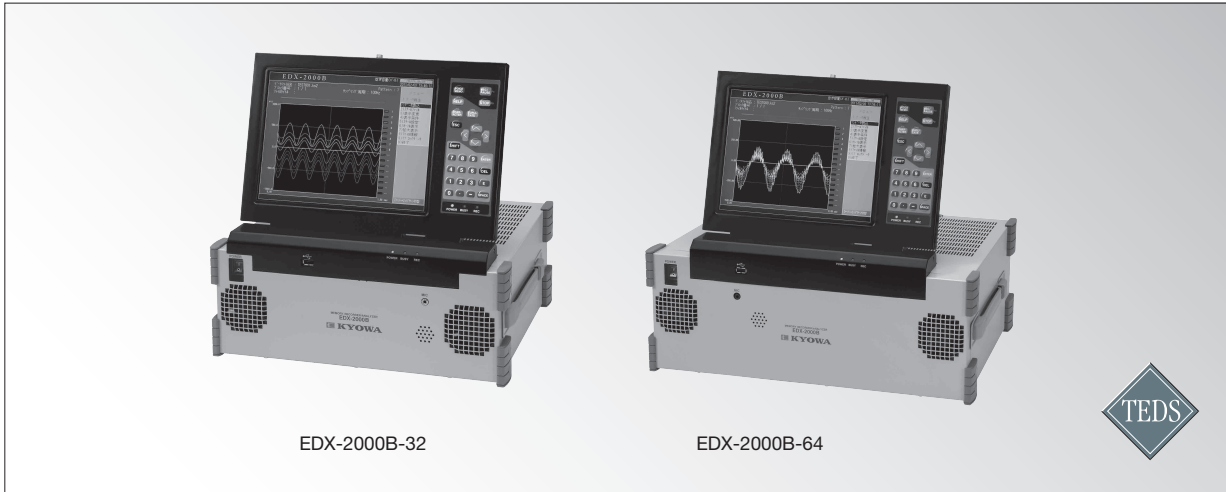


EDX-2000B

Memory Recorder/Analyzers



All-in-one measuring instrument with optional conditioner cards mounted

- Able to monitor input signals and check processed results in real time by processing data for FFT or histogram, while measurement is in progress.
- The strain/voltage measuring card CDV-40B provides 8 channels.
- Built-in large capacity hard disk enables recording of approximately 13 hours of data sampled at 10 kHz in 32 channels.
- Voice memos can be recorded together with measured data.
- An optional CAN card enables CAN data recording.
- An optional DA card enables reproduction of analog data.
- FFT analysis, histogram analysis, arithmetic operation are possible.
- Max. sampling frequency is 200 kHz, and simultaneous sampling in 16 channels is possible even at such a high frequency.
- Interactive operation makes measuring tasks easy and speedy.
- Easy-to-handle ATA card or hard disk card is optionally available for offline data transfer to the PC.
- LAN interface enables online data transfer to the PC.
- A battery is built in to safeguard against instantaneous power failure.
- Data is saved in KYOWA standard file format KS2 and can be analyzed by the optional data analysis software DAS-100A.

※For the data analysis software DAS-100A, refer to page P.4-10

The EDX-2000B is a general purpose, expandable, all in one instrument that can measure, monitor, record, and process signals detected by various sensors. It is available in 32 channel type and 64 channel type. The EDX-2000B starts measuring according to preset conditions and can simultaneously sample signals in 16 channels at 200 kHz (32 channels at 100 kHz). The recorded and processed data can easily be transferred online or offline to the PC. Furthermore, the EDX-2000B enables recording of voice memos, analog reproduction of recorded data with an optional DA card, and recording of CAN data with an optional CAN card.

●Conditioner Cards

(For the detail refer to page P3-64)

Strain/voltage Measuring card	CDV-40B/40B-F
Dynamic Strain Amplifier card	DPM-42A/42A-F
Thermocouple card	CTA-40A
F/V converter card	CFV-40A
Charge Amplifier card	CCA-40A/40A-F
CAN card	CAN-40A
DA card	DAC-40A

General Specifications

Models			
Model	Maximum analog input (CH)	Number of Slots*	Storage device (Built-in disk)
EDX-2000B-32-H (E)	32	4	HDD
EDX-2000B-32-S (E)	32	4	SSD
EDX-2000B-64-H (E)	64	8	HDD
EDX-2000B-64-S (E)	64	8	SSD

*Slots : To accommodate conditioner cards
 ※(E) is the English version.

Number of Input Channels : EDX-2000A-32: Max. 32 EDX-2000A-64: Max. 64
Number of input channels = Number of slots x number of mounted conditioner cards, each of which provides 4 or 8 channels
Analog Input : Refer to specifications of conditioner cards.
Digital Input : 16 bits, TTL level, contact input
Voice Input : 1 channel (Voice memos can be recorded together with measured data.)
Number of Output Channels : Refer to specifications of DA card.
Sampling
Method : Simultaneous sampling of all channels
Frequency : 1 Hz to 200 kHz for up to 16-channel data recording 1 Hz to 100 kHz for up to 32-channel data recording 1 Hz to 50 kHz for up to 64-channel data recording 1 Hz to 10 kHz for simultaneous data processing
Data Recording Capacity : 30 GB or more (Refer to Software Specifications - Number of Recorded Variables.)
Display : 10.4-inch color LCD (for setting various conditions and monitoring in graphic and numeric formats)
Operation : Through panel keys and external keyboard
External Control Signal : External clock input
Interface Ports
Keyboard : Mini DIN 6-pin port for connection to English keyboard; conforming to 106
External Display : 15-pin port (VGA) for monitor display Compatible with optional ATA card or hard disk card for collecting recorded data
LAN : For transferring recorded data to the PC (10BASE-T/100BASE-TX)
Power Supply : AC line or 10 to 30 VDC; battery is built in for instantaneous power failure.



Current Consumption : With the CDV-40B card mounted to all channels and with full load		
Power Supply	EDX-2000A-32	EDX-2000A-64
100 VAC, 50Hz	2.3A	2.8 A
200 VAC, 50Hz	1.3A	1.5 A
12 VDC	8.0A	9.4 A
24 VDC	3.8A	4.6 A
Operating Temperature/Humidity Range : 0 to 40°C, 20 to 80%RH (noncondensing)		
Storage Temperature Range : -20 to 60°C		
Vibration Resistance : 29.42 m/s ² (3 G), 5 to 55 Hz (when operating) 49.03 m/s ² (5 G), 5 to 55 Hz (when not operating)		
Shock Resistance : 196.1 m/s ² (20 G)/11 ms		
Dimensions & Weight		
EDX-2000A-32 : 350(W) x 132(H) x 300(D) mm (excluding protrusions), approx. 12 kg (with 2 units of 8-channel CDV-40B mounted)		
EDX-2000A-64: 430(W) x 156(H) x 300(D) mm (excluding protrusions), approx. 13 kg (with 2 units of 8-channel CDV-40B mounted)		

Standard Accessories

- Digital input card DIB-40A (built in)
- AC power cable P-18 (with conversion adapter CM-33)
- DC power cable P-70
- Simplified Instruction Manual
- Instruction manual (CD-R)

Optional Accessories

- Dummy panel EDX2000-DUMMY
- Remote control unit RCU-40A
- Synchronous cable N-94 (Synchronous measurement in a maximum 640 channels is possible by connecting 10 units.)
- 8-channel bridge box
- Data Analysis Software DAS-100A

Note:
For LAN connection
Use 2 straight cable and LAN Hub

● **REMOTE CONTROL UNIT RCU-40A**

Control Functions	REC :	Starts data acquisition
	PAUSE :	Pauses data acquisition
	STOP:	Stops data acquisition
	" VOICE MEMO" :	Records voice memo (microphone built in)
LED Lamps :	REC, PAUSE, VOICE MEMO	
Cable Length :	1.5m	

● **SOFTWARE SPECIFICATIONS**

■ **Setting Measuring Conditions**

- Measuring Channel Conditions: Measuring channel, range, high-pass filter, low-pass filter, calibration coefficient, offset, unit, channel name
- Measurement Modes
 - Manual measurement : Manually starts measurement through panel keys or remote-control unit.
 - Trigger measurement : Automatically starts measurement when the preset trigger conditions are satisfied.
 - Interval measurement : Automatically starts measurement at the preset time intervals.
- Setting Sampling Frequency
- Number of Measurements : 2 to hard disk remaining capacity (sampling at 1 to 10,000 Hz)2 to 2,000,000,000 (approx. 4 GB, sampling at 16,384 to 200,000 Hz)
- Test Information : Test title, date/time, comment, items/ contents
- Saving and Reading Measuring Conditions

■ **Measurement and Data Acquisition**

- Monitor Modes
 - Numeric : Measured values are digitally indicated.
 - Y-Time graph : 1, 2, 3 or 4 graphs are displayed on a single screen.
 - Bar graph : Values of all channels (max. 64) are displayed on bar graph.
 - X-Y graph : 1 or 2 graphs are displayed on a single screen. Each graph may be traced as a relative graph with 4 channels.

Processing Data under Measurement

- Types of simultaneous analysis :
 - FFT analysis, histogram analysis
 - Either one can be selected during monitoring or recording.
- FFT Analysis
 - Types of FFT analysis : Linear spectrum, power spectrum, cross spectrum, auto-correlation, cross-correlation
 - Number of analyzed data : 256, 512, 1024, 2048
 - Window functions : OFF (square window), hanning, hamming, Fejer, Blackman, Gaussian
- Histogram Analysis
 - Types of histogram analysis : Max/Min, Peak/ Valley, 1D rainflow, 2D rainflow
 - Number of Slices : 1D : 16 (±8), 32 (±16), 64 (±32), 128 (±64), 256 (±128)
2D : 16 (±8), 32 (±16)
 - Hysteresis : 2 to preset number of slices
 - Offset : Can be set for the Max/Min analysis method.

■ **Data Reproduction**

- Graphic Display
 - Types of Graph
 - Y-Time graph : 1, 2, 3 or 4 graphs on a single screen
 - X-Y graph : 1 graph is displayed on a single screen; the graph may be traced as a relative graph with 8 channels.
 - All channels graph : Max. 16 channels/screen
 - Graphic display conditions : Display channel(s), scale, number of values to be displayed, auxiliary line, etc.
 - Graph control : Scroll, cursor operation and value indication, zoom in/zoom out, all data display/magnification, playback of voice memos, etc.
 - Saving and reading display conditions
- Editing Data File
 - Data : Changing and editing recorded measurements (The number of measurements which can be edited at a time is limited.)
 - Header : Changing the header information (date/time of data acquisition, calibration coefficient, offset, unit, comment, channel name)
 - Saving formats : KYOWA standard KS2, CSV, Excel
 - Conversion to ASCII (CSV) format : Possible
 - Saving as a different file : Possible
 - Extracting : Possible to save a desired portion of the data file as a different file
 - Statistic processing : Possible to display and save maximum, minimum, average and standard deviation of the recorded data
 - Analog output : Possible to reproduce recorded analog data through the optional DA card

■ **Analysis**

- Arithmetic Operation
 - Arithmetic operation is performed between desired channels in max. 2 data files and the results are saved in a designated file.
- Setting Items
 - Calculating File Name(s) : Designate 1 (A) or 2 (A and B) data files. For 2 data files, the sampling frequency should be the same.
 - File Name of Calculated Results : Designate the file name to save results of arithmetic operation.
 - Operating Channels : Analog channels only (A01 to A64, B01 to B64) e.g. "A06" indicates channel 6 of file A and "B28," channel 28 of file B.
 - Channels of Calculated Results : Max. 32 (C01 to C32) (C**,** indicates the expression description channel.) e.g. C06 = (expression) makes the operated result saved in channel C06.
 - Expression : Designate expression f () in C** = f (A**, B**). The expression should be within 60 digits. The number of expressions (channels of calculated result) available for setting is maximum 192.
 - Unit : A desired engineering unit can be designated for the calculated result.
 - Channel Name : Comment on the channel of calculated result
- Operators and Expression
 - Operators : +, -, *, /, trigonometric functions, logarithmic function, exponential function, rosette function
 - Remarks : Parenthesis (up to level 3) and variable cannot be used. "+" and "-" are also effective as signs (e.g. -5.7, -A15). Any calculated result (channel) cannot be used for any expression of other channel of calculated result. Also, any recursive processing is not possible. (e.g. C10 = C01 + C02, C12 = C12 + 3,1415 cannot be used.)
- Saving and reading calculating conditions

FFT Analysis
FFT analysis is performed on data of desired channel(s) of recorded data file and analyzed results are saved in a designated file.
The results are graphically displayed for confirmation.
Types of FFT analysis: Linear spectrum, power spectrum, cross spectrum, auto-correlation, cross-correlation
Analysis conditions
Analyzing Channel(s) : 1 or 2 (depends on type of FFT)
Filter : Low-pass filter can be applied for pre-processing.
Integration : Data can be integrated 1 or 2 times for pre-processing
Number of analyzed data : 256, 512, 1024, 2048, 4096, 8192, 16384, 32768
Window functions : OFF (square window), hanning, hamming, Fejer, Blackman, Gaussian
Averaging times and number of shift data :
Averaging of FFT results (1 to 99 times) and number of shift values (1 to 9999)
Analysis start point : Designate the starting point of analysis on the target data.
Analysis result file : Analyzed results are saved together with the target time-series data.
Analysis result graph : Target time-series data and analyzed results are graphically displayed. Cursor display and zoom-in/zoom-out of X and Y axes are possible.
Saving and reading analysis conditions
Histogram Analysis
Histogram analysis is performed on recorded data and analyzed results are saved in a designated file. The results can be tabulated or graphed for confirmation.
Setting Items
Target channel : Selectable
Types of histogram analysis :
A) Peak/valley (P/V)
B) Maximum/minimum (MAX/MIN)
C) 1-dimensional rainflow (RAIN [1D])
D) 2-dimensional rainflow (RAIN [2D])

E) Amplitude (AMPLITUDE)
F) 1-dimensional time at level (TIME [1D])
G) Complex: 1-dimensional rainflow + Peak/Valley (RAIN&P/V)
H) Complex: 1-dimensional rainflow + Max/Min (RAIN&M/M)
Number of Slices :
10 (5) to 256 (128) for 1D types (abovementioned A, B, C, E, F, G and H)
10 to 50 (even number) for 2D type (abovementioned D)
Slice width : Designated with physical value
Hysteresis : Set the number of masking slices in a range of 0 to the preset number of slices.
Offset : Designated with physical value for max/min analysis.
Analyzing file : Recorded data file or file of results obtained through arithmetic operation
Analysis result file : File of histogram analysis results
Result Display:
Table : List of histogram analysis results for every processed channel
Graph : Graph of histogram analysis results for every channel (For 2D type, 3-dimensional graph is displayed.)
Differentiation/Integration, Filtering and Moving Averaging
Number of differentiation/integration times: 1 or 2 selectable
Average correction possible for integration
Digital Filters
IIR digital filter : 4th order Butterworth characteristics (with cutoff characteristic of -3dB and no phase lag)
High-pass filter : FLAT, 0.1, 0.2, 0.5, 1.0, 2.0, 5.0, 10.0 Hz
Low-pass filter : FLAT, 10, 20, 50, 100, 200, 500, 1000 Hz (Effective at up to one-half the sampling frequency)
Moving Averaging: 1 to 999 times
■File Management
Functions : Copy file, delete file, change file and folder names, sort, create/delete folder, convert data collectively
Types of Target File : Condition file, data file, and text file
■Setting Environment
Setting Items : Data recording folder, condition saving folder, date/time, display of effective battery life, etc.

■ Dimensions

