Choose the Ideal One for Your Application

14ch XR-5000 XR-5000WB

XR-5000

XR-5000
- 7 tape speeds: 1.19—76.2 cm/s (15/32—30 in/s)
- Frequency response: DC—40kHz (FM High Band)

XR-5000WB
- 8 tape speeds: 0.60—76.2 cm/s (15/64—30 in/s)
- Frequency response: DC—125kHz (FM Wide Band Group-II)

XR-5000WB

21ch XR-7000

- 7 tape speeds: 1.19—76.2 cm/s (15/32—30 in/s)
- Frequency response: DC—40kHz (FM High Band)

28ch XR-9000

- 7 tape speeds: 1.19—76.2 cm/s (15/33—30 in/s)
- Frequency response: DC—40kHz (FM High Band)

9 outstanding features

1 Interactive, Menu-driven Operation
Interactively setting operating conditions is simple; just watch the menus on the display. By following the menus, you can easily select the most suitable operating conditions for your application.

2 Dual Display Modes
Note the big, bright, electroluminescent displays. The bar graph display lets you monitor all data channels simultaneously and also provides peak hold functions. The waveform display can show either one channel or two.

3 7 speeds, 14, 21 or 28 channels
Tape speed can be set to any of 7 speeds from 1.19 to 76.2 cm/s (15/32 to 30 in/s) (8 speeds from 0.6 to 76.2 cm/s (15/64 to 30 in/s) on XR-5000WB). You can choose the one that's best for special frequency or recording time requirements. The XR-5000/XR-5000WB offer 14 channels, the XR-7000 gives you 21 channels and the XR-9000 has 28 channels.

4 GP-IB Interface (with A/D converter)
The optional GP-IB board makes it simple to collect data while connected to a personal computer. It is equipped with a 12-bit A/D converter that allows it to digitize measurement data for transmission to the computer in addition to controlling the data recorder itself.

5 4 Types of Amplifiers (XR-5000/XR-7000)
4 types of amplifiers are provided to correspond to the FM, Super FM (SFM), DR, and PCM recording and reproduction system. From the FM, SFM, and DR types select the most appropriate amplifiers according to the frequency range. The PCM amplifiers achieves multiple channel recording and a SN ratio of more than 60dB.

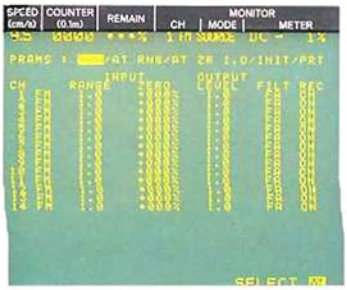
6 5 hours and 44 minutes
The use of the VHS videocassette tape permits longer recordings than possible with Beta type tape. Up to 5 hours and 44 minutes (11 hours and 28 minutes on XR-5000WB) on a T-120 (246m) tape. These data recorders can use T-160 (327m) tape for a longer recording and reproduce time.

7 ID information
Identification data can be recorded on a specified channel to facilitate high speed search. This also permits searching for and transmitting ID information through the optional GP-IB interface.

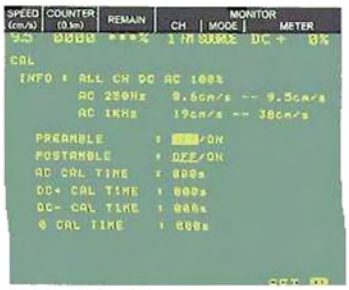
8 2 types of DC shifts eliminate direct current component
To eliminate the direct current component overlying data, the data recorder has 2 built-in DC shifts, an input zero shift and an input level shift. You can eliminate the direct current component on data below the specified input range by using the input zero shift. Use the input level shift for data exceeding the specified range. Eliminating the direct current component before recording expands the dynamic range, improving the signal-to-noise ratio.

9 Compact, lightweight design
Use of a newly developed tape transport mechanism makes these units lighter and more compact than ever before.

Advanced displays redefine ease of use

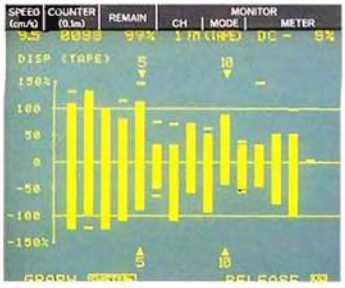


PARAMETERS Main Menu
Checks all channel settings.



CAL Main Menu
Permits programming CAL (calibration voltage) types for automatic recording.

ID Main Menu
Displays identification information for verification.



DISPLAY BAR
Displays data from all channels at once in bar-graph form.

MISC Main Menu
In addition to Self-Test, a number of additional functions can be selected.

SYSTEM Main Menu
Allows setting functions to enhance convenience to operator.

Additional User Selection and Settings [MISC]

In addition to setting Self-Test, you can set timer recording, trigger recording, track sequence and clock, and switch filter frequency.

- **Self-Test**
A diagnostic function that inspects the main features of the data recorder. Before starting recording, you can automatically check 4 items: power supply, recording/reproduce amplifier system, erase head system, and recording/reproduce head system.
- **Timer recording**
For recording from the preset start time to the stop time. Facilitate making unattended measurements and measurements made on a regular schedule.
- **Triggered recording**
Starts or stops recording when triggered by an input signal level exceeding a preset value. A delay period before starting and stopping recording can also be set.
- **Track sequence**
Divides the 14 (XR-5000/XR-5000WB), 21 (XR-7000) or 28 (XR-8000) tracks into the number of groups needed for repeat recording. This function gives extended recording time without changing frequency characteristics. Endless loop recording is also possible.
- **Filter frequency switching**
Slides cut-off frequency of low pass demodulation filter to the low side,when using FM amplifier. By narrowing the output bandwidth, you can substitute for anti-aliasing filter at A/D conversion by computer.
- **Setting clock**
Sets time for use in the ID time code. You can set year, month, day, hour, minute, and second, with ±30 seconds per month accuracy.

*Display is selectable between bar-graph and 2-channel waveform. The display below shows 2-channel waveform.

Setting to Enhance Convenience [System]

The choices under SYSTEM will be maintained as specified even if the power source has been cut off and there are no backup batteries. The functions that can be set include the following:

- **Data/noise compensation/tape servo selection**
- **Erase on/off**
- **FM band selection**
- **ID code format selection**
- **REV recording on/off**
- **Power off mode selection, etc**

Automating Initial Settings [INITIAL SET]

Automate initial settings by recording the setting patterns for each experiment in advance on the tape or internal memory. You can record up to 8 different input/output setting conditions specified with the PARAMETERS screen with internal memory and an unlimited number on tape. Set the most suitable conditions for each experiment, for trouble-free operation.

Automatic Setting to Suit the Data [AUTO RANGE/AUTO ZERO]

Select AUTO RANGE and input the type of date you wish to record and the data recorder automatically sets the input range based on the maximum value for that data. AUTO ZERO enables easy automatic zero adjustment for input and output. Both functions can, of course, also be set manually.

Compatibility of Data and ID Information

The XR-5000, XR-7000 and XR-5000WB can reproduce the data and ID information recorded on tapes by XR-510, XR-710 and XR-510WB, respectively.

Record selected recording and reproduce amplifier data on the tape as ID information. (XR-5000/XR-7000)

Data on the recording and reproduce amplifier used with each channel (FM/DR) can be recorded on the tape as ID information. For the FM amplifier, whether the amp is Wide Band Group I or High Band is also recorded.

2 power sources, AC and DC

The data recorder runs on 2 power source modes, AC90—250V (50—400 Hz) and DC11—30 V. Select the one that suits your measuring environment and purposes.

Equipped with 4 types of amplifiers (XR-5000/XR-7000)

4 types of amplifiers are provided to correspond to the FM, Super FM (SFM), DR, and PCM recording and reproduction system. Select the amplifier that suits your purposes and the type of data to be recorded.The choice of amplifiers lets the data recorder meet a broader range of needs, Moreover, it also possible to use a combination. Select the appropriate type of amplifier for any of a wide range of data types.

FM (AR-250FM) standard

For 2 carrier bands (switchable).
TEAC's High Band system:
DC—40kHz* (Wide Band Group-I×2)
Wide Band Group-I:
DC—20kHz*
*at 76.2cm/s (30in/s).

SFM (AR-250SFM) option

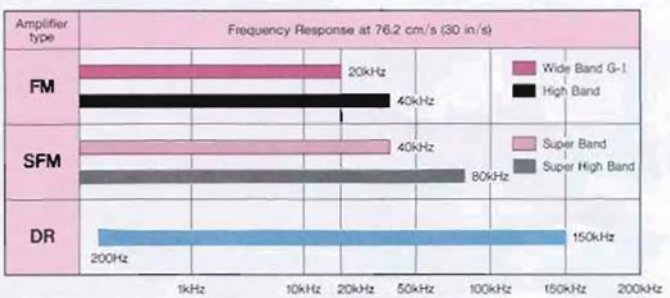
For 2 carrier bands (switchable).
Super High Band:
DC—80kHz* (Wide Band Group-I×4)
Super Band:
DC—40kHz* (Wide Band Group-I×2)
SFM amplifier doubles recording time compared with FM amplifier in the same frequency range.
*at 76.2cm/s (30in/s).

DR (AR-250DR) option

An unusually high frequency response.
200Hz—150kHz*
*at 76.2cm/s (30in/s).

PCM (AR-250PCM) option

For multiplex recording/reproduction.
One track can record max. of 8 channels (for each board).
XR-5000: max. 112 channels
XR-7000: max. 168 channels
High SN ratio 60 dB and low drift.



Other powerful options

GP-IB board with A/D converter AR-507 (XR-5000/XR-7000/XR-5000WB) AR-508 (XR-9000)

This internal GP-IB board is equipped with an A/D converter. It can not only control the data recorder, but also can perform A/D conversions on measurement data and transfer data to the computer. With this board, you do not need an A/D converter on your computer.

GP-IB Board Functions

- **Interface functions**

SH1, AH1, T6, L4, SR1, RL1, PP0, DT0, C0

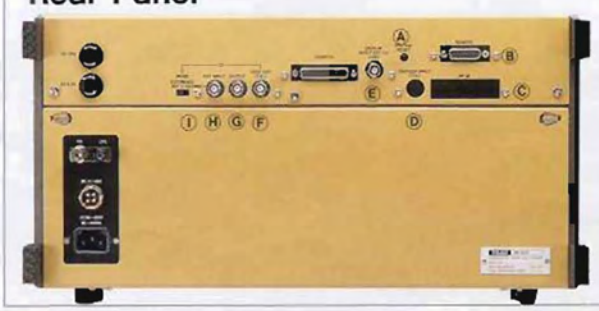
- **Control functions**

Tape operation
Setting tape speed and reading off
Setting input/output PARAMETERS
Setting CAL (calibration voltage)
Setting and reading of MONITOR channels
FM band selection and reading
Setting ID
Setting of search
Transfer of ID information
Controlling A/D converter
Transfer of data which was A/D converted
Others

A/D converter characteristics

Number of input channels:	Free choice within following ranges: 1—14 (XR-5000/XR-5000WB) 1—21 (XR-7000) 1—28 (XR-9000)
Sampling frequency:	100 kHz (14 steps), maximum
Channel switch timing:	10μs
Buffer memory capacity:	32K of data
Resolution:	12bits
Conversion format:	Sequential conversion

Rear Panel



Ⓐ SYSTEM RESET
Ⓑ REMOTE
Ⓒ GP-IB
Ⓓ TRIGGER INPUT
Triggered input for the A/D converter built into the GP-IB board.

Ⓔ DISPLAY INPUT EXT CH
When displaying waveforms on two channels, inputs the signal from the first channel.

Ⓕ ID GATE OUT
In shuttle mode, can output between the BP (beginning point) and EP (end point) and can be used as trigger signal for the external A/D converter.

Ⓖ ID OUTPUT/ Ⓗ ID EXT INPUT
When multiple data recorders are being used, taking the ID signal from the ID OUTPUT of the master recorder and inputting it into the slave recorder's ID EXT INPUT permits recording the identical ID on more than one data recorder.

Ⓘ ID MODE
Selects whether to use the ID from the recorder itself or from another master recorder.

SPECIFICATIONS

Record and Reproduce System:
XR-5000/XR-7000:
FM Wide Band Group-I/High Band (Wide Band Group-I×2) (standard)
SFM Super Band/Super High Band (option)
DR Intermediate Band (option)
PCM DIN 66224 D3.1 (option)
XR-9000:
FM Wide Band Group-I /Wide Band Group I×2 (standard)
XR-5000WB:
FM Wide Band Group-II

Tape: EIAJ standard magnetic VHS videocassette tape (maxell T-120HGX/T-160HGX tape recommended. Tapes other than that recommended may not satisfy specifications.)

Number of Tracks:
XR-5000/XR-5000WB: 14+1
XR-7000: 21+1
XR-9000: 28

Number of Channels:
XR-5000/XR-5000WB: 14+1 MEMO
CH1—12 data
CH13 data/ID/MEMO reproduce
CH14 data/noise compensation/tape servo
CH15 MEMO
XR-7000: 21+1 MEMO
CH1—10, CH12—20 data
CH11 data/noise compensation/tape servo
CH21 data/ID
CH22 MEMO
XR-9000: 28
CH1—13, CH15—26 data
CH14 data/noise compensation/tape servo
CH27 data/ID
CH28 data/MEMO

Head Configuration:
Record/reproduce 1 each
Erase (full track)
FWD side 1 piece, REV side as option

Control: Transport control: Push button switch
F.F/REV/STOP/FWD/F.F/REC

Search Control:
High speed search by reproducing of File No./Event No./TC Code/Time Code
High speed search by tape counter

Tape Speed Deviation: ±0.2% or less

Flutter: (IRIG118-73)
76.2 cm/s (30 in/s) 0.25% p-p
38.1 cm/s (15 in/s) 0.25% p-p
19.05cm/s (7½ in/s) 0.3% p-p
9.52cm/s (3¾ in/s) 0.4% p-p
4.76cm/s (1⅞ in/s) 0.5% p-p
2.38cm/s (15/16 in/s) 0.8% p-p
1.19cm/s (15/32 in/s) 1.0% p-p
*0.60cm/s (15/64 in/s) 1.5% p-p
*XR-5000WB

Start/Stop Time (approx.): 3 seconds

Fast Forward/Fast Reverse Time (approx.):
5 minutes (with T-120 246-meter tape)

Input: Impedance: FM: 1MΩ / *100kΩ unbalanced
*XR-5000WB
SFM, DR, PCM: 100 kΩ unbalanced
Voltage: FM,SFM,DR: ±0.1, 0.2, 0.3, 0.5, 0.7, 1, 1.4, 2, 3, 5, 7, 10, 14, 20 Vp
14 steps (AUTO RANGE: ±0.3—20Vp)
PCM: ±1 Vp

Output: Impedance: FM, SFM, DR, PCM: 75Ω unbalanced
Voltage: FM, SFM, DR: ±0.1, 0.2, 0.5, 1, 1.4, 2, 3, 5 Vp 8 steps (100 kΩ load)
PCM: ±1 Vp
Current: FM: 20 mA (20Ω load)

Input/Output Zero Shift:
FM, SFM: ±100%, 0.125% step (electronic switch)

Input Level Shift:
FM, SFM: ±20 Vp (each range can be shifted ±20 Vp by trimmer)

Distortion: FM Wide Band Group-I: 2.0% or less(IRIG)
FM Wide Band Group-II: 3.0% or less at 76.2—1.19cm/s(IRIG)
4.0% or less at 0.60cm/s(IRIG)
FM High Band: 3.0/*4.0% or less(IRIG)
*XR-9000
DR: 1.0% or less (third harmonic distortion) (IRIG) at 76.2 cm/s

Crosstalk: FM, SFM, DR, PCM, Below noise level of each channels

Linearity: FM, SFM: ±0.5% (IRIG)
PCM: ±0.25%

Drift: FM: ±0.5% (IRIG), SFM: ±1.0% PCM: ±0.25%
After 15 minutes, warm up by running one tape

Calibration Voltage:
DC: ±100%, 0%
AC: 100%
Program: Auto CAL programmable-all channels simultaneous

Operating Conditions (Temperature and Humidity):
0°C—40°C (32°F—104°F)
20%—80% RH (non-condensing)

Vibration: Test method: MIL-STD-810C TABLE 514.2-VI V Curve

Shock: Test method: MIL-STD-810C 30G-11ms

Power Supply:
90—250 V AC (50—440 Hz)/11—30 V DC (for both AC/DC)

Power Consumption (approx.):
XR-5000/XR-5000WB: 140VA (AC): 8.6 A (12V DC)
XR-7000: 160 VA (AC): 9A (12V DC)
XR-9000: 200 VA (AC): 12A (12V DC)

Dimensions (W×H×D):
(Excluding Projections) (approx.)
XR-5000/XR-5000WB/XR-7000: 440×220×300 mm (17 5/16×8 11/16×11 13/16 inch)
XR-9000: 440×298×300 mm (17 5/16×11 3/4×11 13/16 inch)

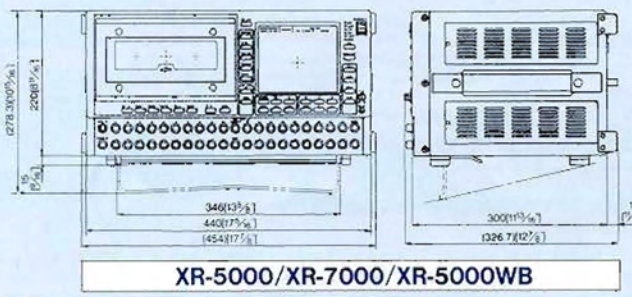
Weight (approx):
XR-5000: 18.5kg (40.8 lbs.)
XR-7000/XR-5000WB: 19.5kg (43.0 lbs)
XR-9000: 26kg (57.3lbs.)

Frequency response (with T-120 246-meter tape)

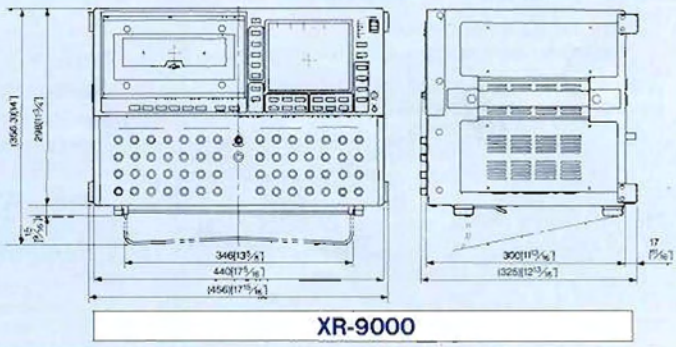
Tape speed		XR-5000/XR-7000/XR-9000 (* SFM, DR and PCM amplifiers can not be used with XR-9000)									XR-5000WB		
		FM		SFM*		DR*	PCM*				FM		
		High Band (WB G-I×2) Wide Band (WB G-I)		Super High Band Super Band		Intermediate Band	Bit Rate	Sampling freq. (Hz)			Wide Band Group-II		Record reproduce time
cm/s	(in/s)	(+0.5, −1dB)	S/N	(+0.5, −1.5dB)	S/N	(±3dB) S/N	(bit/s)	1 ch.	2 ch.	4 ch.	8 ch.	(+1/−3dB) S/N	(approx.)
76.2	(30)	DC—40kHz DC—20kHz	47dB 50dB	DC—60kHz DC—40kHz	39dB 43dB	200Hz—150kHz 32dB	320k	18.8k	10.66k	5.71k	2.96k	DC—125 kHz 42dB	5 minutes
38.1	(15)	DC—20kHz DC—10kHz	47dB 50dB	DC—40kHz DC—20kHz	39dB 43dB	100Hz— 75kHz 32dB	160k	9.41k	5.33k	2.85k	1.48k	DC— 62.5 kHz 41dB	10 minutes
19.05	(7½)	DC—10kHz DC— 5kHz	47dB 50dB	DC—20kHz DC—10kHz	39dB 43dB	100Hz— 37.5kHz 32dB	80k	4.70k	2.66k	1.42k	740	DC— 31.25 kHz 38dB	21 minutes
9.52	(3¾)	DC— 5kHz DC— 2.5kHz	46dB 48dB	DB—10kHz DC— 5kHz	37dB 41dB	100Hz— 18.75kHz 30dB	40k	2.35k	1.33k	714	370	DC— 15.625kHz 36dB	43 minutes
4.76	(1⅞)	DC— 2.5kHz DC— 1.25kHz	44dB 47dB	DC— 5kHz DC— 2.5kHz	35dB 39dB	100Hz— 9.38kHz 30dB	20k	1.17k	666	357	185	DC— 7.812kHz 36dB	1 hour & 26 minutes
2.38	(15/16)	DC— 1.25kHz DC— 625Hz	42dB 46dB	DC— 2.5kHz DC— 1.25kHz	33dB 37dB	100Hz— 4.69kHz 28dB	10k	588	333	175	92	DC— 3.906kHz 37dB	2 hour & 52 minutes
1.19	(15/32)	DC— 625Hz DC— 313Hz	40dB 42dB	DC— 1.25kHz DC— 625Hz	30dB 31dB	100Hz— 2.34kHz 26dB	5k	294	166	89	46	DC— 1.953kHz 34dB	5 hour & 44 minutes
0.60	(15/64)											DC— 0.977kHz 29dB	11 hour & 26 minutes

Dimensions

Unit : mm [ ]=inches



XR-5000/XR-7000/XR-5000WB



XR-9000

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