

Data Recorder

Portable DAT Instrumentation Recorder

PC200Ax Series

• Multichannel (up to 64 channels) •
2ch/4ch/8ch/16ch/32ch/64ch
• Long record/playback (up to 6 hours) •



The Sony PC200Ax Series continues in the strong tradition established by its predecessors, with yet more features and benefits added. The Series has been specially developed for use both in the field and as laboratory instruments. Compact and lightweight, the PC200Ax Series delivers the very highest level of performance available today: bandwidth scaleable according to the requirements from DC to 20kHz in each of four channels up to 2.5kHz in 64 channels using the double speed mode; longer recording time of up to 6 hours; and capability of interfacing to a wide range of computer platforms for sophisticated data analyses; and more. The product range includes a comprehensive selection of accessories to meet the needs of an ever expanding variety of scientific and industrial applications.

Ever Evolving Sony Data Recorders

4ch × 20kHz
PC204Ax

8ch × 10kHz
PC208Ax



With its compact and lightweight design, the PC200Ax Series changes the way the field data



PC204Ax (4 channels × 20 kHz)
PC208Ax (8 channels × 10 kHz)

- Normal/double speed record/playback
- Up to 6 hours of continuous recording
- Compact and lightweight
- Band/channel mode switching
- Various digital inputs/outputs
- Separate AD/DA conversion for each channel
- Wide dynamic range of more than 80 dB
- Interchannel phase difference of less than 1°
- TOC display
- Multi-power supply
- Complies with UL, FCC and CE Marking.
- Other numerous functions provided as standard



▲PC204Ax



PC204Ax (side)

PC204Ax/208Ax (rear)

PC208Ax (side)



Sony introduced the world's first "Double Speed" DAT instrumentation recorder. The original PC200 Series established new standards of portability and performance making DAT the system of choice for a wide range of applications. The product range has continued to grow from strength to strength with new models and features being added to meet the ever expanding needs of modern science and industry. Longer recording time, channel expansion, "TOC" display, and digital interfaces have all been added.

Sony continues the integration of state-of-the-art components and technologies in a never ending effort to meet the needs of users. The PC200Ax Series represents the ultimate DAT instrumentation recorder available today.

16ch × 5kHz

PC216Ax



recording is done.

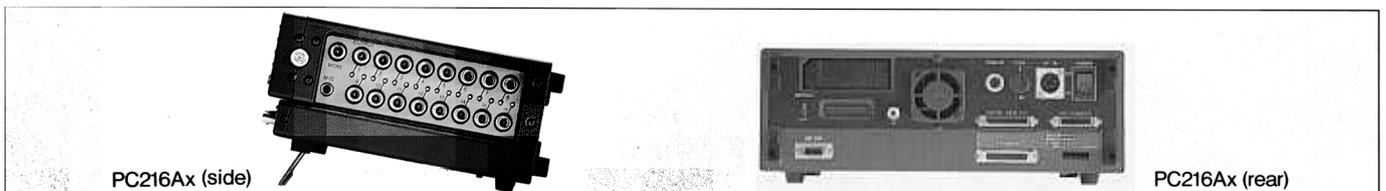
PC216Ax (16 channels × 5 kHz)

- Up to 32 channels using expansion unit PCCX32Ax
- Up to 64 channels by synchronized record/playback
- Compact and lightweight
- Normal/double speed record/playback
- Up to 6 hours of continuous recording
- Band/channel mode switching
- Various digital inputs/outputs
- Separate AD/DA conversion for each channel
- Wide dynamic range of more than 80 dB
- TOC display
- Multi-power supply
- Complies with UL, FCC and CE Marking.
- Other numerous functions provided as standard



Channel expansion unit ▲

PCCX32Ax



PC216Ax (side)

PC216Ax (rear)

Portable Data Recorder

SERIES

FEATURES



PORTABILITY

The use of Sony's unique compact mechanics and LSI technology has enabled the manufacture of compact, lightweight PC200Ax Series {297mm(W)×220(D)×70mm/100mm(H) and approx. 3.5kg/4.5kg} that can be carried in an attache case or traveling bag to the field.



MULTIPLE POWER SOURCE

The PC200Ax Series operates on AC, DC or with an internal rechargeable battery for easy indoor/outdoor measuring. The two-way power supply (AC/DC or DC/battery) backs up the data in case of power failure in either case.



DOUBLE BANDWIDTH RECORD/PLAYBACK

By doubling both the longitudinal tape speed and the rotational speed of the head drum, double bandwidth record/playback has been achieved:

DC to 20kHz for all 4 channels (PC204Ax/208Ax/216Ax)

DC to 10kHz for all 8 channels (PC208Ax/216Ax)

DC to 5kHz for all 16 channels (PC216Ax)

MULTIBAND/CHANNEL MODES

The multiband/channel modes offer a wider variety of combinations of the frequency and a number of channels. Added with the switchable record/playback speed (normal and double) mode, a yet more flexible data gathering is possible.

- 2/4-channel mode for PC204Ax
- 2/4/8-channel mode for PC208Ax
- 2/4/8/16-channel mode for PC216Ax
- 2/4/8/16/32-channel mode for PC216Ax with channel expansion unit PCCX32Ax

No. of Channels	Frequency band (kHz)	PC Series model	Frequency band (kHz)			
			DC	5	10	20
2	(Normal speed)	PC204Ax	[Bar chart showing frequency response from DC to 20kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 20kHz]			
4	(Normal speed)	PC208Ax	[Bar chart showing frequency response from DC to 10kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 10kHz]			
8	(Normal speed)	PC208Ax	[Bar chart showing frequency response from DC to 5kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 5kHz]			
16	(Normal speed)	PC216Ax alone	[Bar chart showing frequency response from DC to 2.5kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 2.5kHz]			
32	(Normal speed)	x2 PC216Ax	[Bar chart showing frequency response from DC to 2.5kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 2.5kHz]			
32	(Normal speed)	PC216Ax with PCCX32Ax	[Bar chart showing frequency response from DC to 1.25kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 1.25kHz]			
64	(Normal speed)	x3 (PC216Ax with PCCX32Ax)	[Bar chart showing frequency response from DC to 1.25kHz]			
	(Double speed)		[Bar chart showing frequency response from DC to 1.25kHz]			

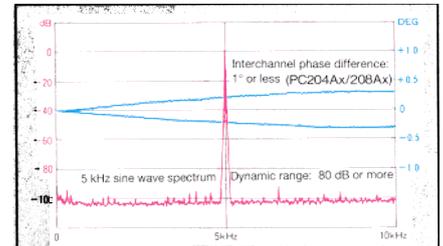
The recording made in the same channel mode can be interchangeably played back among the PC Series. Two-channel recording made on an audio DAT recorder can be played back by a PC Series recorder (except subcode).

DOUBLE SPEED TIME AXIS CONVERSION

Being capable of two speed modes. The time taken for data analysis can be halved by reproducing recordings made at the normal speed in the double speed mode. Alternatively, recordings made in the double speed mode can be played back at the normal speed for precision monitoring. Up to 6-hour recording/playback is possible (with a 120-m DDS tape at the normal speed).

WIDE DYNAMIC RANGE/FURTHER REDUCED INTERCHANNEL PHASE DIFFERENCE

The use of 16-bit linear quantization (using the least significant bit for the LSB digital channel) achieved a broad dynamic range of 80dB or more (within the bandwidth), which is only possible with PCM, making the setting of the input range an easy task. In addition, an interchannel phase difference of less than 1° (PC204Ax/208Ax) or less than 2° (PC216Ax) has been attained by compensating the phase variations occurring in the analog filters with digital filters.



COMPLIANCE WITH SAFETY/EMC REGULATIONS

Complying with world's major safety/EMC regulations (UL and EN61010-1; FCC and EN55011-A [EMI]; EN50082-1 [EMS]), the PC200Ax Series can be relied on for safety and reliability.

AUTOMATIC ANALOG CIRCUIT CALIBRATION

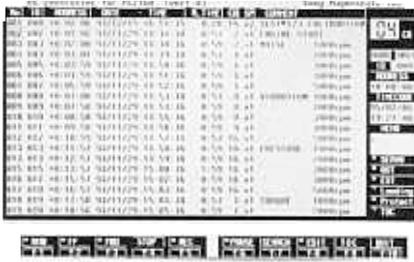
At power-on or in self-check, the offset and gain of the analog circuits are automatically calibrated. This enables high-accuracy recording and playback without the need of compensations for the offsets or variations in gain that changes with the ambient temperature or with the passage of time.

TABLE OF CONTENTS DISPLAYED ALL TOGETHER

The table of contents (TOC) of a whole tape displayed on a host computer screen enables more efficient check and search of the recorded data. The TOC data includes ID number, tape address, input range and up to 20 characters for your memo's, for each block of recorded data.

TOC data is automatically compiled from actual recordings and written into the leading 2-minute area of a tape specially reserved for TOC data. TOC data can also be edited and re-recorded as required under control of the computer.

● TOC display on the computer

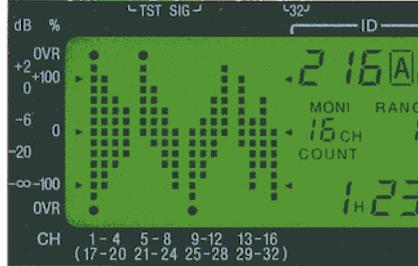


* Free TOC sample program is available upon request.

SWITCHABLE %/dB BAR DISPLAY

Comprehensive data signal monitoring is achieved by means of a back lit bar graph display, affording a wide viewing angle and the choice of either % or dB calibration. In addition, an LED indicator alerts the operator to the over-range input.

* The PC216Ax shows the % graph in both plus and minus directions, with the 0 V at the center, a convenient feature for stress and distortion measuring.



READ-AFTER-WRITE FUNCTION

The read-after-write function using 4 heads checks data in real time during recording for write errors and displays the data status to quickly alert the operator to damaged tape, clogged heads and other conditions to be corrected.

BUILT-IN TEST SIGNAL

A test signal selectable from among $\pm 100\%$ digital sine wave signal, $+100\%$ DC, -100% DC and 0V can be generated from the analog/digital output connector or recorded as high accuracy reference signal on the tape.

* $\pm 100\%$ level is equivalent of $\pm nVp$ with the full input range set to $\pm nV$ range, where $n=0.5/1.0/2.0/5.0/10.0/20.0$

6-HOUR RECORDING TIME

An all new tape transport mechanism for use with the new thinner media has been developed. The new tape transport is fully compatible with the very latest 120-m DDS cassettes to enable longer recording time of up to 6 hours at normal speed (3 hours in Double Speed mode). The latest DDS Media also offers superior performance and excellent long term storage capability.

VARIOUS HIGH SPEED SEARCH MODES

Following targets are searched for at 200 times the normal speed to enable quick data location: tape position stored in memory by MARK-1/-2 key, 3-digit ID number recorded on tape, start ID automatically written at the start of recording, and the end of the immediately preceding data.

PC216Ax CAPABILITIES

Up to 32 Channels with Expansion Unit

Connected with the PCCX32Ax, the PC216Ax is capable of 2.5kHz double speed record/playback for 32 channels.



$$\begin{matrix} \text{PC216Ax} \\ 16\text{ch} \\ + \\ \text{PCCX32Ax} \\ 16\text{ch} \\ = \\ 32\text{ch} \\ \times 2.5\text{kHz} \end{matrix}$$



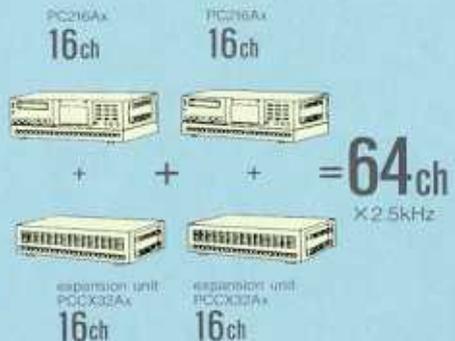
Up to 64 Channels by Synchronized Recording

Two PC216Ax units operating in synchronized mode offer 10kHz recording for 16 channels and 5kHz recording for 32 channels, both at double speed. The two sets of the PC216Ax connected with PCCX32Ax offer double-speed 2.5kHz recording for 64 channels in synchronized operation.

$$\begin{matrix} \text{PC216Ax} & \text{PC216Ax} \\ 8\text{ch mode} & + & 8\text{ch mode} \\ = & 16\text{ch} \\ & \times 10\text{kHz} \end{matrix}$$



$$\begin{matrix} \text{PC216Ax} & \text{PC216Ax} \\ 16\text{ch mode} & + & 16\text{ch mode} \\ = & 32\text{ch} \\ & \times 5\text{kHz} \end{matrix}$$



Digital dubbing

Digital duplication is possible using two units of PC216Ax without deterioration of data quality. The original can be stored for long period of time as master.

Production of digital data with a computer

Digital data produced on a computer can be transferred to PC216Ax to write it on the tape. Conversely, data recorded on the PC200Ax Series can be computer-analyzed, storing the results on the tape or reproducing the data in analog through the high-accuracy D-A converter in the PC216Ax.

SYSTEM APPLICATIONS

LSB DIGITAL I/O

In addition to the 2/4/8/16/32 analog input/output channels, a digital input/output (TTL) channel is available using the LSB of one of the analog channels. The LSB channel enables the recording of rotation pulses, stimulation pulses, timing signals, etc. while still maintaining all the analog channels available for use.

PARALLEL DIGITAL DATA OUTPUT

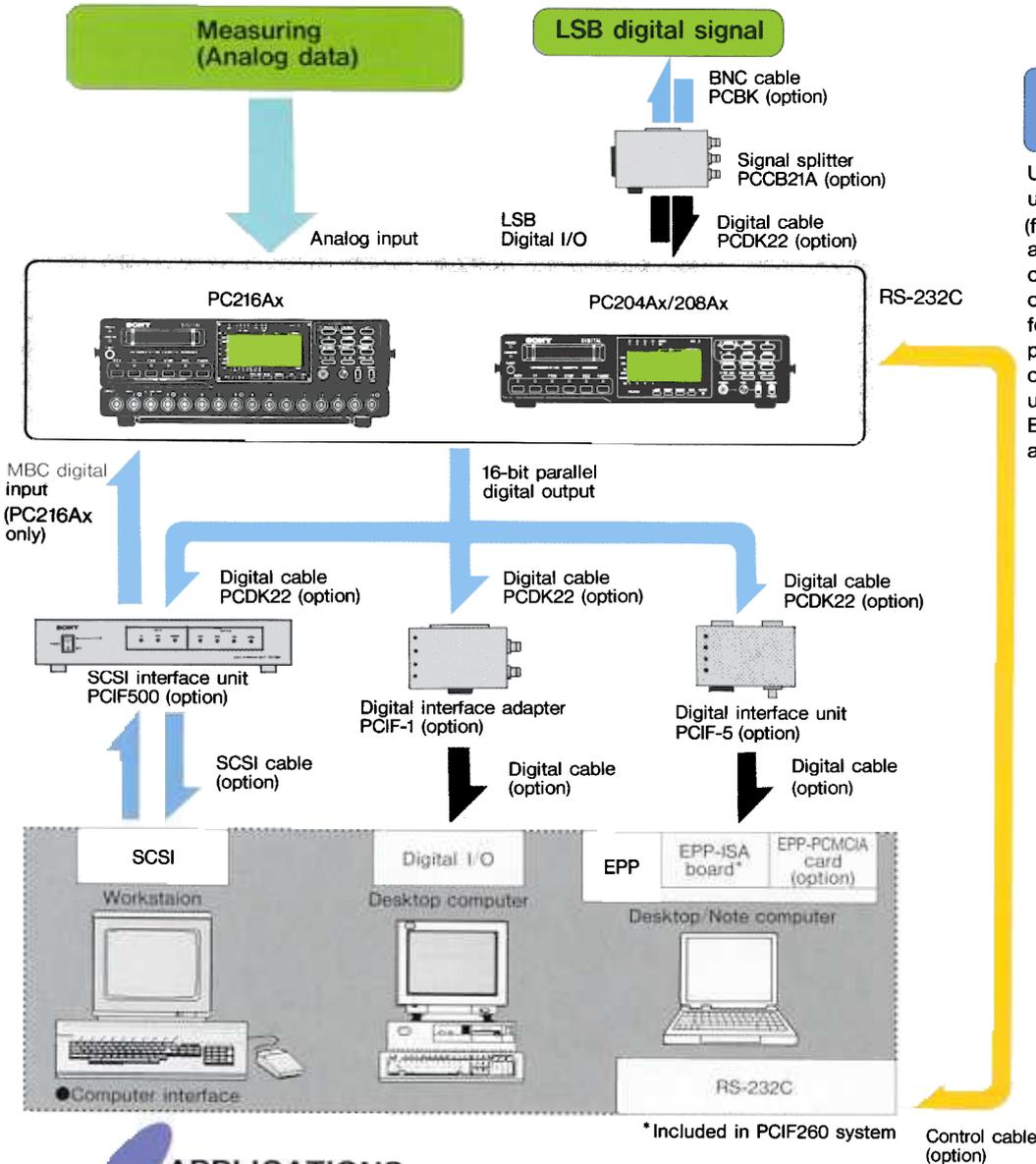
16-bit parallel digital data (TTL) can be output at the same time as analog output at a transfer rate of 96 k words/s(normal speed) or 192 k words/s(double speed). The PC200 Ax Series can be connected to the digital I/O port of a computer via the optional PCIF-1 or PCIF-5. The PCIF500 may be used for bi-directional data transfer via SCSI bus.

SERIAL DIGITAL INPUT/OUTPUT

With the PC200Ax switched to the digital mode, the serial data input/output (RS-422A/TTL switchable) becomes available. The transfer rate in synchronous operation is 1.536 Mbps(normal speed). This enables monitoring and backup of telemetry or other signals on high-speed communications line. The signal splitter PCCB21A (option) can be used to switch between analog and digital and for convenient signal connections.

MULTIPLE REMOTE CONTROL FUNCTIONS

Using the optional PCRM21Ax remote control unit (for PC204Ax/208Ax) and PCRM22Ax (for PC216Ax), record/playback, tape speed, and settings of input ranges and ID numbers can be remote-controlled. In addition, these controllers are capable of bar meter display for each channel and indication of tape position data. The interface for the remote control is RS-232C compatible and can be used for the control by a host computer. An EXT CONTROL terminal for relay contact is also provided.

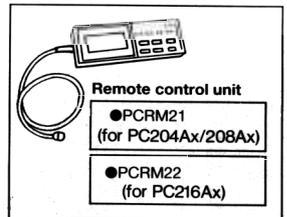


CONTROL

EXT Control

External control for tape transport by relay contact

Remote Control



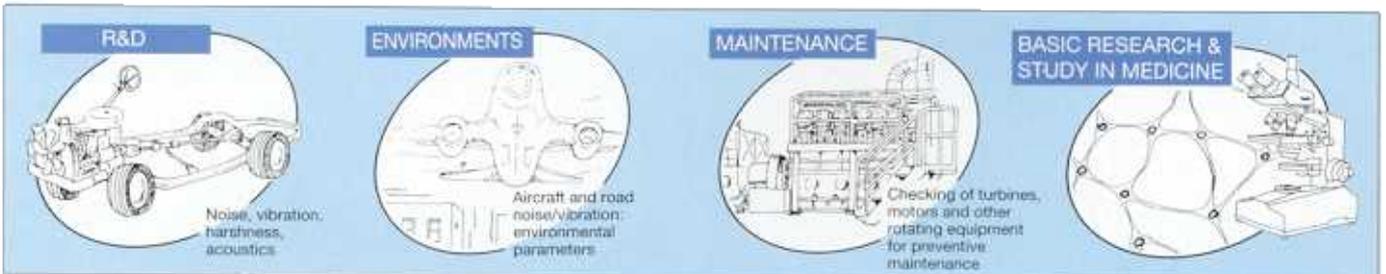
Optional remote control units PCRM-21Ax (for PC204Ax/208Ax) and PCRM22Ax (for PC216Ax) can be used to control the tape transport.

RS-232C Control

Various controls including tape transport and parameter settings are possible on the host computer.

APPLICATIONS

The PC200Ax Series lends itself to a wide variety of applications.



FOR PC204Ax/208Ax

Remote control unit PCRM21Ax



- Display: Bar graph (up to 8ch)
Tape position data
Alarm display
- Control: REC, STOP, FWD, FF, REW, PAUSE, search, ID increment, counter reset
- Interface: RS-232C
- Cable length: 3 m (9' 10")
- Dimensions: 210 (W) × 25 (H) × 70 (D) mm [8.3" × 1.0" × 2.8"] excluding projections
- Weight: Approx. 0.5 kg (1.1 lbs)

Carrying case (aluminum) PCTC21



Accommodates
PC204Ax/208Ax



Rack mount adapter PCRT21



- BNC cable
- Length: 2 m (8' 6"), 1.5C-2V



PCBK21 (BNC/BNC) PCBK28 (BNC/BNC, 8 pcs, colored)
● PCBK11 (2m, 3C-2V) is also available

Guard frame PCHL21



*As mounted to the PC204/208Ax

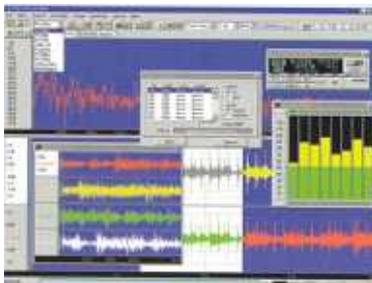
FOR PC200Ax Series

Control & Data Acquisition System

Pscan II Version 2
For Windows 95 / Windows NT*

- Designed for Windows95 and WindowsNT, 32-bit code program.
- High speed continuous data transfer to computer's hard disk in the record and playback modes.
- Various file formats which are commonly used.
- Waveform display: zoom-in/zoom-out, cut and save
- Data analysis display (power spectrum, 1/3 octave, histogram, etc.)
- Level trigger recording, schedule recording and high speed searches

System Package	I/F port	Computer type	Connection type
PCIF260	EPP	IBM-PC/AT or compatible	•EPP port •ISA/bus board (included in PCIF260) •PCMCIA card (option)
PCUK260	EPP/ISA bus		version up kit for PCIF250NI/EP-AT users



Examples of data recorder control display, waveform display and data analysis display

Digital interface adapter PCIF-1



- Can be connected with a non AT bus parallel interface board
- Built-in 512 Kbyte FIFO buffer enables high speed continuous data transfer to computer's hard disk
- Monitoring of data status such as monitoring of the data error

Digital interface adapter PCIF-5



- Can be connected to a computer with an EPP printer port.
- Built-in 512 Kbyte FIFO buffer enables high speed continuous data transfer to computer's hard disk.

SCSI interface unit PCIF500



- For data transfer to a host computer.
- For writing of computer data to PC216Ax.

Signal splitter PCCB21A



- Enables input and output of serial digital data.
- Switches between RS-422, unbalanced, and TTL.

Sync cable PCCCK21

- Length: 1 m (3' 3")



Digital dubbing cable PCCDK26

- Length: 1m (3'3")

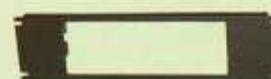


Carrying case (Aluminum) PCTC22



*Accommodates PC216Ax and optional accessories

Rack mount adapter PCRT22



PCBK21 (BNC/BNC) PCBK28 (BNC/BNC, 8 pcs, colored)
● PCBK11 (2m, 3C-2V) is also available

Guard frame PCHL21



*As mounted to the PC204/208Ax

Digital cable PCDK22/30



- MBC Data cable
PCDK28

Control cable PCCCK24

- PCCCK24(RS232C for IBM-PC/AT)
- Length: 3m (9' 10")



Battery pack NP-1B



- Rechargeable
- "4-cell" battery charger
BC-1WD
- With discharge function

Cleaning tape DG-5CL



- Instrumentation tape
DG60Ms
DG90Ms
DGD120MB

FOR PC216Ax

Channel expansion unit PCCX32Ax



- Up to 32 channels (recording/playback) 1.25 kHz per channel at the normal speed/ 2.5 kHz per channel at the double speed
- Bar meter for each channel
- Stackable with PC216Ax using supplied combining frames
- Power supply: DC 12 to 28V (Rated) Approx. 2.4A @12V
AC 100 to 240V, 50/60 Hz (Rated) with a supplied AC power pack Approx. 0.5A @120V/60 Hz
- Dimensions: 297 (W) × 70 (H) × 212 (D) mm (11.7" × 2.8" × 8.4") excluding projections such as combining frames
309 (W) × 172 (H) × 316 (D) mm (12.2" × 6.8" × 12.5") when stacked with PC216Ax (excluding projections)
- Weight: Approx. 3.0 kg (6.7 lbs) (net)

Remote control unit PCRM22Ax



- Display: Bar meter (CH1 to CH16/ CH17 to CH32 switchable) counter reset
- Interface: RC-232C
- Cable length: 3 m (9' 10")
- Dimensions: 210 (W) × 25 (H) × 70 (D) mm [8.3" × 1.0" × 2.8"] excluding projections
- Weight: Approx. 0.5 kg (1.1 lbs)

Sync cable PCCCK21

- Length: 1 m (3' 3")



Digital dubbing cable PCCDK26

- Length: 1m (3'3")

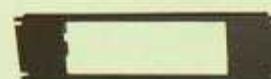


Carrying case (Aluminum) PCTC22



*Accommodates PC216Ax and optional accessories

Rack mount adapter PCRT22



SPECIFICATIONS

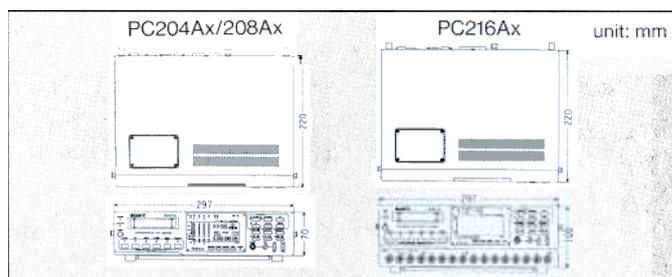
Item	Model	PC204Ax	PC208Ax	PC216Ax
Tape Transport				
Usable tape and record/playback time		DG60Ms 120	DG90Ms 180	DGD120MB 360
		DT-46 46	DT-60 60	DT-90 90
	* The figures show the time in min for normal tape speed. In the double speed mode, the figures are half of those given here. * Tape width: 3.81 mm, tape speed: 8.15 mm/s (normal speed), 16.30 mm/s (double speed).			
Head Configuration	Rotary heads (2 for recording, 2 for playback) Drum dia: 30 mm, Wrapping angle: 90°, Drum rotation: 2000r/min (normal speed), 4000r/min (double speed)			
Writing speed	3.133 m/s (normal speed), 6.266 m/s (double speed)			
Start-up/stopping time	1 s or less (from PAUSE, normal speed)/0.5 s or less (normal speed)			
Servo	Capstan: Phase control (in REC-FWD) and ATF control (in FWD) Drum: Phase control, speed control Reel: Tension control (in FWD/REC-FWD)			
Motors	Drum (1), capstan (1), reels (2), control (1)			
FF/REW time	60 s or less (DG60Ms)			
Record/playback				
Channels (main data)	2 (normal speed only) 4	2 (normal speed only) 4/8	2 (normal speed only) 4/8/16/32 (with PCCK32Ax)	
Sampling frequency	3 kHz (with 1.25 kHz bandwidth), 6 kHz (with 2.5 kHz bandwidth), 12 kHz (with 5 kHz bandwidth), 24 kHz (with 10 kHz bandwidth), 48 kHz (with 20 kHz bandwidth) (64-times oversampling in both record and playback)			
Quantization	16 bit, linear (15 bit for main channel, LSB I/O 1 bit)			
Error correction	Double Reed Solomon			
Subcode channel	Announcement, address, time, ID, B/C mode, recording tape speed, input range setting (analog mode), event*, memo (max. 12 characters)* *External input only			
Frequency response	2ch mode: DC to 20 kHz (normal speed), +0.5 to -1.0 dB, 0 dB @200 Hz DC to 10 kHz (normal speed), +0.5 to -1.0 dB, 0 dB @200 Hz 4ch mode: DC to 20 kHz (double speed), +0.5 to -1.0 dB, 0 dB @200 Hz DC to 5 kHz (normal speed), +0.5 to -1.0 dB, 0 dB @200 Hz 8ch mode: DC to 10 kHz (double speed), +0.5 to -1.0 dB, 0 dB @200 Hz DC to 5 kHz (normal speed), +0.5 to -1.0 dB, 0 dB @200 Hz 16ch mode: DC to 2.5 kHz (normal speed), +0.5 to -1.0 dB, 0 dB @200 Hz DC to 5 kHz (double speed), +0.5 to -1.0 dB, 0 dB @200 Hz 32ch mode: DC to 1.25 kHz (normal speed), +0.5 to -1.0 dB, 0 dB @200 Hz DC to 2.5 kHz (double speed), +0.5 to -1.0 dB, 0 dB @200 Hz			
Dynamic range	80 dB or more (within the bandwidth)			
S/N ratio	78 dB or more (within the bandwidth)			
Interchannel phase difference	1° or less			2° or less
Cross talk	-80 dB or less (within the bandwidth)			
Distortion	0.02% or less (within the bandwidth)			
DC linearity	±0.1% or less (within the bandwidth)			
Drift	±0.1% or less each in recording and playback blocks (for 2 hours from 15 minutes after power-on)			
Input	Input range: ±20 Vp, ±10 Vp, ±5 Vp, ±2 Vp, ±1 Vp, ±0.5 Vp. Coupling: DC; Input impedance: 100 kΩ, unbalanced			
Output	Output level: ±1 Vp to ±5 Vp, continuously variable, Output current: 10 mA max. Output impedance: 50Ω, unbalanced Test signal: ±100% sine wave (500 Hz for normal speed/1 kHz for double speed)/±100% DC/-100% DC/0 V, 4 types selectable			
Input/output zero point adjustment	Auto calibration: Gain, offset (at power-on or selfcheck)			
LSB digital input/output (analog mode)	Input/output signal: TTL, 1 bit, Sampling frequency: 96 kHz (normal speed), 192 kHz (double speed)			
Parallel digital output (analog mode)	Output signal: TTL, 16 bit parallel data (main channel data: 15 bit, LSB: 1 bit) Data transfer rate: 96 kword/s (normal speed), 192 kword/s (double speed) Word clock: 96 kHz (normal speed), 192 kHz (double speed)			
Serial digital input/output (digital mode)	Input/output signal: Bit serial (balanced RS-422A) Bit rate (synchronous): 1.536 Mbps (normal speed), 3.072 Mbps (double speed) Bit rate (asynchronous): less than 0.768 Mbps (normal speed), less than 1.536 Mbps (double speed)			

PCHB244 Hybrid Data Recorder

- Same dimensions and weight as PC204Ax/208Ax
- Wide-band analog recording of DC to 100 kHz (1 channel mode)
- Bit serial data of up to 3.072 Mbps (1 channel mode)
- Simultaneous 4-channel record/replay of analog and digital signal
- Channel provided for IRIG-B time code
- Selectable 1/2/4 channel mode

Item	Model	PC204Ax	PC208Ax	PC216Ax
Function				
Search speed	Max. 200 times normal speed			
Search target	Mark 1, Mark 2, ID, Start ID, END (front panel) ID, Start ID, END, counter, address, time (RS-232C)			
Manual search	16 times normal speed by pressing FF/REW in FWD mode			
Remote control (option)	PCRM21Ax		PCRM22Ax	
Connects to	REMOTE, RS-232C or EXT			
RS-232C control	Refer to system application chart			
EXT control	External relay contact input			
Fan control mode	Stops the ventilation fan until the unit's internal temperature reaches a given temperature level.			
Monitor ID:	000 to 999, with "A" display for auto increment indication (switchable between On and OFF)			
Tape counter:	±h, min, s			
Tap remainder counter:	±h, min (in recording and playback)			
Address:	±h, min, s			
Time:	Year-month-day/h-min-s display switchable			
Caution:	LCD Display: Low DC voltage, mechanical trouble, condensation, error check message LED: Over range input (analog mode)			
Monitor output	Data signal of a selected channel (analog mode)			
Sound monitor	Switchable between memo announce and data signal of a selected channel (analog mode); built-in speaker or earphone (jack)			
Synchronous record/playback	Synchronous record/playback with two units (PC216Ax only): 10kHz each for 16 channels or 5kHz each for 32 ch record/playback at double speed			
Self check	Power, servo, heads (recording/playback function) and amplifiers			
Power requirements and other specifications				
DC Voltage:	12 to 28 V (rated), 11 to 30 V (allowable range) via DC IN connector			
Current consumption:	Approx. 1.4 A @12 V	Approx. 1.5 A @12 V	Approx. 2.0A @12 V	
(double speed • power save mode)	Approx. 2.0 A @12 V	Approx. 2.4 A @12 V	Approx. 3.0A @12 V	
(double speed • normal mode)				
AC Voltage:	100 to 240 V (rated), 90 to 250 V (allowable range), 47 to 440 Hz (supplied AC power pack)			
Current consumption, 120 V @ 60 Hz:	0.3A	0.35A	0.45A	
(double speed • power save mode)	0.4A	0.5A	0.6A	
(double speed • normal mode)				
Battery (Built-in)	12 V 2.3 Ah (NP-1B, option)			
Dimensions (excl. projection)	297 (W) × 70 (H) × 220 (D) mm 11.7" (W) × 2.8" (H) × 8.7" (D)		297 (W) × 100 (H) × 220 (D) mm 11.7" (W) × 3.9" (H) × 8.7" (D)	
Weights	Approx. 3.5 kg / 7.8 lbs (net.)		Approx. 4.5 kg / 10 lbs (net.)	
Performance temperature/humidity	+5°C to 40°C, 40% to 80% RH (no condensation)			
Operation temperature/humidity	0 to +45°C, 20 to 90% RH (no condensation)			
Storage temperature/humidity	-10°C to 50°C, 10% to 90% RH (no condensation)			
Performance pressure	860 hPa to 1060 hPa			
Operating position	Horizontal (normal position), vertical (front panel facing upwards)			
Vibration resistance	MIL-STD-810C, Method 514.2 Curve V (±15 m/s ² (equivalent of ±1.5 G)), normal operation in horizontal position			
Shock resistance	400 m/s ² (equivalent of 40 G) 11 ms (in storage)			
Safety regulation compliance	UL, EN61010-1			
EMC/EMS regulations compliance	EM: EN55011-A, FCC Part 15, Class A EMS: EN50082-1			
Supplied accessories	AC power pack, Microphone, Operation manual, DC power cord, cassette tape, spare DC fuse, DG5CLA cleaning cassette, screwdriver, spare EXT connector, carrying belt.			

● Dimensions



Design and specifications are subject to change without prior notice.

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