 8 channels operate simultaneously) of 100W X 8inch (8 Ω) by equipped with the powerful power resource, could connect BTL=bridge among the neighbouring channels. For example, when the 4 channels were operated, the maximum output could be set up to 300W (when operating simultaneously, 8Ω) each, and the operation of BTL 3inch + normal 2inch could also be set simply. One of the features of MU-80 is its universal design flexibly coping with all kinds of speaker environments.

MU-80

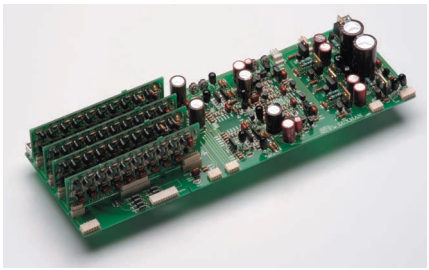
8-CHANNEL POWER AMPLIFIER

Technology

CU-80

High-purity attenuator LECUA-WM was built for volume-tuning

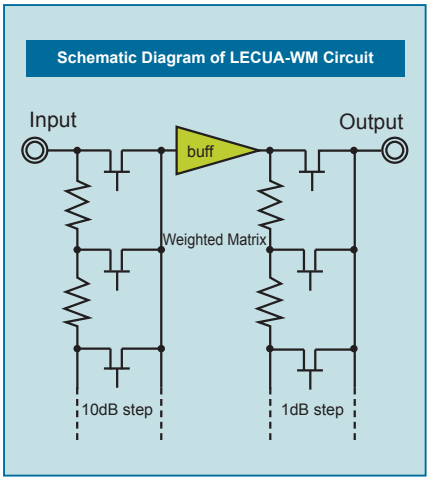
For operating the original LECUA (high purity electronic control attenuator) installed in C-70f for balanced operation at 8 inch, the weighted matrix type LECUA-WM was newly developed for CU-80 In the position detecting circuit using the exquisite rotary encoder and microcomputer control, all the 8inch audio signals are put under the high-precision control The volume balance of each channel could be finely tuned at 1dB unit (-20 – 0dB) In center channel, rear speaker, etc , when the efficiency and volume feeling of using speaker system are different, the randomly setting up of levels between the channels aiming at coping with the disk record level is the function that the multi-channel-oriented machine hopes for And the LECUA-WM has adopted the design which set the simple signal bass＊s sound quality at the top priority under the condition of combining the high sound quality fixed resistors CU-80 was completely free from the gang error which was unavoidable for the conventional type variable resistance ranged from the maximum volume to the minimum volume, and could deliver an error-free and co-existing environment for the reproductions of both stereo and multi-channel



CU-80

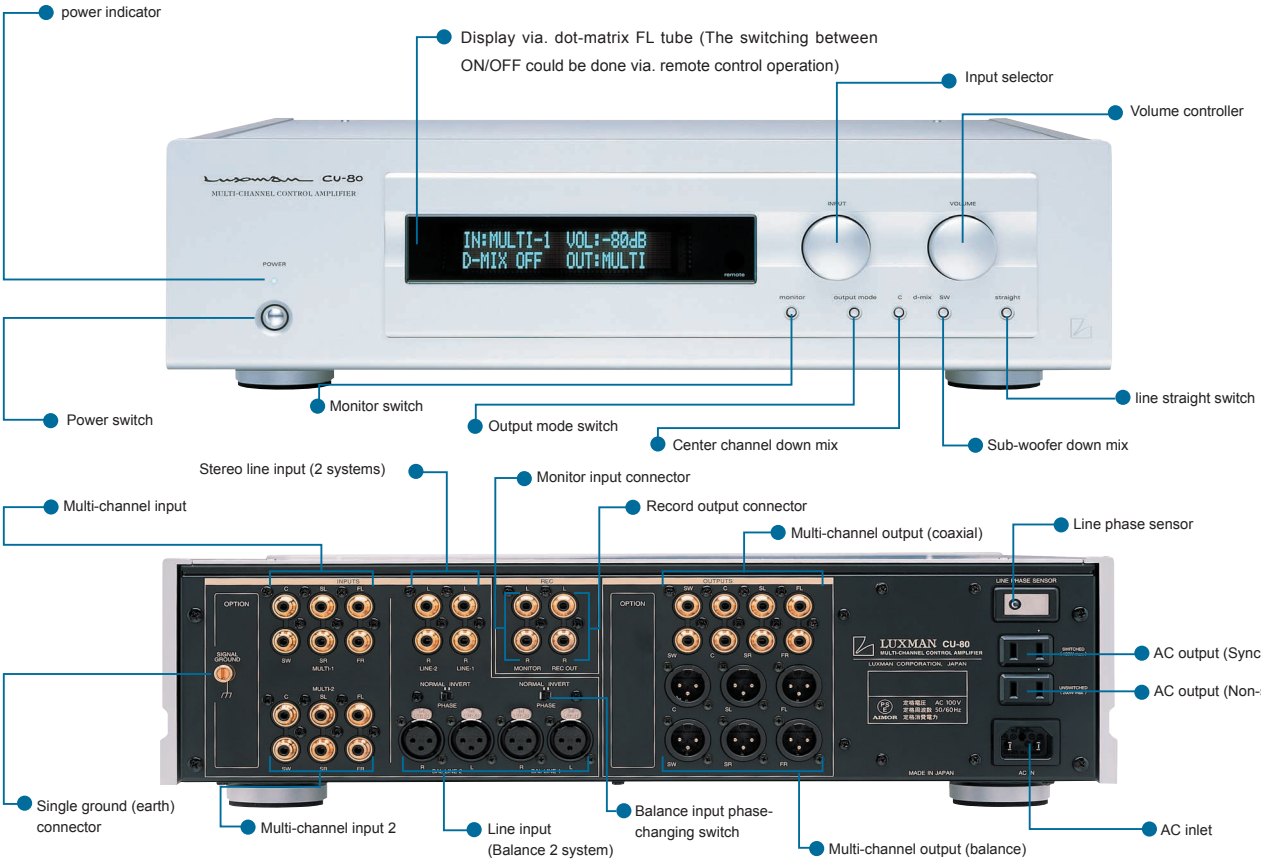
The level adjustment among the channels which are free from the deterioration of sound quality is available

The newly-developed LECUA-WM installed in CU-80 has made the composition of line level amplifiers an easy thing by setting the attenuation value of each channel one by one Till now, for ensuring the setting up of the level of each channel, in the most cases, the method is to set the sub-attenuators at the anterior segment or the posterior segment of master attenuator which could link all the channels in operation In this way, the deterioration of sound quality arising from the increasing of wiring, as well as from the connecting with the series of variable resistors will have nothing to do with CU-80 Because each channel level could be simply operated via the attached remote controller, you can adjust the channel balance from any listening position you are sitting at With successful development of LECUA WM, CU-80 was turned into control amplifier which has installed the simple line amplifier at maximum size of 8inch The secret for significantly raising of multi-channel's grade lies in LECUA-WM



CU-80

Function



Several surround sources could be connected simultaneously

The inputs of multi-channel are installed in two systems Since the coaxial line level signals from universal player, super audio CD, DVD, surround decoder, AV amplifier＊s free output, etc could be simultaneously connected to the 2 systems, so the operations could be switched among several multi-channel machines

XLR balance connectors are installed in overall output channels

For coping with all kinds of power amplifiers, except the unbalance output, the balance outputs (with HOT pin switching function) are installed as standard in all channels So the ideal balance transferring connection which could remove the outside noises is available

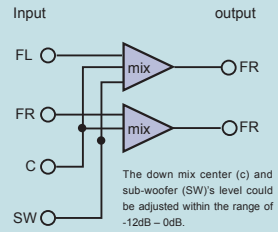
Totally 4 systems' special input are prepared for 2 inch stereo machine

For connecting the real 2-channel special machine, the input connectors, 2 groups for each, totaling 4 groups, for balance/unbalance are equipped with It could sufficiently handle the input even for the stereo reproduction Still, one group of connectors was also prepared for the input/output of recorder

The output connectors coping with the twin drivers of center and sub-woofers are prepared

For forming varieties of patterns for connecting multi-channel, two groups of output connectors are specially prepared for the center channel and sub-woofer channel Thus the availability of speaker layout was increased, as well as a high-grade twin drive environment could be created

CU-80 Down mix schematic drawing

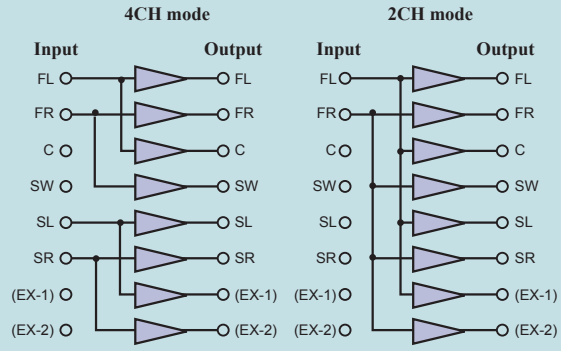


The down mix center (c) and sub-woofer (SW)'s level could be adjusted within the range of -12dB – 0dB.

The analog down mix function with attention attached to sound quality

The 4 1 inch (6 1inch) reproduction without using the center channel, the 5 0 inch (7 0 inch) reproduction without sub-woofer, or the 4 0 inch (6 0 inch) production without using both the center channel and the sub-woofer are the most available multi-channel structure for the audio file which puts the 2 channel reproduction at the preferred position For perfectly meeting that demand, the CU-80 was equipped with the down mix functions which could independently set up the center and sub-woofer in the analog field It could also realize the fine tune of mixing level by easy-of- use remote controller

The Output modes other than CU-80 MULTI



EX-1 and EX-2 of input/output: option

4 inch bi-amplifier mode and 2 inch multi-amplifier mode for forming application system

By equipped with 2ch multi-amplifier mode which could supply outputs at most for 4 systems for the special operations for the 2-channel reproduction; and with the 4ch bi-amplifier mode which could provide outputs for the 2 independent systems set in the front and the rear for the 4ch matching system employing the down mix function, and by using the speakers matching with the bi-wiring, the CU-80 could be flexibly and luxuriously used in driving of the bi-amplifiers

The FL display with dimmer function for improving the brightness of listening room

By the introduction of the large-scale dot matrix FL tube with four graduations for adjustment, the actions far away could also be recognized clearly

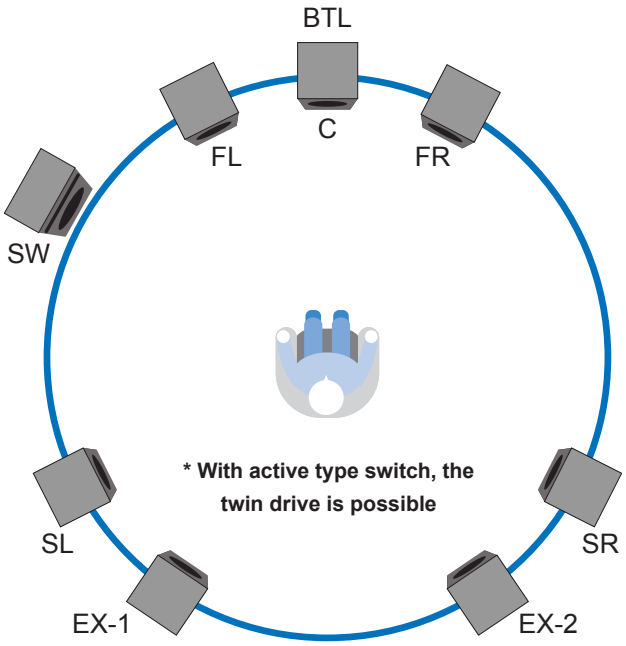
The high-grade aluminum-made remote controller which could operate on all functions at hand

With the specially designed aluminum-made remote controller with illumination function, you could simply control all kinds of operations of CU-80 at the listening position

OMNIBEARING, PURE AUDIO GRADE

System Variation

7.1ch (Center-BTL)



Surround system variation: 7.1ch

It is the 7.1ch reproduction of standard + option by building the CU-80 in optional 8ch specifications. When an active sub-woofer was used, 1inch section of the MU-80 could be set at OFF, when wishing to improve the existing feeling of dialogue in watching pictures at DVD video, only the BTL connection of center channel using the 1 inch section set at OFF position is effective.

7.1 ch			
CU-80		**MU-80**	
Output mode: MULTI Down mix: OFF		BTL: C Bi: None	
Input	Output	Input	Speaker output
FL	FL	1	1
FR	FR	5	5
C	C	3	3-4 BTL
SW	SW	-	(Active)
SL	SL	2	2
SR	SR	6	6
EX-1	EX-1	7	7
EX-2	EX-2	8	8

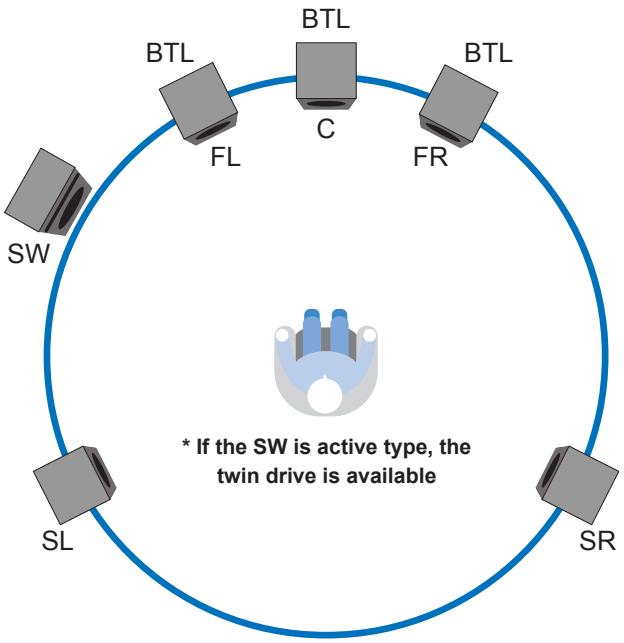
Surround system·variation: 5.1inch

It is the most standardized 5.1inch multi-channel reproduction system. The left and right speakers and the center speaker are reinforced by the BTL connection of MU-80. The problems such as whether the active type should be introduced into sub-woofer, and in the CU-80's down mix circuit, whether the 5.0ch multi-channel reproduction should be introduced, because it could allot the elements of sub-woofer to the left and right front speakers, should be considered, So it could be called a hearing method attaching importance to audiovisual positioning and the existing feeling of music instrument and sound.

* In front, three BTLs and active SW are used.

5.1 ch			
CU-80		**MU-80**	
Output mode: MULTI Down mix: OFF		BTL: FL, FR, C Bi: None	
Input	Output	Input	Speaker output
FL	FL	1	1.2 BTL
FR	FR	5	5-6 BTL
C	-	3	3.4 BTL
SW	-	-	(Active)
SL	SL	7	7
SR	SR	8	8

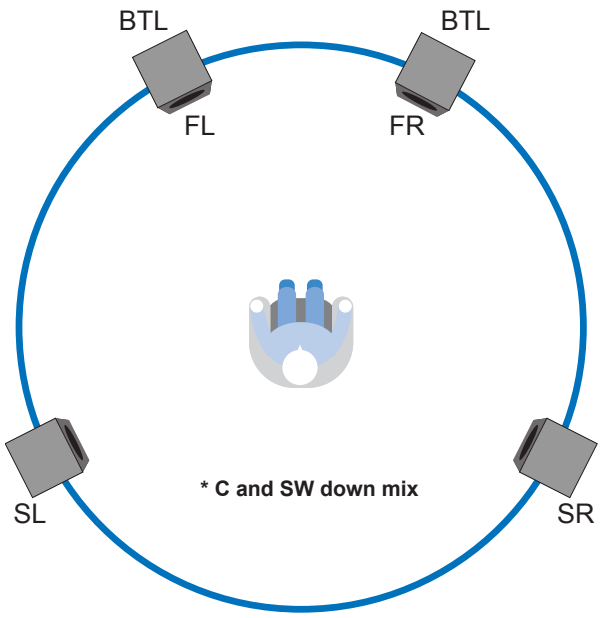
5.1inch (Front BTL)



OMNIBEARING, PURE AUDIO GRADE

System Variation

4.0ch BTL



Surround system Variation: 4.0ch BTL

It is a 4ch-multi-channel reproduction environment two channels in front and two other ones in the rear. After down mixing the center channel and the sub-woofer in high grade, connecting all channels of MU-80 with BTL, and turning all speakers into the big outputs for BTL driving. It is most suitable for reproducing lifelike feeling surround sound source such as the performances given by big band and recorded from mul i-channels.

4.0 ch BTL			
CU-80		MU-80	
Output mode: MULTI Down mix: C, SW		BTL: FL, FR, SL, SR Bi: None	
Input	Output	Input	Speaker output
FL	FL	1	1.2 BTL
FR	FR	5	5-6 BTL
C	-	SW	-
SL	SL	3	3-4 BTL
SR	SR	7	7-8BTL

Surround system Variation: 4.0ch Bi-Amp

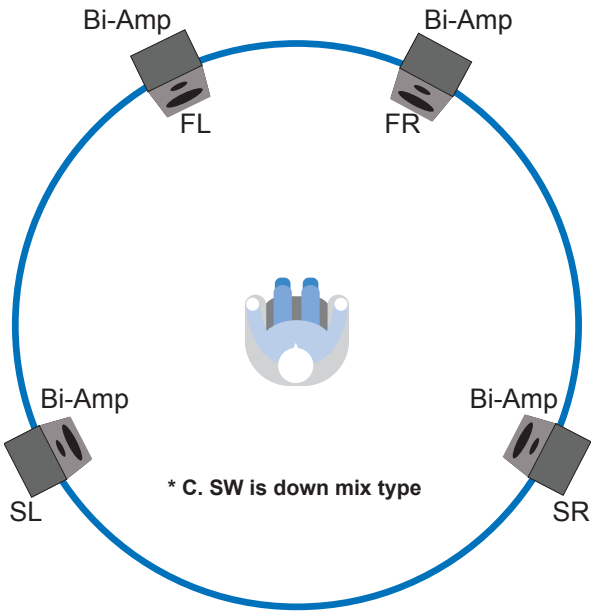
In the 4ch multi-channel reproduction environment with two ones in the front and other two ones in the rear, the CU-80's down mix circuit was actively used. Here, when all the speaker systems are connected in bi-wiring mode, the luxurious bi-amplifier drive will be employed.

Because the increasing of driving feeling as a whole and the getting off of the impact arising from the counter electromotive force of woofer especially occurred in high range, you can enjoy clear and fresh sound.

* In front, three BTLs and active SW are used.

4.0 ch Bi-Amp			
CU-80		MU-80	
Output mode: 4CH Down mix: C, SW		BTL: None Bi: FL, FR, SL, SR	
Input	Output	Input	Speaker output
FL	FL	1,2	1 2 Bi
FR	FR	5,6	5,6 Bi
C	-	SW	-
SL	SL	3,4	3,4 Bi
SR	SR	7,8	7,8Bi

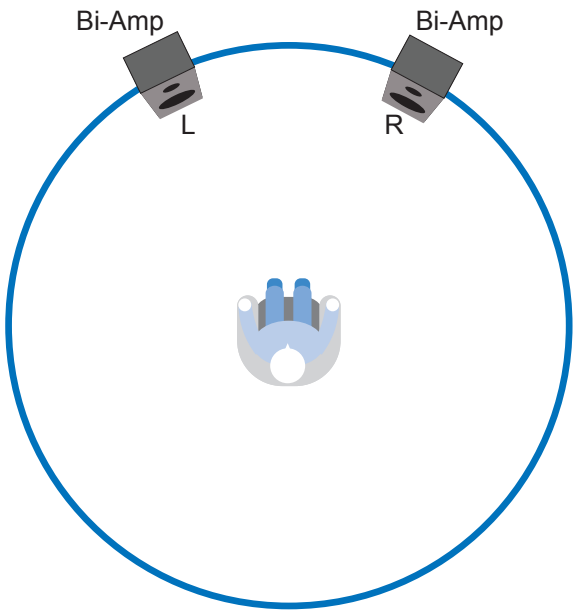
4.0ch Bi-Amp



OMNIBEARING, PURE AUDIO GRADE

System Variation

2ch BTL, Bi-Amp



Stereo system·variation: 2ch BTl, Bi-Amp

It is a perfect two-channel reproduction for driving, for instance, speaker system with bi-amplifier through setting the CU-80 output composition at 2inch output, and using bi-wiring connection to connect BTL respectively. Because in his case, the input and output of MU-80, as the power amplifier, was in full operation, you could enjoy overwhelming present sensation. It is a special sound construction by integrating CU-80 with MU-80.

2.0 ch BTL, Bi-Amp			
CU-80		MU-80	
Output mode: 2CH Down mix: OFF		BTL: FL, FR Bi: FL, FR	
Input	Output	Input	Speaker output
FL	FL	1	1.2 BTL
	FL	3	3-4 BTL
FR	FR	5	5-6 BTL
	FR	7	7-8 BTL

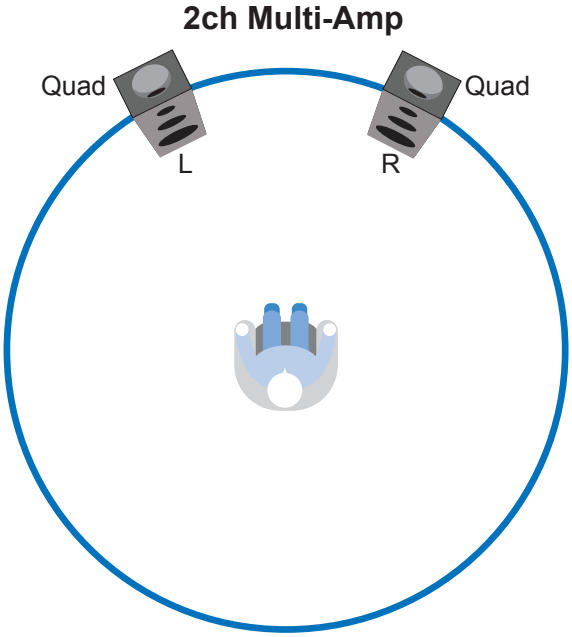
Stereo system Variation: 2ch Multi-Amp

Like the 2ch BTL, Bi-Amp in the schematic above, the 2inch output of CU-80 was used, but here, MU-80 was not connected with BTL, instead, it takes the ordinary operation of power amplifier, and takes the tri-amplifier driving mode via power amplifier 3 system and quad amplifier driving mode via (power amplifier) 4 system. So you can enjoy yourself with the integration of speakers connecting in tri-wiring mode or in quad-wiring mode, as well as enjoy the super tweeter with network built in.

* When the quad (4 system) output mode was adopted, CU-80 will take the Tri (3 system) output mode under the 8ch upgrade standard.

2.0 ch Multi-Amp			
CU-80		MU-80	
Output mode: 2CH Down mix: OFF		BTL: None Quad: FL, FR	
Input	Output	Input	Speaker output
FL	FL	1	1
	FL	2	2
	FL	3	3
	FL	4	4
FR	FR	5	5
	FR	6	6
	FR	7	7
	FR	8	8

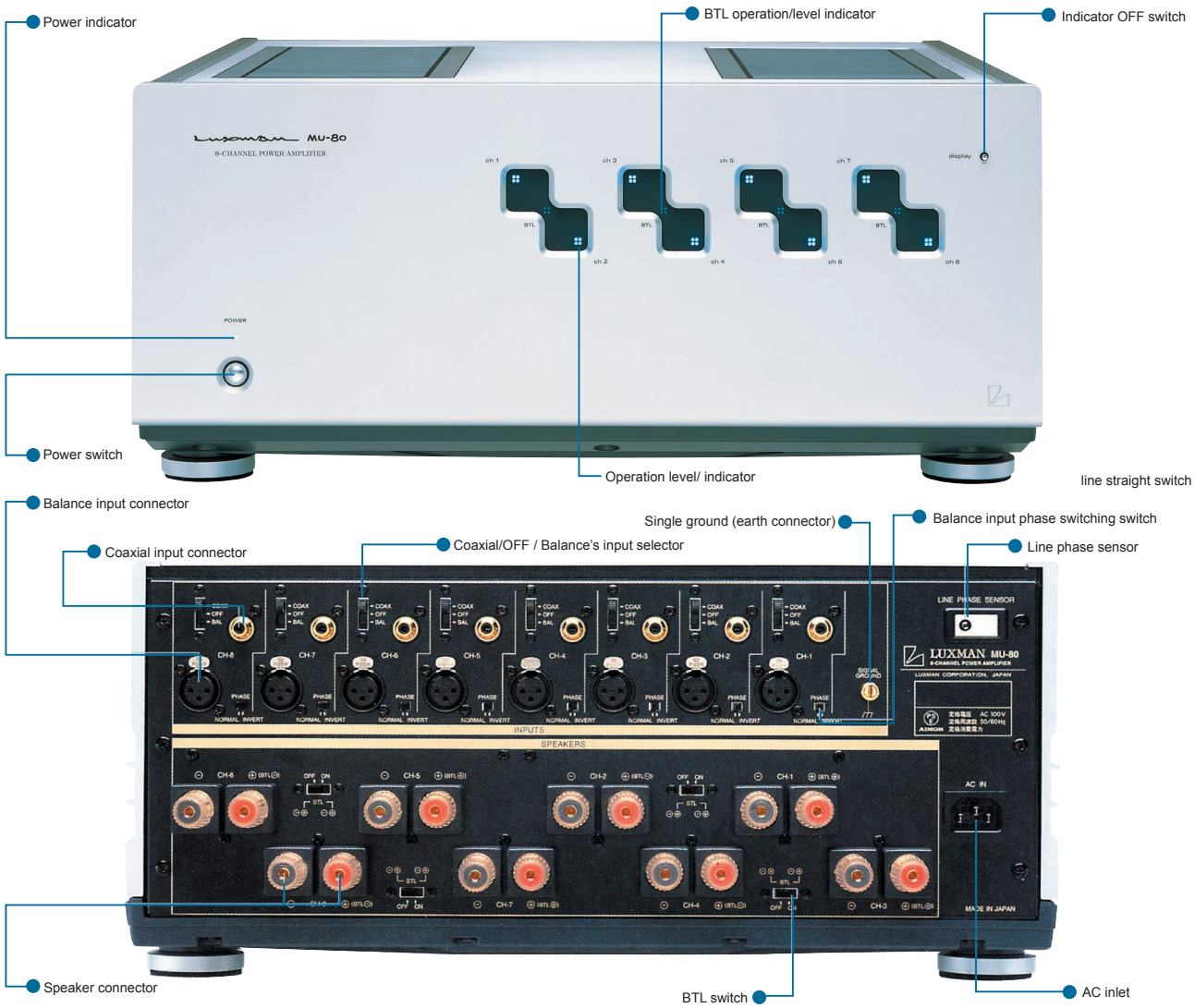
2ch Multi-Amp



8-CHANNEL POWER AMPLIFIER

MU-80

Function

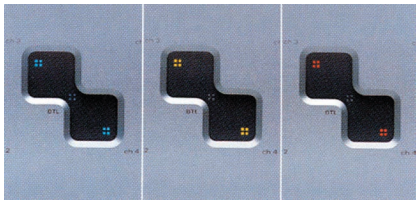


Installing independent idling OFF switch for all channels

Except the input/output switching for unbalance/balance, by installing the idling OFF switch, power amplifier could be completely stopped In this way, the power could be just supplied to the channel＊s power amplifier block which is under operation, thus the availability of power for the using channel could be enhanced significantly

Installing the XLR balance connectors into overall input channels

When leading the line cable from control amplifier from a long distance, the removing of common mode noise arising from the outside factors will help possibly balance transferring While making all of the channels completely match with the balance inputs, the phase changing switch which could select from third HOT or Second HOT will be equipped in MU-80



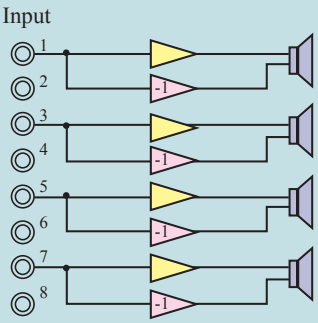
The indicator displaying channel operation equipped with OFF switch

In each channel, the level indicators with 3 steps displayed by LED are equipped And various shining patterns will be displayed in accordance with the system environment when BTL was using

The brand-new plaster white color was adopted in the body

The plaster white color which symbolizing the new generation products of Luxman was adopted for showing its excellent image When building a system by integrating the universal player＊s DU-7w, stereo control amplifier＊s C70f and the stereo power amplifier＊s C70f, the coloring for creating a unified feeling is available

The schematic of speaker drive when connecting with BTL of MU-80



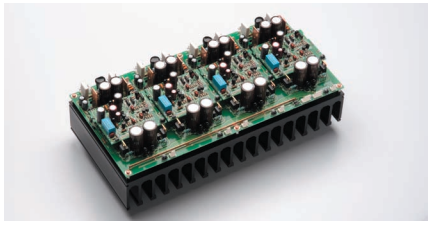
The overall output setting for using in the range from 8 channels to 2 channels is available

It is able to randomly set the composition from high power stereo amplifiers with a maximum output to 8ch power amplifiers by connecting the neighboring monaural power amplifier blocks with the method of BTL=bridge When introducing, it could at first be used in the stereo environment, and by adding channels gradually and building an ideal multi-channel environment at last, you could enjoy the flexible progress of your system

MU-80

Independent 100W X 8 channel power block

MU-80＊s power amplifier block was designed as the integration of monaural power amplifiers and to build all channels in the same pattern It is to build a sound quality free from the interference of neighboring channels as well as could successfully and independently operation And because the independent idling OFF switches are installed in the whole channels, so the power supplied to the un-using channels was cut down And instead it will only effectively supply power to the channels using amplification circuitry The basic board using the output element of bi-polar transistor was built by using the lead-free tin solder that could improve the sound quality as CU-80 did, and was constituted by coating a 70μthick steel foil on FR-4 glass fiber which has less capacitor capacity Many of the Luxman＊s traditional parts with high sound quality are frequently adopted for thoroughly pursuing the quality of power amplifier



MU-80

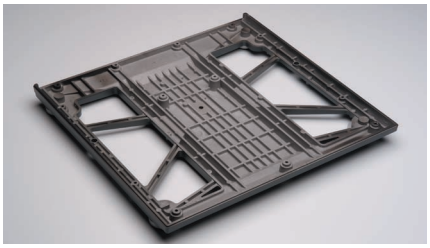
The large-scale EI type transformer with excellent features of current temporary supply

For continuously driving all of the channels with over-sufficient capacity simultaneously, the large-scale EI core-type transformer with excellent current temporary supply capacity was adopted in the power source of MU-80 After thoroughly studying the environment of power source＊s cable, one large-scale transformer was determined to be built in When a power amplifier was built for coping with the multi-channel composed of the modules equipped with special power sources in each channel, the one cable from the power source should necessarily be tapped, so the capacity of power source transformer which could be built in was limited owing to the space factor In MU-80, after ideally laying out the space inside the frame, the maximum class power source transformer was installed in Because the wiring connecting power source block with the power amplifier circuit of each channel was soundly laid out, the impulsive sound as forceful as knocking and the music information as tiny as pianissimo note could be precisely reproduced

MU-80

The large-scale EI type transformer with excellent features of current temporary supply

On the bottom chassis supporting the powerful power source part of MU-80, and the power amplifier block of each channel totally weighing 43kg, the custom monocoque chassis formed by using high specific gravity FRP (Fiber-reinforced plastic) reinforced with glass fiber was built It features not only the high rigidity earned from its symmetrical design aiming at improving the exothermic environment, but also its excellent vibration damping effect And because the non-magnetic material was used, the sound quality was improved significantly



MU-80

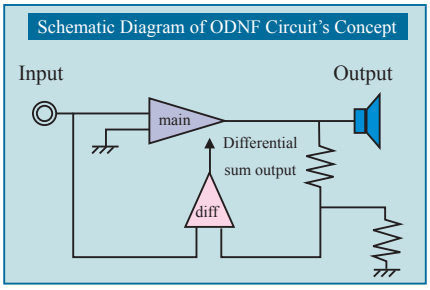
Newly-developed large-scale speaker terminal improving the mounting feature and reducing the contact resistance

The construction of the large-scale power amplifier in the maximum size of 8inch dose not exert any limit on the position of speaker terminal and its size In Mu-80, the speaker terminals of each channel was laid out at upper part and bottom part, so the connection could become an easier and tougher one The large-scale speaker terminal with excellent mounting feature, is a new product developed for MU-80 Because it is not only suitable to the very thick cable used for the processing of terminals, but also could solidly tighten the connection with knob with good clipping feature, so it could prevent the connection miss When using in the connection of BTL, it could be easily recognized

MU-80

The state-of-art ODNF Version2.2 circuit was installed

In the normal negative feed back circuit, one part of the output signals was fed back to the amplification circuit as they were To compete this, the ODNF self-developed by Luxman is a new type of product which just picks out the distorted elements and feeds them back to the amplification circuit after comparing the input signal and output signal It is the feed back circuit technology that could significantly improve the phase feature and will exert no impact on sound quality In CU-80 and MU-80, the state-of-art tuning version2 2 was installed



MU-80

The technology accumulated through years' efforts for improving sound quality was devoted generously

In the aspects of the conventional high inertia power source of Luxman which could supply highly sufficient power supply environment, the adoption of high-quality custom parts which could significantly improve the sound quality, and the high rigidity construction pursuing for ideal structure, etc , the CU-80 and MU-80 have inhibited the intelligences concretely and intangibly expressed in the former highly-evaluated Luxman products

MU-80

The 70μthick FRáglass fiber basic boards are adopted in all circuits

No matter how excellent the circuit construction is, if the circuit board mounting the circuit and sending the signal was poor, you could not obtain sound quality with good effect In all circuits represented by LECUA-WM and ODNF amplifier, the wiring board made of FR-4 glass fiber material which has adopted 70μthick steel foil and with less condenser capacity was used It aims at offering you dynamic contrast from the minimum volume to the maximum volume

MU-80

The lead-free solder tin was adopted for transferring the music signals with high-speed

To cope with the high speed required by the new generation＊s digital audio in wide range and dynamic range, the lead-free solder tin was adopted in -CU- 80 and MU-80 Or course, it does not only adopt the best material based its contribution to sound quality, but also could minimize the deterioration of soldering point of solder tin arising from years＊ changes

MU-80

Insulator leg made of graduation cast iron aiming for improving the resistance to vibration of frame

For effectively shutting off the un-wanted oscillation exerting on the machine via bottom surface or audio rack, and for improving the shockproof features of frame as a whole, the important insulator legs with good fame and made of graduation cast iron are adopted by and large By giving a solid contact, a sound full of power and grandeur could be obtained exactly

CU-80

Input Sensitivity /Impedance	Coaxial	300mV/51KOhms
	Balanced	300mV/67KOhms
Output Level/Impedance	Coaxial	1V/300Ohms Max. 8.5V
	Balanced	1V/1.2KOhms Max. 8.5V
Total Harmonic Distortion	1KHz	Less than 0.006%
Frequency Response	20~20KHz	+0, -0.1dB
	10~100KHz	+0, -1.0dB
S/N Ratio	IHF-A	110dB
Input	2ch Coaxial · In	2 Systems
(+2ch option)	2ch Balanced · In	2 Systems (SW Input)
	6(+2)ch Coaxial · In	2 Systems
	REC · In/Out	1 System(Coaxial)
Output	6(+2)ch Coaxial · Out	1 System(C, SW 2 System)
(+2ch option)	6(+2)ch Balanced · Out	1 System(Input)
Control And Indicators	Power Switch, Input Selector, Volume control, Dot-matrix FL Display, Monitor Switch, Straight switch, Output Mode Switch, Down Mix (Center) Switch, Down Mix (Sub-Woofer) switch, Balance Input switch, Line Phase Selector, Signal Ground terminal, AC Inlet, AC Outlet (Switch, Un-switch)	
Remote Control Function	Volume Up/Down, Mute, Input Selector, Down Mix Setting, Output Mode Setting, Channel Level setting, Balance Output, Tone Control, Straight, Setting/read, Display Dimmer, Remote Control Illumination	
Power Consumption	36W/41W (8 channels version)	
Dimensions	457(w) x 132(H) x 466(D) mm	
Weight	15.5Kg/16.0Kg (8 channels Version)	

MU-80

Continuous Power Output	8 Ohms/ 4 Ohms	75W/110W
(8 Channels operation)	8 Ohms, BTL	220W
Max. Power Output	8 Ohms/ 4 Ohms	100W/150W
(8 Channels operation)	8 Ohms, BTL	300W
Max. Power Output	8 Ohms/ 4 Ohms	130W/210W
(2 Channels operation)	8 Ohms, BTL	380W
Input Sensitivity	8 Ohms, 75W	1.0V
Input Impedance	Coaxial	51KOhms
	Balanced	67KOhms
Frequency Response	20~20KHz	+0, -0.1dB
	1~390KHz	+0, -3.0dB
Total Harmonic Distortion	8 Ohms, 1KHz	0.01%
	8 Ohms, 20~20KHz	0.06%
S/N Ratio	IHF-A	110dB
Damping Factor	200	
Control and Indicators	Power Switch, Power/Mute Indicator, Level Indicator, BTL Indicator, Display OFF Switch, Coaxial In, Balanced In, Input Switch, BTL Switch, Balanced Input Switch, Speaker terminal, Line Phase Sensor, Signal Ground Terminal, AC Inlet	
Power Consumption	122W(No signal) /1040W (Standard Output)	
Dimensions	467(W) x 212(H) x 491(D) mm	
Weight	43.0Kg