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SANSUI MUSICAL ELECTRONICS



WS-X1

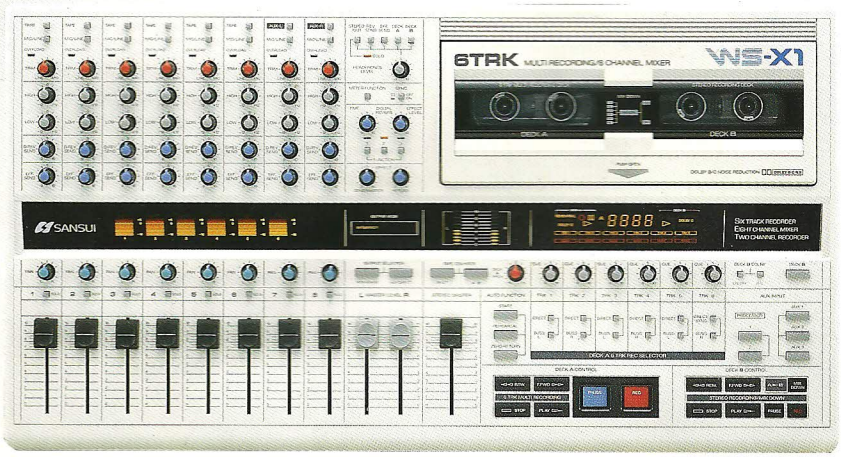
MX-12 MR-6 SY-1
WS-G10 CD-M12

Sansui Musical Electronics — innovative products for the mu

6-Channel Multi-Track Recorder with 8-Channel Stereo Mixer

WS-X1

The WS-X1 is a versatile control center for making demo recordings and for practice because it combines a 6-channel MTR with an 8-channel mixer and a 2-channel master recorder. The WS-X1 features all the functions and controls you need to record, mix and edit your performance on tape to produce high-quality demo tapes. It's a self-contained studio you can take easily from home to the studio and back.



12-Channel Recording Mixer

MX-12

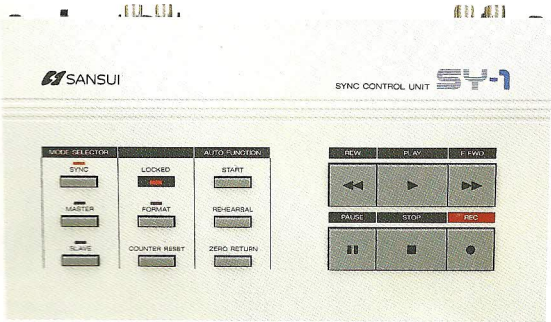
The MX-12 is a 12-channel mixer that lets you increase the number of channels you can mix. It features 12 line/mix inputs (balanced for two in parallel), 12 direct outputs, two balanced/unbalanced stereo outputs, 6 "program" outputs, and two AUX send/return circuits. For each channel there's a SOLO switch, PAN control and ASSIGN switch that lets you assign any input to the desired output.



Sync Control Unit

SY-1

The SY-1 provides two distinct functions. One, it can be used to operate WS-X1 and MR-6 or two MR-6's in perfect sync, making 10-channel recording possible. And two, it houses a MIDI FSK converter that converts MIDI signals into FSK format for automatic operation of a sequencer-controlled synthesizer or drum machine.



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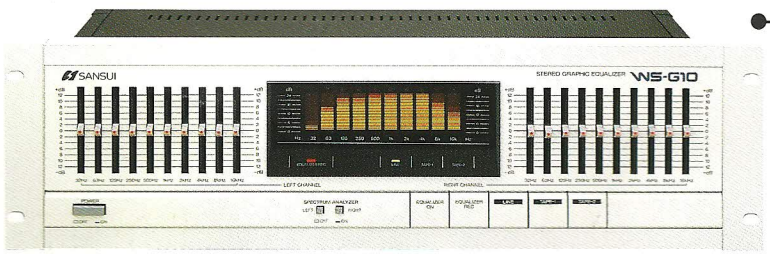
Sansui is proud to present its new line of Sansui Musical Electronics products. Blending two fields of our engineering expertise — audio and digital — we have come up with a creative idea, a line of products that will help to bring out the musician in you as well as bring you the joy of recording, dubbing and editing your performance: Sansui Musical Electronics. These products provide a simple and affordable means for you to express your creativity. They are versatile and flexible, yet simple in design so you won't be intimidated by complexity or price. And, like our audio products, Sansui Musical Electronics are built to exacting quality and musicality standards. Discover a whole new world of musical creativity — with Sansui Musical Electronics.



6-Channel Multi-Track Recorder

MR-6

The MR-6 is a 6-channel MTR that lets you, in conjunction with the SY-1 and WS-X1, or just with the SY-1, increase the number of mixed channels to 10. Features include MIDI sync capability, a ±20% pitch control, punch-in/out capability, double speed tape run, auto rehearsal function, and Dolby C noise reduction.

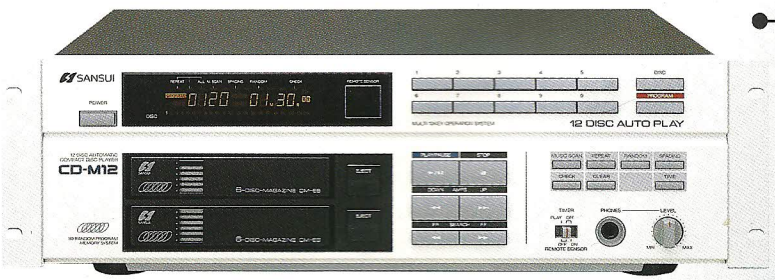


With RK-19 Rack Adaptor

10-Band Graphic Equalizer

WS-G10

The WS-G10 lets you equalize the mixed-down signal before it is sent to the master recorder for final touch-up. You can boost and cut the response up to 12dB at frequencies of 32, 63, 125, 250, 500, 1k, 2k, 4k, 8k and 16kHz. A 10-band fluorescent real-time spectrum analyzer allows close monitoring of recording and playback level. And there is an input level control to prevent overload.



With RK-19 Rack Adaptor



12-Disc Automatic Compact Disc Player

CD-M12

When you rehearse or make recordings, you can do so against digital background music. The CD-M12 accepts two magazines, each containing six CDs, giving you direct access to any track on any of the 12 discs. You can also program up to 30 tracks from the 12 discs, repeat any single track or programmed tracks, operate the player from remote, and move from track to track at the touch of a button.

The WS-X1—a self-contained st

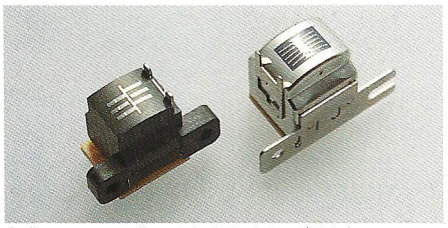
The WS-X1 6-channel multi-track recorder is the core component of Sansui Musical Electronics, tying associated peripherals into a highly versatile multi-track recording system. It's a self-contained console-type 6-channel MTR with integrated 8-channel mixer and 2-channel master recorder. The format is both unique and easy-to-use: it offers two more channels than conventional multi-track recorders, and yet operating it is much less complex than with an expensive 8-channel MTR. And because it's highly portable, you can take it with you anywhere.



Built-in multi-track and master recorders

Integrated 6-channel multi-track and 2-channel master recorders

The unique format of the WS-X1 brings you a number of advantages. One, you can make sound-on-sound recordings without sacrificing sound quality. Suppose you mix 10 voices and instruments: with conventional 4-track recorders, this requires seven steps of dubbing: with the WS-X1 it takes only five. Fewer dubbing steps means less sound degradation. Two, it's possible to dub between MTR and master recorder, so you can make "ping-pong" recording of up to 12 tracks without loss of sound quality. Three, since the MTR runs the tape at double normal speed, recordings will have a wider frequency response. And four, since a master recorder is built in, there's no need to connect an external recorder for mastering, which simplifies connection and operation.



In-line type recording and playback head (Right), and Staggered type erase head (Left)

Recording Process

Record/Playback Steps

6-Track MTR (stereo "ping-pong" recording process)

	1	2	3	4	5	6	7
TRK1	A	A →	F	F →	I		
TRK2	B	B →	G	G →	J		
TRK3	C	C →		FG + H	FGH		
TRK4	D	D →					
TRK5		Mix down ABCD + E	ABCDE	ABCDE	ABCDE		
TRK6							

4-Track MTR (monoral "ping-pong" recording process)

TRK1	A	A →	E	E →	H	H →	J
TRK2	B	B →	F	F →		H + I	H + I
TRK3	C	C →		EF + G	EFG	EFG	EFG
TRK4		ABC + D	ABCD	ABCD	ABCD	ABCD	ABCD

Recording | Playback

udio that puts you in control



Automatic rehearsal by computer control

The WS-X1 has memory for storing the tape indexes for auto-stop and auto-play. This lets you repeat the same recorded segment over and over, so you can rehearse with minimum fuss, and edit recordings more accurately.

Punch-in/out by foot switch

You can "punch in" to switch from play directly to recording, or "punch out" to switch from recording to play. The punch-in/out function lets you easily erase a phrase recorded in any channel and re-record the phrase anew. Used in combination of the auto rehearsal function, you can record the same phrase over and over without missing a beat or affecting other recorded channels.

Dolby B/C noise reduction

The MTR is equipped with Dolby C noise reduction, and the master recorder with both Dolby B and C noise reduction, so tape hiss won't intrude to ruin your creative production.

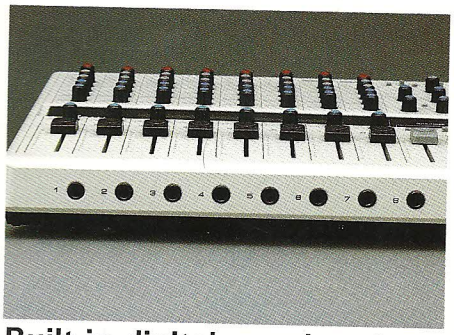
Pitch control for 20% change in pitch

It's possible to adjust pitch by up to ±20%. This lets you to adjust the pitch of a recording to match with untunable instruments like piano and brass, or to change the key to one that's more comfortable to you.

Versatile 8-channel mixer

8 mic/line inputs

The WS-X1 is a versatile recording mixer with 8 mic/line inputs. Each input is equipped with TAPE and MIC/LINE selectors, a TRIM control, HIGH and LOW equalizer controls, a DIGITAL REVERB SEND control, an EFFECT SEND control, a PAN control, a SOLO switch and a level control. This elaborate design lets you precisely control each of the eight channels. All eight accept inputs from microphones, guitars and other electronic equipment, and two have a Cannon-type (XLR) connector in parallel for balanced microphones and other balanced sources.



Built-in digital reverb unit

Apply reverb effects to the sound you record, channel by channel. The built-in reverb unit operates digitally to provide precise response and low noise and distortion. Adjustable parameters include depth, reverb time and effect level.

3 AUX inputs

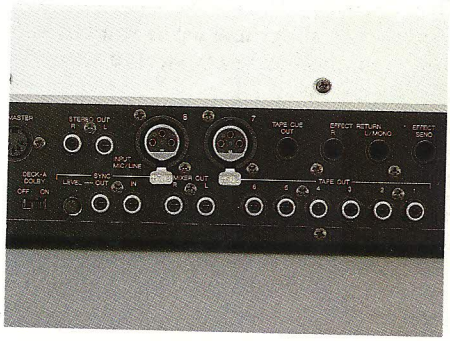
You can also use the signal from a CD player, tuner, VCR, etc., as an alternate sound source for microphones and electronic equipment. The WS-X1 has three AUX inputs that accept signals from audio and video equipment.

SOLO monitor switches

The SOLO monitor switches let you critically monitor the channel of your choice through the headphones after the signal is adjusted for level and response.

Effect send/return and two processor circuits

You can patch in a reverb unit, compressor, limiter and other effector and process the signal input by input. You can also add two processors (stereo graphic equalizer, etc.) to the signal paths of the 2-channel master recorder.



Six tape outputs

There are six tape outputs you can feed to another mixer. You can use these terminals to dub on another recorder or mix down to an external mixer.

Multi-function fluorescent display

A concentrated display shows the record/playback level of each track, levels of the stereo bus and effector, the record/playback status of each track, and indicates tape counter values.

Two headphone outputs

It's possible to monitor the sound as it's being recorded or as it's being mixed down.

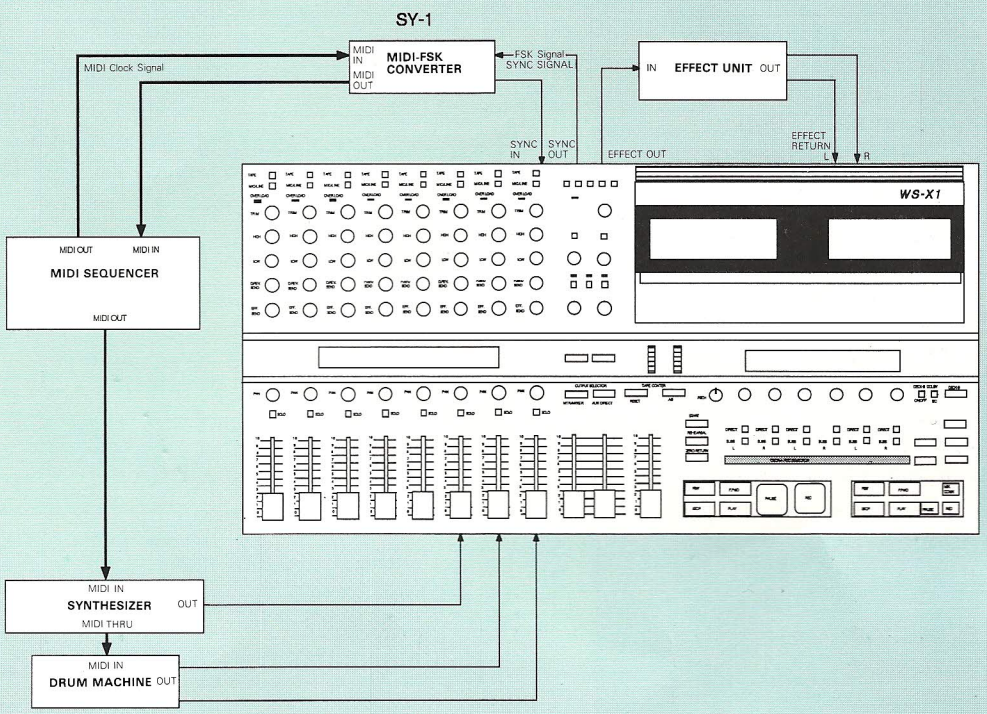
Sansui Musical Electronics — re

MIDI ready for sync play

The WS-X1 connects a MIDI FSK converter (included in the SY-1) so you can record and play MIDI signals on tape. Doing so makes automatic sequencer-controlled play possible.

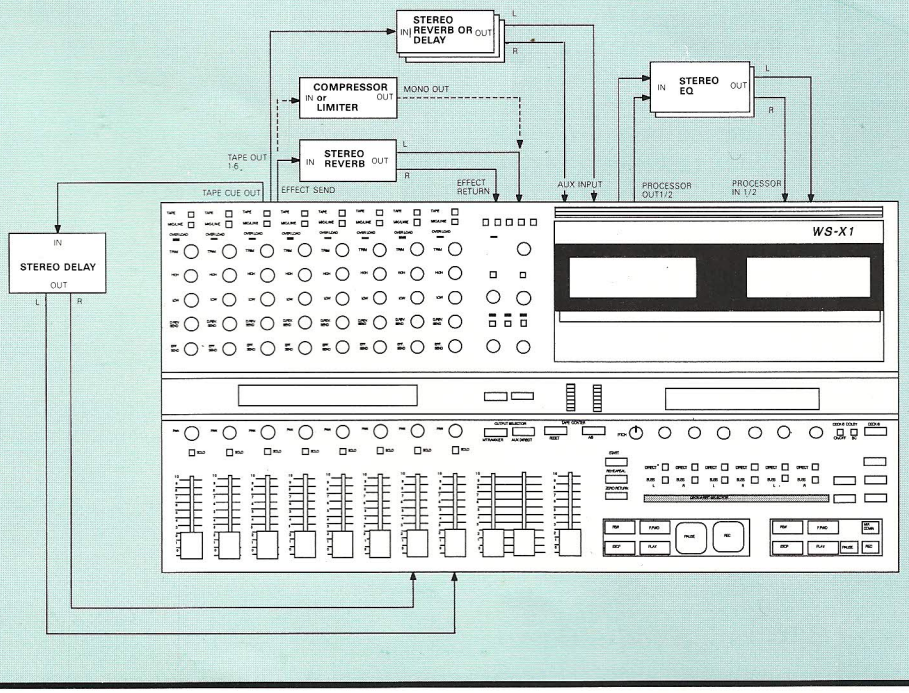
Connection and operation are simple. Just connect the input and output of the MIDI FSK converter and MIDI instruments to the WS-X1. Record the sync signal on track 6. Once this is done, MIDI instruments will be automatically controlled by the played-back sync signal as you record or dub on other tracks.

Expanded Setup for MIDI Sequencer



Thanks to the wide array of inputs and outputs on the WS-X1, you can add highly sophisticated effects as you record or dub. There are connections for EFFECT SEND/RETURN, AUX-1/2/3 INPUTS and PROCESSOR-1/2. The chart shows the unit's connection versatility.

Connections for Effectors and Processors



ady for easy expansion

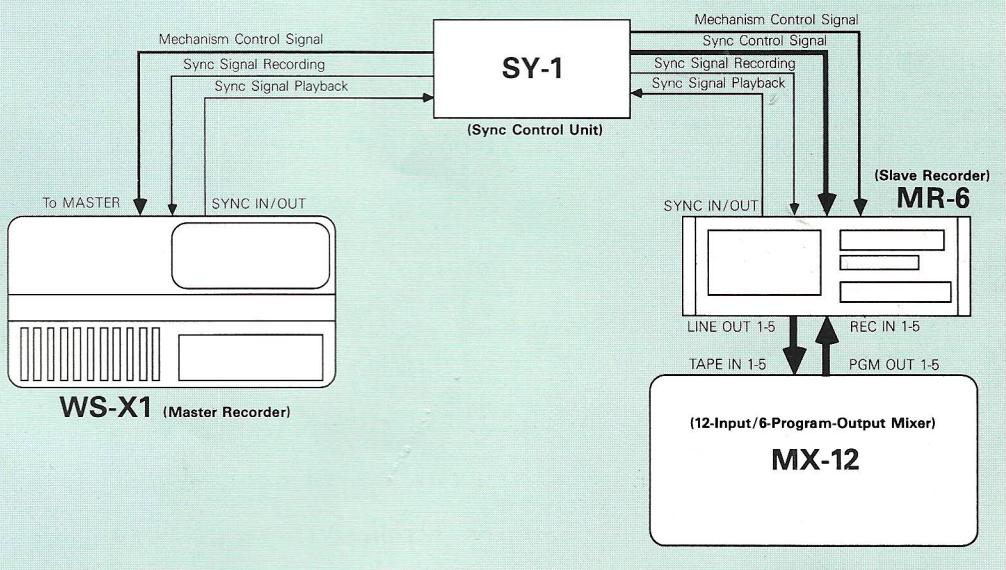
Add more channels through sync operation

When you need more than the six channels the WS-X1 provides, we offer a number of add-ons to help you expand your system: the MR-6 6-Channel Multi-Track Recorder, the SY-1 Synchronizer Unit, and the MX-12 12-Channel Recording Mixer. Here are two sample systems.

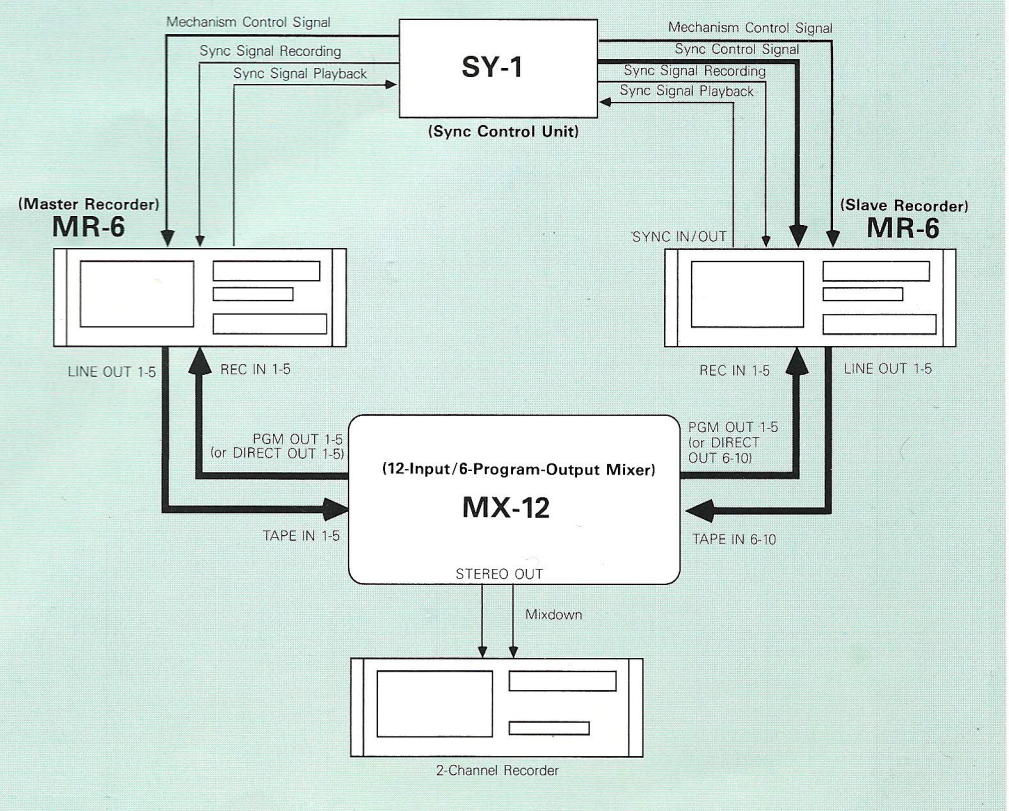
System 1: Included are the WS-X1 as a master recorder, the SY-1 and the MR-6 as a slave and MX-12. With this setup, you can mix up to 10 channels simultaneously. This system is appropriate for a portable studio.

System 2: This system includes two MR-6's (one used as a master and the other as a slave), the SY-1, the MX-12 and an external 2-channel recorder you supply as a master. This system is ideal for home-based studios.

Synchronized Recording System Using WS-X1 and MR-6



Synchronized Recording System Using 2 MR-6's

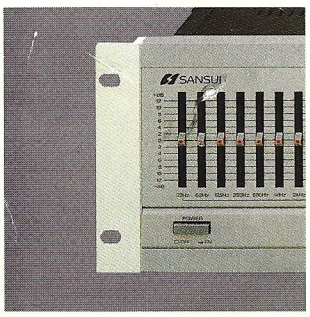


Options

Carrying Bag for WS-X1 & MX-12



RK-19 Rack Adaptor



Specifications & Features

6-Channel Multi-Track Recorder with 8-Channel Stereo Mixer

WS-X1

SPECIFICATIONS

TAPE RECORDER SECTION

Tape Type	C30 – C90 cassette tape (chrome)
Track Format	Deck A: 6-track, 6-channel record/play Deck B: 4-track, 2-channel record/play
Tape Speed/Deviation	Deck A: 9.5cm ±1% per second Deck B: 4.75cm per second
Pitch Control	±20% (Deck A only)
Wow & Flutter	0.06% (NAB weighted)
Sync Out	– 10dBV / 100 ohms
Frequency Response	40Hz – 15kHz ±3dB
Channel Separation	50dB (1kHz 0VU NR in)
Erasure Response	70dB (1kHz)

MIXER SECTION

Distortion	0.06% (amplifier)
Signal-to-Noise Ratio	72dB
Frequency Response	10Hz-60kHz
Separation	65dB
Mic/Line Input (x8)	
Input Level	Mic, – 50dBV at trim max Line, – 10dBV at trim min
Impedance	50k ohms
Effect Return (Stereo)	
Level	– 10dBV/5k ohms
Effect Output	
Level	– 10dBV/100 ohms
Equalizer	
Low	100Hz ± 12dB
High	10kHz ± 12dB
Dimensions (W × H × D)	625 × 110 × 343mm (24-5/8" × 4-3/8" × 13-9/16")
Weight	9.0kg (19.8 lbs)

12-Channel Recording Mixer

MX-12

FEATURES

Any one or all 12 channels can be assigned to any of six PGM bus lines.
6 program buses with independent master faders.
Independent SOLO monitor circuit.
Two AUX send/return.
Direct output terminal for each channel.
Two headphone outputs.

SPECIFICATIONS

Input/Output	12 inputs/6 PGM outputs
Input Selector	MIC/ LINE & TAPE
Channel Assign	1-2, 3-4, 5-6 by panpot and assign switch
Meter	Fluorescent (12-dot × 6)
MIC/LINE Input Level	MIC: – 50dBV LINE: – 10dBV
AUX-1/2 Return	– 10dB
AUX-1/2 Send	– 10dB
Tape Input (× 12)	– 10dB
DIRECT Output (× 12)	– 10dB
PGM Output (× 6)	– 10dB
STEREO Input	– 10dB
STEREO Output	– 10dB
MONITOR Ouput	– 10dB
Dimensions (W × H × D)	625 × 110 × 343mm (24-5/8" × 4-3/8" × 13-9/16")
Weight	6.8kg (15.0lbs)

Sync Control Unit

SY-1

FEATURES

Synchronization for recording and playback of two multi-track recorders (WS-X1 and MR-6 or two MR-6).
Built-in MIDI FSK converter for automatic playback with computer.

SPECIFICATIONS

Sync. Input	– 10dB
Sync. Output	– 10dB
MIDI In/Out	
Dimensions (W × H × D)	250 × 59 × 146mm (9-7/8" × 2-3/8" × 5-3/4")
Weight	1.0kg (2.2 lbs)

6-Channel Multi-Track Recorder

MR-6

FEATURES

6-track recorder with stereo ping-pong recording capability.
Synchronization of two multi-track recorders (WS-X1 and MR-6 or two MR-6s) using SY-1 Synchronizer Unit available separately.
Computerized auto function (AUTO REHEARSAL and AUTO RETURN).
MIDI sync. recording capability.
Pitch control ±20%
Punch IN/OUT capability.
EIA standard design

SPECIFICATIONS

Tape	C30-C60 high-bias tape
Track Format	6-track, 6-channel
Head	Staggered type for erase and in-line for rec/play
Tape Speed	9.5 cm/s
Motor	2 motors
Pitch Control	±20%
Wow & Flutter	0.06% (NAB weighted)
Sync. Out	– 10dB
Frequency Response	40Hz – 15kHz
Separation	50dB
Erasure Response	70dB
THD	0.006%
S/N	72dB
Input Level	– 10dB
Output Level	– 10dB
Dimensions (W × H × D)	482 × 145 × 336mm (19" × 5-3/4" × 13-1/4")
Weight	6.7kg (14.8 lbs)

Stereo Graphic Equalizer

WS-G10

FEATURES

10-band independent left and right channel frequency equalization.
10-band real-time spectrum analyzer with fluorescent display.
LEDs on control knobs.
3 inputs: LINE, TAPE-1, and TAPE-2.
Adjustable input level.

SPECIFICATIONS

Equalization Range	12dB
Center Frequencies	32, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16kHz
Input Level	150mV/47kohms
Output Level	150mV/4.7kohms
Maximum Output	5V
THD	0.008%
Frequency Response	10Hz-100kHz
S/N	110dB
Dimensions (W × H × D)	430 × 112 × 223mm (16-15/16" × 4-13/32" × 8-25/32")
Weight	4.25kg (9.35lbs)

12-Disc Automatic Compact Disc Player

CD-M12

FEATURES

Accepts two 6-disc magazines for playback of 12 discs.
30-track random programming, variable length music scan.
Low-noise 2-times oversampling digital filter.
Independent left and right linear 16-bit D/A converters.
2-mode timer play (Play/Random).
Remote control with numeric keypad.

SPECIFICATIONS

Frequency Response	4Hz-20kHz
THD	0.03% (1kHz)
S/N	100dB (EIAJ)
Dynamic Range	96dB
Wow & Flutter	Unmeasurable
Output Level	2V
Dimensions (W × H × D)	430 × 145 × 320mm (16-15/16" × 5-23/32" × 12-19/32")
Weight	9.0kg (19.8 lbs)

Design and specifications subject to change without notice for improvement. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

SANSUI

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--- NOTICE ---

1. Sync-control unit SY-1 doesn't have any power supply.
   The power supply is provided only from 6-Channel Multi-Track Cassette recorder MR-6.

2. Any MIDI FSK converter can be used together with WS-X1.
   (See the configuration of expanded setup for MIDIsequencer.)
   However, When SY-1 being used as the converter, it requires MR-6 for the power supply.

Thank you.