EDX-5000A

Memory Recorder/Analyzer

EDX-5000A-64　　EDX-5000A-80

*Japanese version:
Contact us.
Unless otherwise specified,
English version will be delivered.

High-speed sampling at 200 kHz/32 channels Simultaneous recording of video

- High-speed sampling at 200 kHz/32 channels
- Up to 80 input channels
- Simultaneous recording of measuring data and video
- Conditioner cards selectable for specific applications
- Great operability
- Effective real-time processing capability

EDX-5000A is an advanced all-in-one measuring instrument having sophisticated features and high-speed processing capabilities.
It is the high-end model of the EDX Series. Max. input channels are 80, and max. sampling frequency is 200 kHz for 32 channels in sync. It is possible to record data and video as well as rosette analysis and other arithmetic operations simultaneously.
The touchscreen allows the EDX to be operated even without a keyboard. The EDX-5000A measures data synchronously by connecting max. 10 units, 800 channels.

●Conditioner Cards (See page 3-93.)

Strain/Voltage/Acceleration Measurement Card	CVM-41A
Strain/Voltage Measurement Card	CDV-40B(-F)
Dynamic Strain Amplifier Card	DPM-42B
	DPM-42B-F
	DPM-42B-I
	DPM-42B-I-F
Thermocouple Card	CTA-40A
F/V Converter Card	CFV-40A
Charge Amplifier Card	CCA-40A(-F)
Strain/Voltage Measurement Isolation Card	CDV-44AS/46AS
Constant Current Amplifier Card	CDA-44AS/45AS
AD Converter Cards	AD-40AS(-F)

●Optional Module

GPS/Multi-channel CAN Module	EGPC-50A

*Please contact us for installing it additionally.

Specifications

Models

Models	Max. analog input channels	Slots	Storage devices (Internal Disk)	Windows® 10
EDX-5000A-64-HE	64	8	HDD	English
EDX-5000A-64-SE	64	8	SSD	
EDX-5000A-80-HE	80	10	HDD	
EDX-5000A-80-SE	80	10	SSD	

[Note] HDD: Hard Disk Drive　SSD: Solid State Drive

Compatible Conditioner Cards	CDV-40B (-F), CVM-41A, DPM-42B (-F), DPM-42B-I (-F), CTA-40A, CFV-40A, CCA-40A (-F), CDV-44AS, CDA-44AS, CDA-45AS, AD-40AS (-F) *The number of CFV-40A that able to be mounted is up to 2 units.
Channels	EDX-5000A-64: Max. 64 (When 8 units of CDV-40B are installed) EDX-5000A-80: Max. 80 (When 10 units of CDV-40B are installed)
Analog Input	For details, refer to the specs of respective conditioner cards.
Digital Input	
I/O Points	Max. 8
I/O Settings	Sets every bit to digital input, digital output, or remote-control input with the same common. *Remote control input:To "Start the measurement", "Stop the measurement", "Execute the balance adjustment", "Optional functions".
Input Formats	Isolated, TTL level input
Input Voltage	Max. 5 VDC
Isolation Type	Digital isolation
Output Formats	Isolated open-collector output (With 10 kΩ built-in pull-up resistors)
Output Voltage	5 VDC
Output Current	Max. 25 mA per point
Voice Input	1 channel (Voice memo input during data recording can be recorded together.) Use remote control unit, RCU-42A (optional goods).
Sampling Frequencies	
Sampling System	Simultaneous sampling of all channels
Sampling Frequencies	
1-2-5 series	
1 Hz to 200 kHz: When recording data up to 32 channels (16 channels)	
1 Hz to 100 kHz: When recording data up to 64 channels (32 channels)	
1 Hz to 50 kHz: When recording data up to 80 channels (64 channels)	
1 Hz to 20 kHz: When recording data up to 80 channels (80 channels)	
1 Hz to 10 kHz: When real-time simultaneous process is enabled	
2^n series	
2 Hz to 131.072 kHz: When recording data up to 32 channels (16 channels)	
2 Hz to 65.536 kHz: When recording data up to 64 channels (32 channels)	
2 Hz to 32.768 kHz: When recording data up to 80 channels (64 channels)	
2 Hz to 16.384 kHz: When recording data up to 80 channels (80 channels)	
2 Hz to 8.192 kHz: When real-time simultaneous process is enabled	
[Note] AD data format: In 16-bit mode	
[Note] In the 24-bit mode, the number of channels mentioned in parentheses.	
Data Storage Device	Hard Disk Drive (HDD) Capacity: 300 GB or more Solid State Drive (SSD) Capacity: 30 GB or more
Display	Channel status LED (OVER value of every channel is settable) REC, BUSY, BATTERY, POWER LED With 12.1-inch wide touch panel mounted display
Operation Keys	Touch panel and front mounted keys (REC, STOP, BAL., OPT). Operation with external keyboard and mouse is also possible.
External Control Connectors	CONT IN, CONT OUT (remote control, synchronous operation)
External I/O Connectors	External triggers: TRG IN, TRG OUT External clock: CLK IN, CLK OUT (Output at any frequency division ratio)
External Device Interfaces	USB port for keyboard USB port for mouse 15-pin VGA connector for external display USB 2.0 ports, 3 on the front USB 3.0 ports, 2 on the rear LAN port 100/1000BASE-T

Data Recorders/ Analyzers

Power Supply	100 to 240 VAC
	10 to 30 VDC (AC/DC dual use)
	Built-in battery with countermeasure for instantaneous power failure
Current Consumption	[64 channels/unit type] Approx. 1.8 A
	(100 VAC when 8 units of CDV-40B are installed)
	[80 channels/unit type] Approx. 2.0 A
	(100 VAC when 10 units of CDV-40B are installed)
Operating Temperature	0 to 40°C
Operating Humidity	20 to 80% (Non-condensing)
Storage Temperature	-20 to 60°C
Vibration Resistant	[EDX-5000A-64-HE, EDX-5000A-64-SE,
	EDX-5000A-80-HE, EDX-5000A-80-SE]
	49.0m/s^2 (5 G), 5 to 55 Hz (When not operating)
	29.4m/s^2 (3 G), 5 to 55 Hz (When operating)
	[EDX-5000A-64-HE, EDX-5000A-80-HE]
	9.8m/s^2 (1 G), 10 to 200 Hz (When operating)
	[EDX-5000A-64-SE, EDX-5000A-80-SE
	19.6m/s^2 (2 G), 10 to 200 Hz (When operating)
Shock Resistant	196.1m/s^2 (20 G), 11ms
Dimensions	[EDX-5000A-64]
	365 W × 159 H × 300 D mm (Excluding protrusions)
	[EDX-5000A-80]
	410 W × 159 H × 300 D mm (Excluding protrusions)
Weight	[EDX-5000A-64] Approx. 11.5 kg (Main unit only)
	[EDX-5000A-80] Approx. 12.5 kg (Main unit only)
Synchronous Operation	Records data synchronously by connecting multiple EDX-5000A units.
	Able to connect EDX-5000A and EDX-3000B, EDX-5000A and EDX-200A.
	Connectable units: 10 (When connecting EDX-5000A-80 units only: Max. 800 channels)
	When connecting the EDX-200A, the connectable units is max. 8.
Optional Functions	CAN data recording (number of recording channels: up to 512 channels)
	GPS data recording (trajectory data recording, time synchronization function)
Online Control	Controlled by DCS-100A
Compliance	Directive 2014/30/EU (EMC)
	Directive 2014/35/EU (LVD) (AC model only)
	Directive 2011/65/EU, (EU)2015/863
	(10 restricted substances) (RoHS)

Standard Accessories AC power cable P-18 (With 2-pin conversion plug CM-52), DC power cable P-70 gound wire P-72, simplified instruction manual, CD-R (Instruction manual), EDX accessory bag, AC fuse, DC fuse, soldering plug for DIO, shell case for DIO plug

Optional Accessories Synchronous cable N-128, remote control unit RCU-42A, belt hook, dummy panel for EDX EDX1P-DUMMY, EDX2000-DUMMY

●GPS/Multi-channel CAN Module EGPC-50A

Specifications

Compatible Model	Mounted in the EDX-5000A
I/O Ports	
GPS/CAN Shared Port	1 Dsub connector 9 pins (male)
CAN only port	1 Dsub connector 9 pins (male)
Input CAN Channels	Max. 512
Compatible CAN protocol	CAN2.0A/B (Conforming to ISO-11898,
	ISO-11519-2)
Communication Speed	High Speed CAN
	1000, 800, 500, 250, 125, 100, 83.3, 62.5, 50, 33.3, 25, 20, 10 kbps
	Low Speed CAN
	125, 100, 83.3, 62.5, 50, 33.3, 25, 20, 10 kbps
CAN Data Output	
Output Start Cond	Output an arbitrary CAN data when starting the AD conversion.
Output Stop Cond	Output an arbitrary CAN data when the AD conversion is stopped.
Output Manual Cond	Output an arbitrary CAN data at arbitrary timing.
Output Interval Cond	Output an arbitrary CAN data at the preset constant frequency.
Measurable GPS Data	Latitude, longitude, height, course, speed, time, GPS status, number of satellites, etc.
	Saving format: NMEA format
Time Synchronization Function	Synchronizes the recording start time of EDX-5000A units by using the time data received from GPS satellites.
Operating Temperafure	0 to 40°C
Operating Humidity	20 to 80% (Non-condensing)
Storage Temperature	-20 to 60°C
Compliance	Directive 2014/30/EU (EMC)
	Directive 2011/65/EU, (EU)2015/863
	(10 restricted substances) (RoHS)

Standard Accessories GPS sensor (Cable length: 5 m)

●Software ETA-55A Specifications in the EDX-5000A

■Measuring Condition Settings	
Measuring Channel Conditions	
	Measurement ON/OFF, measuring modes, range, HPF, LPF, digital HPF, digital LPF, balance ON/OFF, CAL, calibration coefficient, offset, offset zero ON/OFF, unit, channel name, measuring range, rated capacity, rated output, upper-limit check value, lower-limit check value, numeric display digits (Selects any items to display) inner sensitivity register ON/OFF, input cable, cable compensation value
Recordable Data	Up to remaining disk space of built-in memory
Manual Measurement	Recording from REC to STOP, or preset data starts from REC
Interval Measurement	Automatic recording according to designated starting time and recording interval
Trigger Measurement	Recording and stopping according to preset trigger conditions
	• Common trigger conditions
	End trigger: Settable
	Pre-trigger 16-bit mode :Max.4194304 points/ch
	24-bit mode :Max.2097152 points/ch
	Post-trigger 16-bit mode:Max.4194304 points/ch
	24-bit mode:Max.2097152 points/ch
	Trigger data correlates with the number of channels and the AD data.
	• Analog trigger conditions
	Trigger channels: Any 1 analog channel
	Trigger level: Sets in physical quantity.
	Trigger slope: Up, down
	• Digital trigger conditions
	Trigger bit: Any 1 bit
	Trigger level: 0, 1
	• External trigger conditions
	Trigger slope: Up, down
	• Complex trigger conditions
	Trigger source: Selection of any 4 analog/ digital channels, an external trigger channel, or a manual trigger channel
	AND/OR: Be used for analog trigger, digital trigger and external trigger.
	Trigger level: An physical quantity is set for the analog channel, and 0 or 1 for the digital channel.
	Trigger slope: Up, down
TEDS	Reads sensor's information and sets to channel condition automatically.
Load/Save Measurement Conditions File	
	Load ME5 file and configure settings according to loaded measurement conditions.
	Save the measurement conditions in ME5 file.
	*You can also load/save ME5 file using DCS-100A and EDX-3000B COMPATIBLE SOFTWARE.
■Measuring Operations	Monitor measurement, recording start, pause, stop, balancing, CAL output, etc.
Real-time Processing	Simultaneous monitoring and recording of data
	The sampling frequencies up to 10 kHz are available.
●Video Data Acquisition with a Web Camera	
Camera	DirectX compatible Web camera
	(Recognized by the OS as an imaging device)
Number of Cameras	1
Resolution	Max. 640 × 480
Frame Rate	Max. 30 fps
Saving File Format	AVI format
	Resolution and frame rate depend on the camera.
	The Web camera is optional.
Measuring Conditions During Recording Video	
	Manual mode, manual mode (Data points preset)

●Arithmetic Operation		
Digital Filters	Butterworth filters (IIR)	
	Type of filters: LPF, HPF	
	Order of filter: 1 to 8	
	Amplitude ratio at cut off point: -3 dB	
	Attenuation: -6 × N dB/oct. (N is the filtering orders)	
	Simultaneous use with built-in LPF of conditioner is possible.	
	Calculation channels: Max. 64	
	Calculation conditions ON/OFF, operators (Max. 200 characters), unit, numeric display digits, channel name (Max. 40 characters), calculation zero, and calculation zero value	
Applicable Operators and Constants		
+,−,*,/,^《power》,PI[π],( )		
Functions:		
SQR	Square root	LOG Common logarithm
ABS	Absolute value	LN Natural logarithm
SIN	Sine	EXP Exponent
COS	Cosine	HMX Max. principal strain
TAN	Tangent	HMN Min. principal strain
ASIN	Arc sine (Return value: Radian)	HSM Max. shearing strain
ACOS	Arc cosine (Return value: Radian)	SMX Max. principal stress
ATAN	Arc tangent (Return value: Radian)	SMN Min. principal stress
DSIN	DSIN (Return value: Angle)	SSM Max. shearing stress
DCOS	DCOS (Return value: Angle)	DEG Principal strain direction
DTAN	DTAN (Return value: Angle)	
●FFT Analysis		
Analysis Types	Linear spectrum, power spectrum, cross spectrum, auto-correlation, and cross-correlation	
Window Functions	OFF, Hamming, Hanning, Fejer, Blackman, and Gaussian	
Analyzed Data Points	256, 512, 1024, 2048, 4096, and 8192	
Analysis Channels	4 channels/window	
Saving File Format	Kyowa standard file format (KS2)	
	KS2 file version: 01.06	
■Monitor		
Y-time Graph	X axis indicates the time, and Y axis the physical values of measurement for a maximum of 8 channels.	
X-Y Graph	X and Y axes indicate the measured data, max. 4 channels	
Bar Graph	Up to 80 channels are contained in a graph.	
	Displays max. and min. values are possible	
Circle Meter	Any one channel is displayed in a circle meter.	
Numeric Display	Up to 80 channels are listed.	
	Displays max. and min. values of each channel are possible.	
FFT Graph	Up to 4 channels of analyzed results are displayed	
Web Camera	Displays captured images	
Over Input Indication	Displays the over-input values, background, etc. in red	
Graph Scale	Capable of displaying auto-scale value on the Y-time graph (Y axis), X-Y graph (X, Y axes) and bar graph (Y axis).	
Cursors	Available on Y-time graph, X-Y graph, physical values appear at the cursor positions	
Windows	Up to 12 different graph windows are available at the same time	
Saving Images	Saves each graph as an image file	
■Environmental Settings		
Synchronous Operation	Standalone, sync host, or sync guest is selected	
Others	Inner, external oscillators switching, operating beep, balance reference value, AD bits switching, and optional switches selection	
■GPS/Multi-channel CAN Optional Functions		
Recording CAN Data	Up to 512 channels of CAN data can be recorded for each unit.	
	(CAN data is saved in E4A file format.)	
	*Use the ELA-55A for CAN condition settings.	
CAN Trigger	Start/stop recording data by using analog triggers, digital triggers, and complex triggers.	
	*Use the ELA-55A for CAN condition settings.	
Graph Display	Display numerical and analog data in graphs simultaneously.	
Point ZERO (Manual)	Able to start manual measurement at zero second (at the moment when ms is zero) using the time data received from GPS satellites.	
Interval (GPS Synchronization)		
	Able to start interval measurement at zero second (at the moment when ms is zero) using the time data received from GPS satellites.	
GPS Data Recording	Able to monitor and record GPS data (latitude, longitude, speed, bearing, etc.).	
	GPS data is saved in NMEA file format.	

●Specifications of Software ELA-55A Compatible with EDX-3000B

■Measuring Condition Settings	
Measuring Channel Conditions	
	Measurement ON/OFF, measuring modes, range, HPF, LPF, digital HPF, digital LPF, balance ON/OFF, CAL, calibration coefficient, offset, offset zero ON/OFF, unit, channel name, measuring range, rated capacity, rated output, upper-limit check value, lower-limit check value, numeric display digits (Selects any items to display) inner sensitivity register ON/OFF, input cable, cable compensation value
Recordable Data	
	Up to remaining disk space of built-in memory
Manual Measurement	Recording from REC to STOP, or preset data starts from REC
Interval Measurement	Automatic recording according to designated starting time and recording interval
Trigger Measurement	• Common trigger conditions
	End trigger: Settable
	Pre-trigger 16-bit mode :Max.4194304 points/ch
	24-bit mode :Max.2097152 points/ch
	Post-trigger 16-bit mode:Max.4194304 points/ch
	24-bit mode:Max.2097152 points/ch
	Trigger data correlates with the number of channels and AD data.
	• Analog trigger conditions
	Trigger channels: Any 1 analog channel
	Trigger level: Sets in physical quantity.
	Trigger slope: Up, down
	• Digital trigger conditions
	Trigger bit: Any 1 bit
	Trigger level: 0, 1
	• External trigger conditions
	Trigger slope: Up, down
	• Complex trigger conditions
	Trigger source: Selection of any 4 analog/digital channels, an external trigger channel, or a manual trigger channel
	AND/OR: Be used for analog trigger, digital trigger and external trigger.
	Trigger level: A physical quantity is set for the analog channel, and 0 or 1 for the digital channel.
	Trigger slope: Up, down
Reading/Saving Measuring Condition Files	
	Capable of reading/saving measuring condition files
Reading/Saving Sensor's Files	
	Capable of reading/saving sensor's CSV files by channel condition
Digital I/O Settings	I/O points: Max. 8
	I/O settings: Sets every bit to digital input, digital output, or remote-control
TEDS	Reads sensor's information and sets to channel condition automatically.
Load/Save ME5 File	Load ME5 file and configure settings according to loaded measurement conditions.
	Save the measurement conditions in ME5 file.
	*You can also load/save ME5 file using DCS-100A and MAIN SOFTWARE.
■Measuring Operations	
	Monitor measurement, recording start, pause, stop, balancing, CAL output, etc.
Real-time Processing	Simultaneous monitoring and recording of data
	The sampling frequencies up to 10 kHz are available.
●Video Data Acquisition with a Web Camera	
Camera	DirectX compatible Web camera
	(Recognized by the OS as an imaging device)
Number of Cameras	1
Resolution	Max. 640 × 480
Frame Rate	Max. 30 fps
Saving File Format	AVI format
	Resolution and frame rate depend on the camera.
	The Web camera is optional.
Measuring Conditions During Recording Video	
	Manual mode, manual mode (Data points preset)

●Arithmetic Operation

Digital Filters	Butterworth filters (IIR)
	Type of filters: LPF, HPF
	Order of filter: 1 to 8
	Amplitude ratio at cut off point: -3 dB
	Attenuation: -6 × N dB/oct. (N is the filtering orders)
	Simultaneous use with built-in LPF of conditioner is possible.
	Calculation channels: Max. 64
	Calculation conditions ON/OFF, operators (Max. 200 characters), unit, numeric display digits, channel name (Max. 40 characters), calculation zero, and calculation zero value
Applicable Operators and Constants	
+,−,*,/,^《power》,PI[π],( )	

Functions:

SQR	Square root	LOG	Common logarithm
ABS	Absolute value	LN	Natural logarithm
SIN	Sine	EXP	Exponent
COS	Cosine	HMX	Max. principal strain
TAN	Tangent	HMN	Min. principal strain
ASIN	Arc sine (Return value: Radian)	HSM	Max. shearing strain
ACOS	Arc cosine (Return value: Radian)	SMX	Max. principal stress
ATAN	Arc tangent (Return value: Radian)	SMN	Min. principal stress
DSIN	DSIN (Return value: Angle)	SSM	Max. shearing stress
DCOS	DCOS (Return value: Angle)	DEG	Principal strain direction
DTAN	DTAN (Return value: Angle)		

●FFT Analysis

Analysis Types	Linear spectrum, power spectrum, cross spectrum, auto-correlation, and cross-correlation
Window Functions	OFF, Hamming, Hanning, Fejer, Blackman, and Gaussian
Analyzed Data Points	256, 512, 1024, 2048, 4096, and 8192
Analysis Channels	4 channels/window, max. 8 windows
Saving	Analyzed results are saved in the FFT analyzed result file format (CSV).
Saving File Format	Kyowa standard file format (KS2) KS2 file version: 01.06

■Monitor

Y-time Graph	X axis indicates the time, and Y axis the physical amount of measurement for a maximum of 16 channels. 1 to 10 graphs per window is possible.
Y-time (All channel) Graph	X axis indicates the time, and Y axis the physical amount of measurement. The line color is the same for all channels.
Y-time (DIV) Graph	X axis indicates the time, and Y axis the physical amount of measurement for a maximum of 16 channels possible. Allows channel's zero position to be set on the Y axis.
X-Y Graph	Any combination of 8 channels is plotted on X and Y axis
Bar Graph	Up to 32 channels are contained in a graph. 1 to 4 graphs are indicated on a window. Peak hold ON/OFF
Digital Graph	X axis indicates the time, and Y axis bit data of a digital channel (Up to 16 bits). 1 to 4 graphs are displayed on a window.
Circle Meter	Any one channel is displayed in a circle meter.
Bar Meter	Any one channel is displayed in a horizontal or vertical bar meter.
Numeric Display	Any one channel, 16 channels or all channels are listed. The max. and min. values of each channel are possible.
FFT Graph	Up to 4 channels of analyzed results are displayed
Web Camera	Displays captured images
Over Input Indication	Capable of displaying the excessive channel values in red, except FFT graphs.
Graph Scale	Capable of displaying auto-scale and full scale values on the Y-time graph (Y axis), X-Y graph (X, Y axes) and bar graph (Y axis). Y axis of Y-time graph are switchable among 1-axis, 2-axis, and channel-by-channel
Display Color	Any color is selectable per window.
Title, Labels	Any title or X and Y axis labels are specified.
Windows	8 numeric windows, 8 graph windows (Including an FFT window)
Auxiliary Lines	Capable of displaying the desired auxiliary lines on the Y-time Graphs (X axis and Y axis), X-Y Graphs (X axis and Y axis), and Bar Graphs (X axis and Y axis). (Up to 4 auxiliary lines each for both X axis and Y axis.)
Comparative Data	Displays the comparative data (existing KS2 format data) on the Y-time graphs, neither Y-time (All channels) graphs nor Y-time (DIV) graphs, and X-Y graphs for comparing the monitor data. The size of the data file is maximum 10 MB. If the file size exceeds 10 MB, displays the 10 MB data from its head.

■Configuration

Operation Modes	Standalone, sync host, sync guest setting
Control Modes	Off-line, Online switching
Automatic File Conversion	Automatic file conversion upon measurement (CSV, XLS, XLSX, or RPCIII format)
Others	Inner, external oscillators switching, operating beep, balance reference value, AD bits switching, and optional switches selection

■GPS/Multi-channel CAN Optional Functions

Recording CAN Data	Capable of recording up to 512-channel CAN data per one unit. (In the EDX-5000A data drive, as the E4A file).	
CAN Trigger	•Analog trigger conditions	
	Trigger channel	Any CAN channel
	Trigger level	Set in CAN data
	Trigger slope	Up, down
	•Digital trigger conditions	
	Trigger channel	Any 1 bit of CAN channel
	Trigger level	0, 1
	•Complex trigger conditions	
	Trigger source	Any 4 channels
	AND/OR	Analog trigger: Logic is possible.
		Digital trigger: Logic is possible.
	Trigger level	Analog channel: CAN data
		Digital channel: 0, 1
		Trigger slope: Up, down
Communications Conditions	Communication standards, communication speed, terminal resistance	
	*Sample points, sampling frequency, resynchronization jump width are set automatically.	
Measuring ID Conditions	Port No, format, frame ID, data length	
Measuring Channel Conditions		
	Start bit, bit length, data type, endian, calibration coefficient, offset (Conditions for conversion of extracting CAN data to physical quantity)	
Graph Display	Simultaneous display of graph, numerical value, and analog data	
Read CANdb Files		
File	DBC format	
The number of "Network Node"	Maximum 1024	
The number of "Message"	Maximum 2048	
The number of "Signal"	Maximum 4096	
Point ZERO (Manual Measurement)		
	Starts the manual measurement at 0 ms by using the time data, received from the GPS satellite.	
Interval (GPS Synchronization Measurement)		
	Starts the interval measurement at 0 ms by using the time data, received from the GPS satellite.	
Recording GPS Data	Monitors/records the GPS data (latitude, longitude, speed, azimuth, etc.). The ELA-55A saves the GPS data in the EDX-5000A data drive (in the NMEA format).	

●Data Reproduction, Data Analysis Specifications

■Data Reproduction

Graph Display	4 patterns of display condition are set for a graph. allows 1, 2, or 4 graphs to be displayed
Y-time Graph	Up to 16 channels per graph, and allows Y axis to be scaled automatically.
X-Y Graph	1 graph fixed, allows any 4 channels to be plotted on X- and Y-axis. Both axes to be scaled automatically.
All Data Display	Displays all data by every 4 channels.
Numeric Data Display	Lists any 16 channels data
Cursor	Numeric display of the engineering value of cursor position. Zoom in data between 2 cursors. Display max. and min. data between 2 cursors.
Scrolling	Scrolls X axis on Y-time graphs.
Data File Editing	Extracting of an arbitrary range or arbitrary channel from collected data file and conversion to a CSV format file are possible. Data file titles, comments, channel conditions display and editing are possible.
Max. and Min. Display	Showing max. and min. data of each channel (Max. 5-data) , 400-data around the max. or min. are shown in graphs.
KS2 File	Block number support (1 block display, all block display) . Displays and plays back the audio data.

Video Playback	Playback, backward, repeat, frame-by-frame forward, frame-by-frame backward, jump to the beginning, jump to the end, set the beginning position, set the end position. Playback speed: ×0.1 to ×20.
	Plays back the measured data, video and GPS data at the same time.
AVI Files	Playback frame rate, start frame No. (time)
Static Measuring Files	Reproduces the static measuring files (CSV format files).

●Data Analysis

Statistic Processing	A list of maxima, minima, averages and standard deviations in a desired section of the data file. The results are saved in CSV files.
Arithmetic Operations	
	Inter-channel operations for up to 2 files. The result is saved in a new file (Up to 320 expressions is possible).
	Expression: Up to 200 characters
Applicable Operators and Constants	
	+,−,*,/,^,《power》,PI[π],( )
	Functions:

SQR	Square root	LOG	Common logarithm
ABS	Absolute value	LN	Natural logarithm
SIN	Sine	EXP	Exponent
COS	Cosine	HMX	Max. principal strain
TAN	Tangent	HMN	Min. principal strain
ASIN	Arc sine (Return value: Radian)	HSM	Max. shearing strain
ACOS	Arc cosine (Return value: Radian)	SMX	Max. principal stress
ATAN	Arc tangent (Return value: Radian)	SMN	Min. principal stress
DSIN	DSIN (Return value: Angle)	SSM	Max. shearing stress
DCOS	DCOS (Return value: Angle)	DEG	Principal strain direction
DTAN	DTAN (Return value: Angle)		

● FFT Analysis

Analysis Types	Linear spectrum, power spectrum, cross spectrum, auto-correlation, cross-correlation, coherence, and transfer function
Analyzed Data Points	256, 512, 1024, 2048, 4096, 8192, 16384, and 32768
Window Functions	OFF, Hamming, Hanning, Fejer, Blackman, and Gaussian
LPF	1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000 Hz and FLAT, 12 steps
Integration Times	0 (None) to 2
Average Times	0 or more (0: whole waveform)
Shift Data Points	2 or more

Analysis types	Y-time graph	Analysis graph 1	Analysis graph 2
Linear spectrum	Yes	Amplitude (linear)/amplitude (log)	Phase
Power spectrum	Yes	Amplitude (linear)/amplitude (log)	—
Cross-spectrum	Yes	Amplitude (linear)/amplitude (log)	Phase
Auto-correlation	Yes	Correlation	—
Cross-correlation	Yes	Correlation	—
Coherence	Yes	Coherence	—
Transfer function	Yes	Amplitude (linear)/amplitude (log)	Phase

Analyzed results are saved in CSV files.

■Histogram Analysis

Algorithm Types	
	Peak/valley, maxima/minima, 1D rainflow, amplitude, 1D time at level, 1D rainflow + peak/valley, 1D rainflow + maxima/minima, 2D rainflow
Slices	1D algorithm: Even numbers from 10 (±5) to 256 (±128)
	2D algorithm: Even numbers from 10 to 50
	Slice width, hysteresis, offset (For maxima/minima), etc. to be specified.
	Results: Tabular or drawing display (3D display for 2D rainflow)
Life Prediction Processing	
	Predicts life from the result of histogram analysis of 1D rainflow method, 2D rainflow method, or amplitude method.
	The life prediction data is shown and saved as a file.
	(Allows S-N data files to be read.)
Filtering	Digital IIR filters, 4th order Butterworth
	(Cutoff: -6dB, no phase delay)
	HPF & LPF: FLAT to 500 k Hz (Effective up to one-half of the sampling frequency)
	Mirroring
	Analysis results are saved as an additional format
Differentiation/ Integration	
	Differential/integration times 0 (None) to 2
	Analysis results are saved as additional format

■Utility

Multiple Files Conversion	Conversion to CSV, XLS, XLSX, or RPCIII format
File Coupling	Multiple files (Host and guests) acquired in synchronized operation are coupled into one file.
Reverse Conversion	Data files converted by this software into CSV format are converted back to KS2 format.
File Division	Extracts the specified block No. data of the data file into single file.
Batch Analysis	Analysis of multiple files under same conditions at one time.
	Histogram analysis, filtering and differentiation/ integration are available.
Overwriting of Multiple Files	Up to 16 data files are displayed and overlapped as Y-time data.
	Allows start point of each file to be set.
Multiple Files Conversion	Converts multiple KS2 files acquired in the interval measurement into a CSV file.

DCS-100A software, specification for control of EDX-5000A

*For details of DCS-100A, see chapter 4.

Controllable Units	Max. 10 (Max. 800 analog channels, Max. 10 digital channels)
	*EDX-5000A + EDX-3000B, EDX-5000A + EDX-200A available.
	Max. 8 units: EDX-5000A + EDX-200A
Interfaces	LAN (100BAST-TX, 1000BASE-T)
Data Storage	Measured data is saved in the EDX-5000A data drive and/or data folder in the PC in KS2 format.
Channel Conditions	Measurement ON/OFF, mode, range, HPF, LPF, balance ON/OFF, CAL range, CAL ON/OFF, calibration coefficient, offset, unit, channel name, measuring range, rated capacity, rated output, Deci Digits, chk. val. (Up), chk. val. (Down), internal sensitivity compensation ON/OFF, Offset ZERO ON/OFF, digital filter (HPF: Any cutoff frequency, LPF: Any cutoff frequency) (Selection of any display item is possible.)
TEDS	Reads sensor's information and sets to channel condition automatically.
Setting/Loading Parameters	Sets and loads the EDX-5000A internal parameters.
Collecting Data	Collects data saved in the data drive in the EDX-5000A. (KS2, E4A, NMEA)
Erasing Data	Erases data saved in the data drive in the EDX-5000A. (KS2, E4A, NMEA)
Environmental Settings	
Hardware Configuration	Sets the number of units and device names. Loads the hardware configurations from the EDX-5000A.
Communication Check	Loads the EDX-5000A version.
Device Confirmation	LEDs, on the EDX-5000A front panel, light up.
Others	Oscillator switching (internal/external), operating beep sound, balance standard value, AD data format (16 bits/24 bits)
DIO Settings	Number of input/output Points Up to 8
	Digital input/Digital output/Remote control (input) for every bit.

■Measuring Conditions for Saving Data in EDX-5000A Data Drive

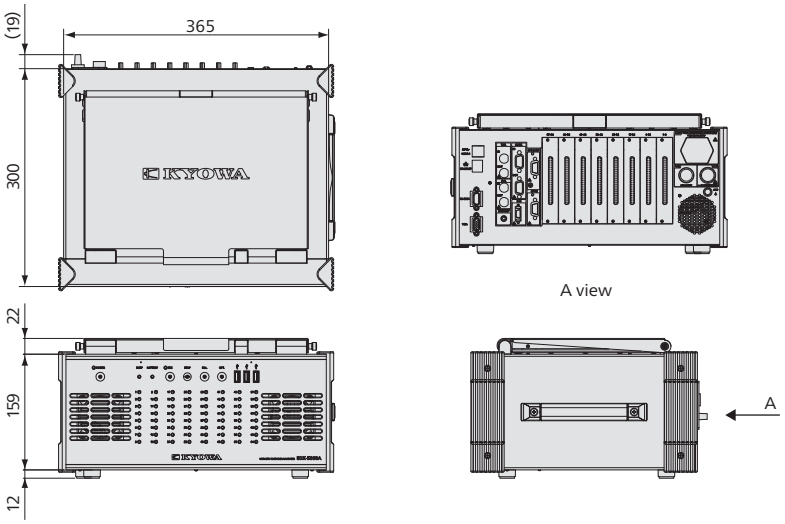
Sampling Frequencies	1 Hz to 200k Hz (1-2-5 series, 2^n series, or external clock)
	*Depends on the measuring channels and measuring units.
Data File Size	Capacity of the hard disk
Measuring Modes	Manual, manual (Data points preset), interval, analog trigger, external trigger, complex trigger
Manual Measurement	Measurement is made from a press of the REC button to a press of the STOP button or by completion of recording using a preset number of measurements.
Interval Measurement	Measurement is made automatically at preset intervals from the preset starting time.
Trigger Measurement	Start/stop recording based upon specified trigger conditions.
Common Trigger Conditions	
End Trigger	Settable
Delay	For both start and end, max. 4194304 data.
	*The delay time varies with the number of channels.
Analog Trigger Conditions	
Trigger Channels	Any 1 channel of the master unit
Trigger Level	Sets in physical quantity.
Trigger Slope	Up, down

Digital Trigger Conditions	
Trigger Bit	Any 1 channel of the master unit
Trigger Level	0, 1
External Trigger Conditions	
Trigger Slope	Up, down
Composite Trigger Conditions	
Trigger Source	Selects from analog channels (any 4 channels of the master unit), external trigger, ECAN trigger, or manual trigger. Capable of judging the trigger source by using the logical AND and OR operators.
Trigger Level	Sets in physical quantity.
Trigger Slope	Up, down
Repetition Acquisition	In long-term data acquisition, a specified amount of data (or time) is saved in KS2 file. *Workable in manual mode (Data points preset).
EGPC-50A	
CAN Data Acquision	Max. 512 channels/unit of CAN data is possible. (CAN data is saved to EDX-5000A data drive, as the E4A file.)
Point ZERO Manual Measurement	Starts the manual measurements of multiple EDX-5000A units at 0 ms by using the time data, received from the GPS satellite.
GPS Synchronous Interval Measurement	Starts the interval measurement of multiple EDX-5000A units at 0 ms by using the time data, received from the GPS satellite.
GPS Data Acquisition	Monitors and records GPS data such as latitude, longitude, direction of movement, speed. GPS data is saved in EDX-5000A data drive as NMEA format.

■Measuring Conditions for Saving Data in PC Hard Disk	
Sampling Frequencies	1 Hz to 10k Hz (1-2-5 series, 2^n series, or external clock) *Depends on the measuring channels and measuring units.
Data File Size	Capacity of the hard disk
Measuring Modes	Manual, manual (Data points preset), interval, analog trigger
Manual Measurement	Measurement is made from a press of the REC button to a press of the STOP button or by completion of recording using a preset number of measurements.
Interval Measurement	Measurement is made automatically at preset intervals from the preset starting time.
Analog Trigger Measurement	Start/stop recording based upon specified trigger conditions.
End Trigger	Settable
Delay	For both start and end, max. 4194304 data. *The delay time varies with the number of channels.
Trigger Channels	Any 1 channel of the master unit
Trigger Level	Sets in physical quantity.
Trigger Slope	Up, down
Repetition Acquisition	In long-term data acquisition, a specified amount of data (or time) is saved in KS2 file. *Workable in manual mode (Data points preset).

■Dimensions

EDX-5000A-64



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