

EDX-10 Series

Compact Recording System



Compact, lightweight, with a simple configuration, all channels synchronous 20 kHz high-speed sampling (For 4 channels)

Control Unit EDX-10B



A unit controls measuring units and performs the control with PC via USB interface.

- With 4 measuring units, measurements of 16 channels possible, and can be powered by USB interface.

The EDX-10 series compact recording system is measuring instruments that measure simply by being connected to a PC using the USB interface.

The EDX-11A and EDX-14A that measure with strain gage type transducers, pressure, displacement, etc. The EDX-12A that measure voltage, the EDX-15A that measure force, pressure, displacement, and voltage, and the EDX-13A that measure temperature with a thermocouple. Up to 4 measuring units can be powered by USB interface, no separated power supply is required.

With stacked connection, no synchronization cable is required, therefore wiring-saving.

A single unit enables 4 channel measurement, can be expanded up to 16 channels, which suitable for small-scale measurement.

- With stacked connection, no synchronization cable is required, therefore wiring-saving.
- Max sampling frequency 20 k Hz for 4 channels of a single measuring unit in sync.
- Compact & lightweight
- Simple connection using USB interface
- The standard accessory, Dynamic Data Acquisition Software DCS-100A, makes it easier data monitoring or acquisition.
- Data will be recorded as KS2, which is Kyowa standard file format. The optional Data Analysis Software DAS-200A can read the file.
- Sensors can be easily connected with one-touch input cables or input adapters.

Specifications

Interfaces	USB2.0 compliant Connector configuration: USB standard B receptacle
Number of Installed Measuring Units	Max. 4 (16 channels)
Sampling Frequencies	1 Hz to 20 k Hz (1 to 4 channels) 1 Hz to 10 k Hz (1 to 8 channels) 1 Hz to 5 k Hz (1 to 16 channels)
Operating Temperature Range	0 to 40°C
Power Supply	5 VDC by USB bus power or a AC adapter
Current Consumption	140 mA or less (5 VDC)
Weight	Approx. 170 g
Dimensions	84.0 mm (W)×26.6 mm (H)×84.0 mm (D) (Excluding protrusions)
Control Software	DCS-100A
EMC Directive	EN61326-1(Class A)
RoHS Directive	EN50581

Standard Accessories USB cable N-38 (1 m)
Ground wire P-72 (5 m)
Dynamic data acquisition software DCS-100A (CD-ROM)

Optional Accessories AC adapter UN310-0515

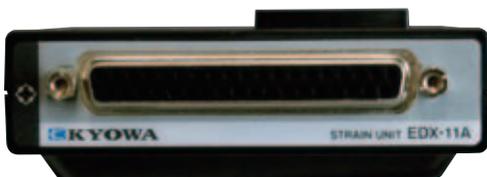
Note:

1. When power supply from a USB port, please connect the EDX-10B to the PC directly. No USB hub is required.
2. The AC adapter can operate any 4 measuring units.
3. The combination of measuring units for power supply by USB port are as follows.

USB ports	Number of EDX-11A	Max. Number of Connection Units
3.0	1	2
	2	
2.0	1	1



■ Strain Measuring Unit unit EDX-11A



A unit using DC bridge excitation method to measure strain.

Specifications

Measuring Targets	Strain gage transducers, strain gages (Using bridge boxes)
No. of Input Channels	4
Measuring Range	10 k, 50 k $\mu\text{m}/\text{m}$ (2 steps)
Applicable Bridge Resistance	120 Ω to 1 k Ω
Bridge Excitation	2 VDC
Gage Factor	2.00 fixed
Range Accuracy	Each range within $\pm 0.3\%$ FS
Nonlinearity	Within $\pm 0.1\%$ FS
A/D Converter	24 bits
Frequency Response Range	DC to 2 kHz
LPF	2nd Order Butterworth Cutoff frequencies: 100 Hz, 2 k Hz
Operating Temperature Range	0 to 40°C
Input Connector	D-sub 37-pin connector
Power Supply	5 VDC supplied by control unit
Current Consumption	180 mA or less (120 Ω load with all channels connected, at power supply 5 VDC)
Weight	Approx. 150 g
Dimensions	84.0 mm (W) \times 26.6 mm (H) \times 84.0 mm (D) (Excluding protrusions)
EMC Directive	EN61326-1(Class A)
RoHS Directive	EN50581

Standard Accessories	Strain input cable U-124 (30 cm)
Optional Accessories	Bridge box connection cable U-126 (50 cm) Input Connector Set EDX10-DSUB Input adapter UI-51A One-touch type input adapter UI-52A Bridge adapter for quarter bridge system UI-53A-120/350 Bridge adapter for quarter bridge system UI-54A-120/350 One-touch type input adapter UI-55A

Specifications

Measuring Targets	Voltage
No. of Input Channels	4 (single end)
Measuring Range	10 V, 50 V (2 steps)
Range Accuracy	Each range within $\pm 0.3\%$ FS
Nonlinearity	Within $\pm 0.1\%$ FS
A/D Converter	24 bits
Frequency Response Range	DC to 2 kHz
LPF	2nd Order Butterworth Cutoff frequencies: 100 Hz, 2 k Hz
Operating Temperature Range	0 to 40°C
Input Connector	D-sub 37-pin connector
Power Supply	5 VDC supplied by control unit
Current Consumption	110 mA or less (5 VDC)
Weight	Approx. 150 g
Dimensions	84.0 mm (W) \times 26.6 mm (H) \times 84.0 mm (D) (Excluding protrusions)
EMC Directive	EN61326-1(Class A)
RoHS Directive	EN50581

Standard Accessories	Input adapter UI-51A
Optional Accessories	BNC input cable U-125(30 cm) Bridge box connection cable U-126 (50 cm) Input Connector Set EDX10-DSUB One-touch type input adapter UI-52A

Specifications

Measuring Targets	Thermocouples
No. of Input Channels	4
Measuring Targets	K, T, J, N (Resistance of thermocouple: 1 k Ω or less) (See the table below for details about the temperature measuring range, etc.)
Check Functions	Burnout check.
A/D Converter	24 bits
Sampling System	Scanning
Inside Sampling Frequencies	Approx. 0.5 Hz, Approx. 2.0 Hz
Input Connector	Screw type terminal box
Current Consumption	120 mA or less (5 VDC)
Weight	Approx. 130 g
Dimensions	84.0 mm (W) \times 26.6 mm (H) \times 84.0 mm (D) (Excluding protrusions)
EMC Directive	EN61326-1(Class A)
RoHS Directive	EN50581

Standard Accessories	Terminal box 1piece, Screwdriver 1piece
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■ Voltage Measuring Unit EDX-12A



A unit for measuring voltage.

■ Thermocouple Measuring Unit EDX-13A



A unit for measuring temperature by using thermocouples

Types	Measuring Range	Resolution	Measuring Accuracy	Accuracy of internal reference contact compensator
K	-200.0 to 1370.0°C	0.1°C	-200.0 to -100.0°C or less -100.0 to 1370.0°C	$\pm 1.0^\circ\text{C}$ (Input terminal temperature at equilibrium) (Ambient temperature range: $25 \pm 10^\circ\text{C}$) Mount the EDX-13A on the bottom when using it with measuring units other than the EDX-13A. $\pm 2.0^\circ\text{C}$ (Input terminal temperature in equilibrium) (For temperatures other than those in the ambient temperature and operating temperature ranges described above)
T	-200.0 to 400.0°C		-200.0 to -100.0°C or less -100.0 to 400.0°C	
J	-200.0 to 1200.0°C		-200.0 to -100.0°C or less -100.0 to 1200.0°C	
N	-200.0 to 1300.0°C		-200.0 to -100.0°C or less -100.0 to 1300.0°C	

Note: The measurement accuracy does not include the accuracy of the internal reference contact compensator and thermocouple.

■ Low-power Strain Measuring Unit EDX-14A



Low-power DC type bridge excitation for measuring strain

■ Low-power Strain/Voltage Measuring Unit EDX-15A



Measurement of both strain and voltage in the same unit possible

Specifications

Measuring Targets	Strain gage transducers, strain gages*
No. of Input Channels	4
Measuring Range	10 k, 50 k $\mu\text{m}/\text{m}$ (2 steps)
Applicable Bridge Resistance	120 Ω to 1 k Ω
Bridge Excitation	1 VDC
Gage Factor	2.00 fixed
Range Accuracy	Each range within $\pm 0.3\%$ FS
Nonlinearity	Within $\pm 0.1\%$ FS
A/D Converter	24 bits
Frequency Response Range	DC to 2 kHz
LPF	2nd Order Butterworth Cutoff frequencies: 100 Hz, 2 k Hz
Operating Temperature Range	0 to 40°C
Input Connector	D-sub 37-pin connector
Power Supply	5 VDC supplied by control unit
Current Consumption	140 mA or less (120 Ω load with all channels connected, at power supply 5 VDC)
Weight	Approx. 150 g
Dimensions	84.0 mm (W) \times 26.6 mm (H) \times 84.0 mm (D) (Excluding protrusions)
EMC Directive	EN61326-1(Class A)
RoHS Directive	EN50581

*Bridge boxes are required for strain measurement

Standard Accessories Strain input cable U-124 (30 cm)

Optional Accessories Bridge box connection cable U-126 (50 cm)

Input Connector Set EDX10-DSUB
Input adapter UI-51A
One-touch type input adapter UI-52A
Bridge adapter for quarter bridge system UI-53A-120/350
Bridge adapter for quarter bridge system UI-54A-120/350
One-touch type input adapter UI-55A

Specifications

Measuring Targets	Strain gage transducers, strain gages*	Voltage (Unbalanced)
No. of Input Channels	4	
Measuring Range	10 k, 50 k $\mu\text{m}/\text{m}$ (2 steps)	
Applicable Bridge Resistance	120 Ω to 1 k Ω	10, 50 V
Bridge Excitation	1 VDC	
Gage Factor	2.00 fixed	
Range Accuracy	Each range within $\pm 0.3\%$ FS	
Nonlinearity	Within $\pm 0.1\%$ FS	
A/D Converter	24 bits	
Frequency Response Range	DC to 2 kHz	
LPF	2nd Order Butterworth Cutoff frequencies: 100 Hz, 2 k Hz	
Operating Temperature Range	0 to 40°C	
Input Connector	D-sub 37-pin connector	
Power Supply	5 VDC supplied by control unit	
Current Consumption	150 mA or less (120 Ω load with all channels connected, at power supply 5 VDC)	
Weight	Approx. 150 g	
Dimensions	84.0 mm (W) \times 26.6 mm (H) \times 84.0 mm (D) (Excluding protrusions)	
EMC Directive	EN61326-1(Class A)	
RoHS Directive	EN50581	

*Bridge boxes are required for strain measurement

Standard Accessories Strain input cable U-124 (30 cm)

Conversion adapter FV-1A x4

Optional Accessories Bridge box connection cable U-126 (50 cm)

Input Connector Set EDX10-DSUB
Input adapter UI-51A
One-touch type input adapter UI-52A
Bridge adapter for quarter bridge system UI-53A-120/350
Bridge adapter for quarter bridge system UI-54A-120/350
One-touch type input adapter UI-55A

■ Input adaptor(Supplied with the product)

■ (EDX-11A/14A/15A for optional) Input adapter UI-51A

- For strain gage transducers (Bared at the tip). Mounted on a strain measuring unit.



■ (EDX-11A/12A/14A/15A for optional) One-touch type input adapter UI-52A

- For strain gage transducers (bared at the tip). Mounted on a strain measuring unit.
- For voltage input (Bared at the tip). Mounted on a strain measuring unit.



■ (EDX-11A/14A/15A for optional) Bridge adapter for quarter bridge system UI-53A-120 (For 120 Ω) UI-53A-350(For 350 Ω) **NEW**

- Mounted on a strain measuring unit.
- Quarter bridge system, 2-/3-wire strain gage is connected directly to the UI-53A



■ (EDX-11A/14A/15A for optional) Bridge adapter for quarter bridge system UI-54A-120 (For 120 Ω) UI-54A-350 (For 350 Ω) **NEW**

- Mounted on a strain measuring unit.
- Quarter bridge system, 2-/3-wire strain gage is connected directly to the UI-54A



■ (EDX-11A/14A/15A for optional) One-touch type input adapter UI-55A **NEW**

- Mounted on a strain measuring unit.
- Strain gages and strain gage transducers of full bridge system connected to UI-55A directly.





● DCS-100A software specifications (Standard accessory)

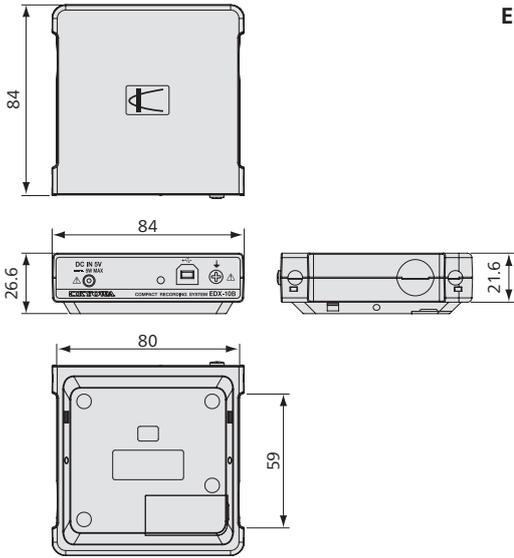
- Display of measurement data as numerical values or as various graphs is possible
- Control of Kyowa measuring instruments is possible
- Direct saving of measurement data on PC hard disk is possible
- Data Analysis Software DAS-200A (Optional) can be started from the tool bar

Operating Environment	
OS	Windows Vista, 7, 8/8.1, Japanese/English 32/64 bits support If 64-bit OS, operates in WOW64 environment
CPU	Core2Duo, 2 GHz or advanced
Memory	If OS is 32-bit Vista, 7, or 8/8.1, 2 GB or more If OS is 64-bit Vista, 7, or 8/8.1, 4 GB or more
Display	1024x768 pixels or more
Number of Connected Measuring Units	Max. 4 (Max. 16 channels)
Interfaces	USB
Collection	Measurement data is saved on the PC as KS2 file
Channel Conditions	Measurement ON/OFF, mode, range, LPF, calibration constant, offset, unit, CH name, measuring range, number of digits after decimal point, rated capacity, rated output, maximum check value, minimum check value, (Selection of arbitrary display items possible)
Sampling Frequencies	1 to 20 kHz (1-2-5 series) Limitations exist depending on measurement channel
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 to completion of recording to the 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 (Trigger level value fixed)
End trigger	Settings possible
Delay	For both start/stop, maximum 262144 data items/channel Delay differs depending on the number of measurement channels
Trigger channel	Arbitrary 1 channel
Trigger level	Set in physical quantity
Trigger slope	Up, down
Static Measurement	Each time collection starts, measurement data processed as a moving average appended to the CSV format file and saved. Available when the measuring mode is manual or interval
Repeat Collection	For long-duration calculation, this saves to KS2 file at specified quantities of data (specified periods) Available when the measuring mode is manual (Data points preset)
Environment Settings	
Data Storage	Measured data is directly saving in the hard disk of PC, while it is limited by the sampling frequency and the number of measuring channels.
Data File Automatic Collection	Data file can be automatic transferred to the hard disk of PC upon completion of recording
Data file automatic conversion	At the end of measurement, automatically converts the file (CSV format, XLS format, XLSX format, RPCIII format).
Arbitrary unit settings	The user can register 3 types of unit types from those that can be set
Pause ON/OFF	Settable
Hardware configuration settings	
	Connected units, configuration of equipment name Configuration of device names connected to EDX-10B possible Reading of hardware configuration from EDX-10B possible
Monitor Screen	
Y-Time graph	The X axis is the time axis, and the Y axis is the measured physical display, and display of a maximum 16 channels is possible Display of 1 to 10 graphs on 1 screen is possible
Y-Time (DIV) graph	The X axis is the time axis, and the Y axis is the physical quantity, and display of a maximum 16 channels is possible. Channel's zero position can be set on the Y axis.
X-Y graph	Graph display for both the X/Y axis using arbitrary 8 channel combinations is possible

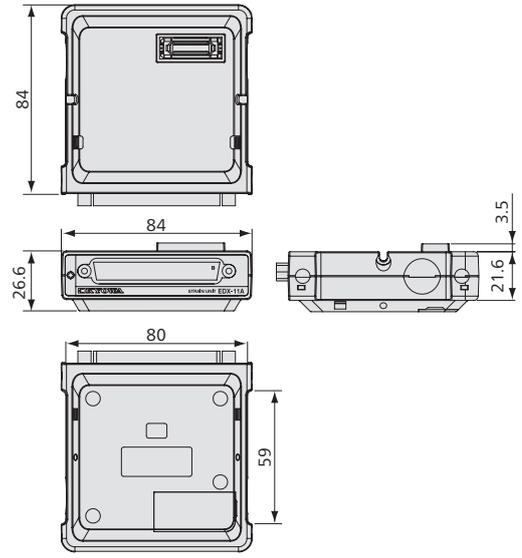
Bar graph	Display of a maximum of 32 channels on 1 graph is possible. Display of 1 to 4 graphs on 1 screen possible. Peak hold ON/OFF (numerical value display possible)
Bar meter	Display of an arbitrary channel horizontally or vertically is possible
Circular meter	Display of an arbitrary channel with the circular meter is possible
Numerical value display	Arbitrary 1 channel display, arbitrary 16 channel display (Max. and min. value displays possible only in arbitrary 1 channel display)
Over-input Indication	Capable of displaying the excessive channel values in red.
Graph Scale	An auto scale and full scale can be displayed with the Y-axis of a time series graph, the X-axis/Y-axis of an X-Y graph, and the Y-axis of a Bar graph (Y axis). The Y-Time graph (Y axis) is able to change to 1 axis or 2 axes and CH.
Screen display colors	Arbitrary change of graph units possible
Title, label	Arbitrary setting of title and X/Y axis labels possible
Simultaneous display items	numerical value display: 32, graphs: 32 With numerical value display and graph display, display of up to 64 items possible (Including screen/numerical value display items displayed on the data confirming display) Display of the maximum numbers may not be possible, depending on the CPU speed of PC and memory capacity.
Dual-display	Capable of moving the numeric windows and graphic windows onto the sub display.
Setting Channel Conditions and Measuring Conditions	
Channel/Measuring Conditions	Applied recorder is set according to the specifications.
TEDS Information	Reading sensor's information and setting to channel condition automatically
Saving/Loading Measuring Conditions	Capable of saving and loading both measuring conditions and the sensor information file (CSV format)
Data File	
Save formats	Kyowa standard file format KS2
File coupling	Data files saved in controlled recorders operated in synchronization can be combined to a single file upon collecting data by the PC.
Data Reproduction	
Y-Time graph	The X axis is the time axis, and the Y axis is the measured physical display, and display of a maximum 16 channels is possible. Display of 1 to 10 graphs on 1 screen possible
Y-Time (DIV) graph	The X axis is the time axis, and the Y axis is the physical quantity, and display of a maximum 16 channels is possible. Channel's zero position can be set on the Y axis.
X-Y graph	Graph display for both the X/Y axis using arbitrary 8 channel combinations is possible
Numerical value display	List display
Graph Scale	An auto scale and full scale can be displayed with the Y-axis of a time series graph, the X-axis/Y-axis of an X-Y graph, and the Y-axis of a Bar graph (Y axis). The Y-Time graph (Y axis) is able to change to 1 axis or 2 axes and CH.
Screen display colors	Arbitrary change of graph units possible
Title, label	Arbitrary setting of title and X/Y axis labels possible
Simultaneous display items	numerical value display: 32, various graphs: 32 With numerical value display and graph display, display of up to 64 items possible (Including graph display displayed on monitor screen/numerical value display items) Display of the maximum numbers may not be possible, depending on the CPU speed of PC and memory capacity.
Display possible data file size	Data file size that can be displayed at one time in the graph/numerical value display is max. 10 MB. If 110 MB is exceeded, then by setting the display range, display of an arbitrary range of 10MB of data is possible.
File conversion	Arbitrary range or channel file extracting, CSV file conversion, Excel format conversion, and RPCIII format conversion are possible
Dual-display	Capable of moving the numeric windows and graphic windows onto the sub display.

■ Dimensions

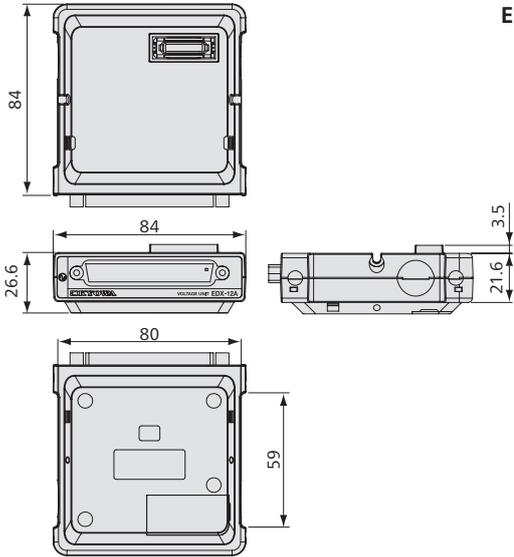
EDX-10B



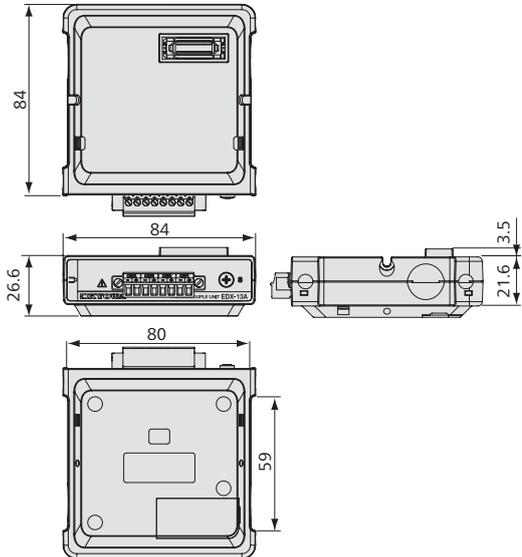
EDX-11A



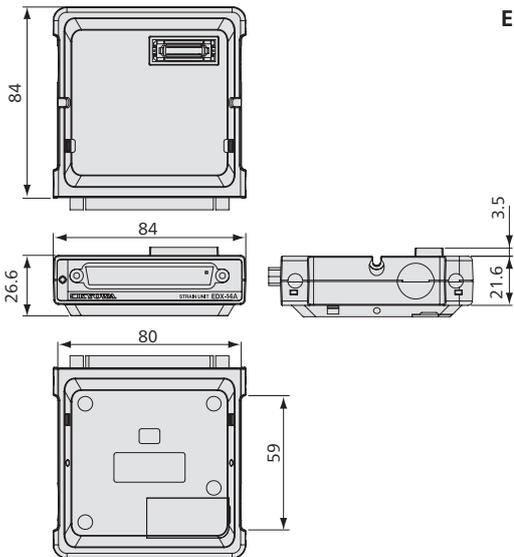
EDX-12A



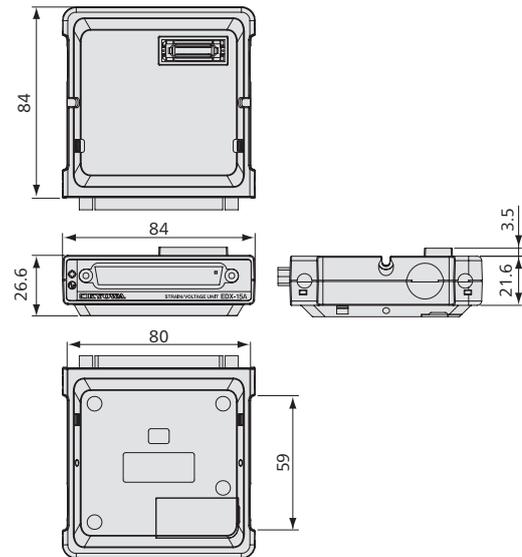
EDX-13A



EDX-14A



EDX-15A



EDX-10 Series Recommended products for combination

- Bridge box DB-120V-4E/ET DB-350V-4E/ET → 3-123
- Data Analysis Software DAS-200A → 4-9

Simplified configuration of the EDX-10 series

