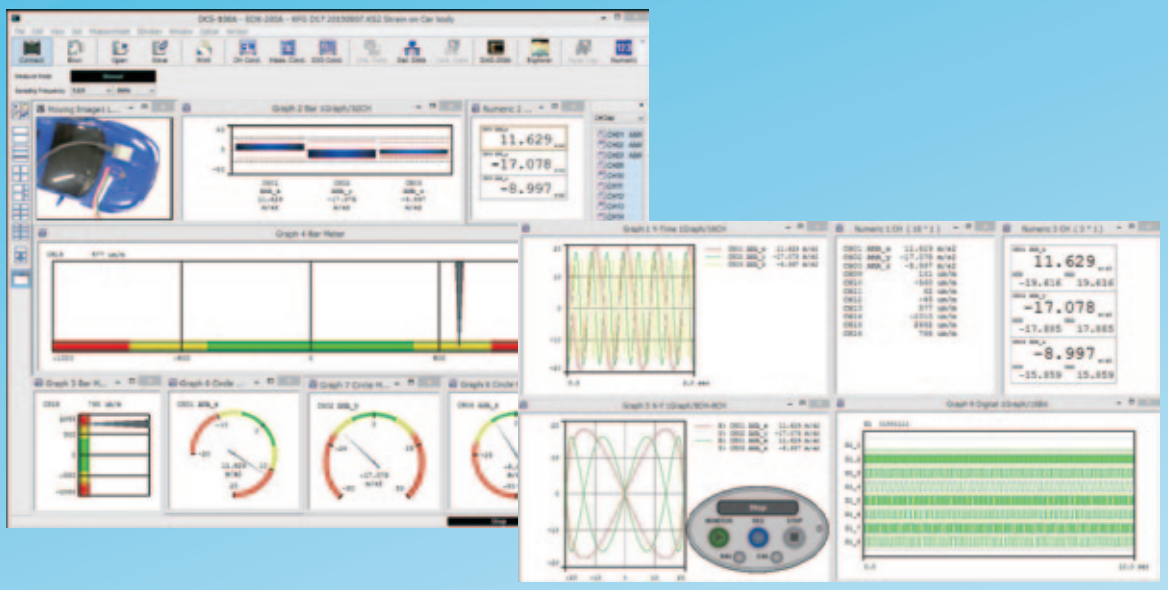
Dynamic Data Acquisition Software

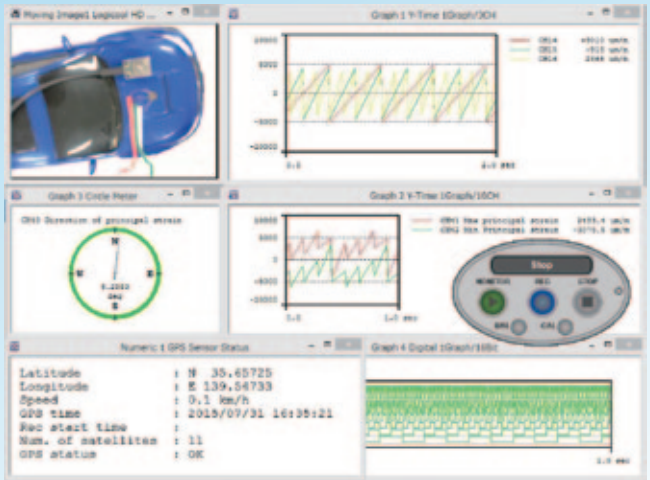
DCS-100A

And Attractive Enhancement Options Available

Monitor Various Physical Quantities and Video on a Dual Display.



Add Enhancement Options for Simultaneous Acquisition of Video and Numeric Data and Arithmetic Operations or Advanced Functions.



DCS-100A is a dynamic data acquisition software developed to make Kyowa measuring instruments even more powerful. The software enables easy interactive setting of various conditions and facilitates efficient acquisition of required data by showing variables under measurement in varied graph and numeric windows on the display.

Furthermore, the following enhancement options are available to meet today's needs.

Simultaneous acquisition of video and numeric data/arithmetic operations

DCS-101A

- Simultaneous acquisition of video and physical variables
- Real-time processing of the basic arithmetic calculations
- Real-time monitoring of the FFT analysis

EDX-3000B dedicated real-time process optional software

DCS-103A

- EDX-3000B dedicated
- Simultaneous video recording
- Real-time processing (filter processing, basic arithmetic calculations, differentiation/integration, moving range)

＊When controlling the EDX-3000B, it is necessary to add the DCS-103A to the DCS-100A.

GPS data acquisition option software

DCS-104A

- Simultaneous acquisition of GPS data and physical variables
- Real-time monitoring of GPS data

CANdb file read optional software

DCS-105A

- Sets CAN conditions of DCS-100A by reading CANdb file.

1000-channel measurement optional software for UCAM-550A only

DCS-106A

- Enables UCAM-550A to perform measurement in 1000 channels.

Applicable Instruments:
Memory Recorder/Analyzers EDX-3000B
Universal Recorders EDX-100A
Universal Recorders EDX-200A
Compact Recording System EDX-10A
Sensor Interfaces PCD-400A/430A
Compact Recorder EDS-400A
Fast Data Logger UCAM-550A
Medium Speed Network Terminal Box NTB-500A

Optional software *1 supporting chart

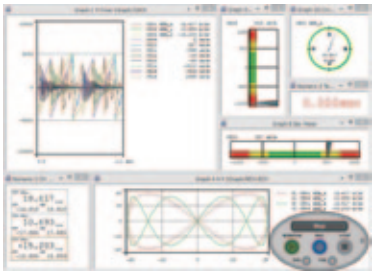
Software \ Instrument	EDX-3000B	EDX-100A	EDX-200A	EDX-10A	PCD-400A/430A	EDS-400A	UCAM-550A	NTB-500A
DCS-100A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DCS-101A		Yes	Yes	Yes	Yes	Yes	Yes	Yes
DCS-103A*2	Yes							
DCS-104A	Yes	Yes	Yes	Yes	Yes	Yes		
DCS-105A	Yes	Yes	Yes					
DCS-106A							Yes	

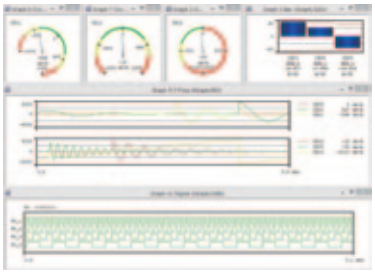
*1 DCS-100A is required for plug-in of optional software.
*2 DCS-103A includes DAS-200A.

Making Kyowa measuring Dynamic Data

Flexible display of graph and numeric windows

A max. 32 windows each, 64 in total, can be freely arranged on the screen. Graph windows are available in 7 types including Y-time graph, Y-time (DIV) graph, X-Y graph, bar graph, digital graph, circular meter and bar meter.





Simultaneous display of real-time data and reproduction

Open a data reproduction window, and real-time data can be compared with past data on the same screen.

Cyclic data acquisition

In long-term manual measurement/data acquisition, the data file can be saved by dividing at every preset number of data points or at every preset time interval. (Effective for EDX-100A, EDX-200A, EDX-3000B, UCAM-550A, and NTB-500A)

XLSX and RPCIII formats too are available for automatic data file conversion.

Besides CSV format, automatic data file conversion to XLS, XLSX or RPCIII format is possible. In addition, a desired portion or channels of acquired data can be extracted for saving in a new data file or converted to CSV, XLS, XLSX, or RPCⅢ format file.

Static measurement

Variables are averaged during every data acquisition cycle and the data of averages is additionally saved in a CSV format files. (Effective for PCD-400A/430A, EDX-10A, EDX-100A, EDX-200A, EDX-3000B, UCAM-550A, and NTB-500A)

Launching data analysis software from the toolbar

If the DAS-200A data analysis software is installed in the PC, the icon is displayed on the toolbar, thereby enabling direct access to the software from the DCS-100A.

Option software

DCS-101A

Simultaneous Acquisition of Video and Numeric Data/Arithmetic Operations

DCS-103A

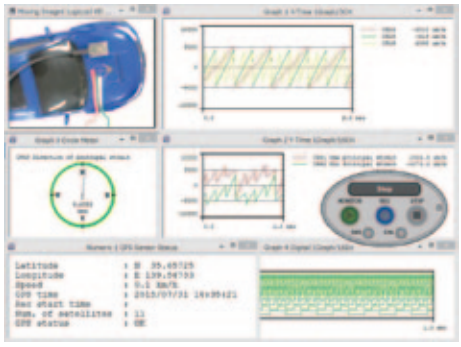
Real-time Process of EDX-3000B

instruments even more powerful!

Acquisition Software

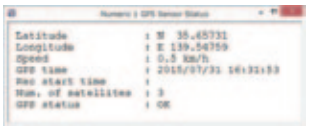
Simultaneous acquisition of video and numeric data ⇦ DCS-101A/103A

The video being taken by a webcam can be monitored together with graph and numeric windows on the same screen. In the reproduction mode, the video and graphs can be displayed with a cursor interlocked.



Real-time arithmetic operations/rosette analysis ⇦ DCS-101A/103A

Physical variables under measurement can be processed in real-time. Calculation results are displayed and saved together with measured data in the same data file.



GPS data acquisition ⇦ DCS-104A

GPS data can be monitored and saved together with measured data.

Basic display

Menu bar
Each menu option provides a pulldown menu and changes depending on software operating status.

Measuring conditions
Measuring mode, sampling frequency, etc.

Function keys
Can have any desired function assigned for easy access.

Toolbar
Provides icons of frequently used options for easy selection.

List of channels
Easy selection of channels to be displayed on the graph window. To select, drag desired channels to the graph window.

Data window
Can show a numeric window and various graph windows in a free combination.

Operating panel
Provides MONITOR, REC/PAUSE, STOP, BAL and CAL buttons.

Status bar
Indicates the present status such as interval or trigger measurement and date/time.

Basic software **DCS-100A**

DCS-104A GPS Data Acquisition

DCS-105A CANdb File Read

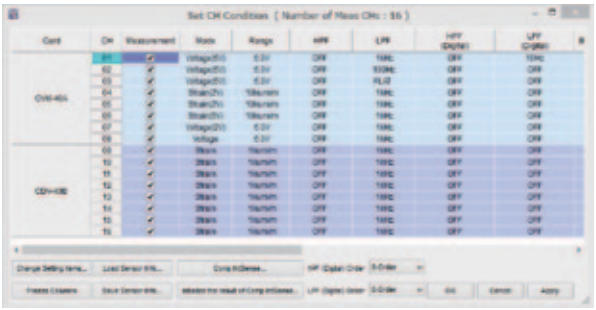
DCS-106A 1000-channel for UCAM-550A

Easy interactive setting of system configuration and measuring/display conditions

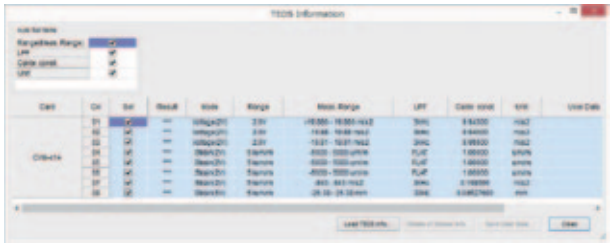
From System Configuration to Channel and Display Conditions

Environmental setting

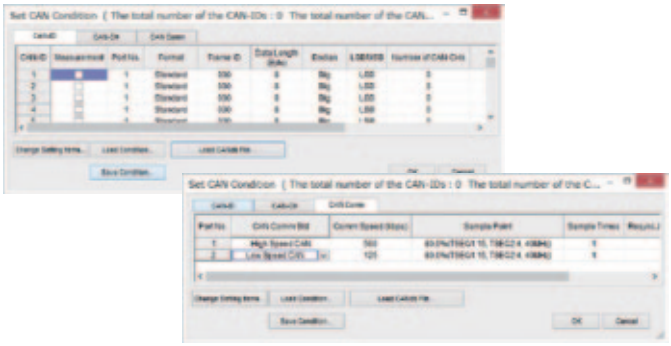
System configuration



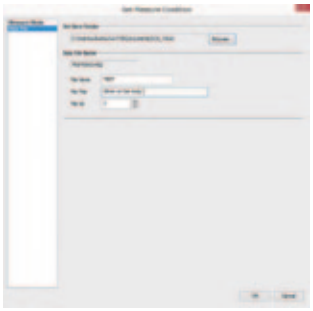
Channel condition setting



TEDS information



CAN condition setting



Data file

Display condition (graph)

Display condition (detail)

Measuring Conditions

Measuring mode

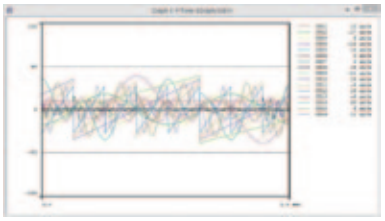
Interval measuring condition

Analog trigger condition

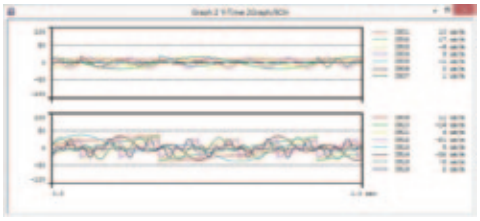
Graph and numeric windows, at a max. 32 each, 64 in total, on the screen

Y-time Graphs

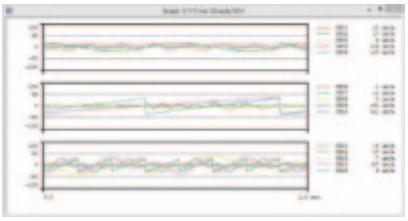
Physical variables in a max. of 16 channels are graphed on the Y axis with the X axis for time. 1 to 10 graphs can be shown on a window.



16-channel Y-time graph



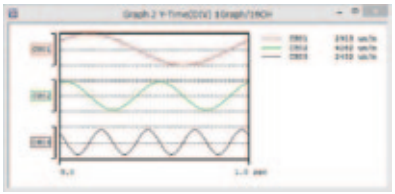
8-channel Y-time graph x 2



5-channel Y-time graph x 3

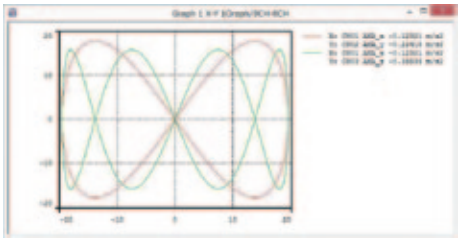
4-channel Y-time graph x 4

Y-time (DIV) Graph



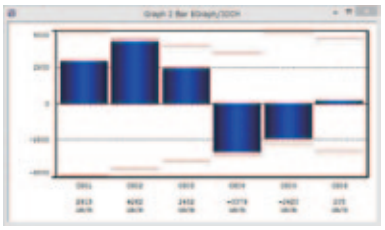
The waveform of each channel is independently monitored in the division. The zero point can be placed individually in a desired position on the Y-axis division.

X-Y Graph



Relative graph of 2 desired channels assigned to X and Y axes respectively. Max. 8 graphs can be overlapped.

Bar Graph

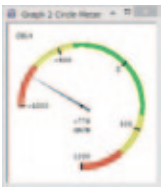


Bar graph
(Max. 4 bar graphs can be shown on a window.)

Circular Meters

Normal display

Semicircular display

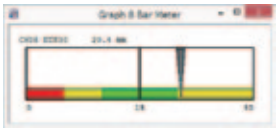


45˚-turn display

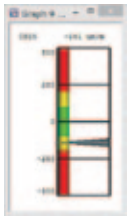
-45˚-turn display

Full circle display

Bar Meters

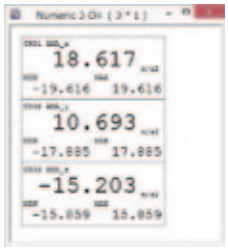


Horizontal bar meter

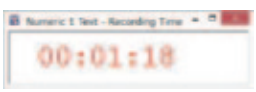


Vertical bar meter

Numeric Window



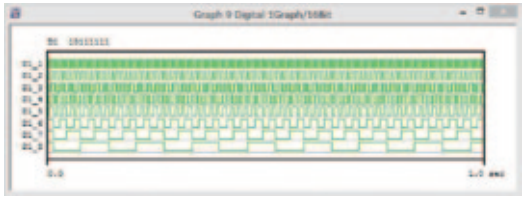
Numeric data list



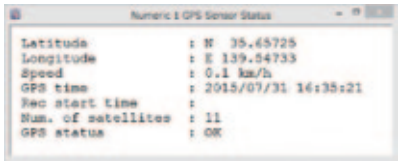
Text (Recording time)

With both bar meter and circular meter, desired portions can be displayed in desired colors for easily distinguish.

Digital Graph



GPS Data



Common Specifications

Operation Environment*	
OS *1	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, 2GB or more If OS is 64-bit Vista, 7, or 8/8.1, 4GB or more
Display	1024×768 pixels or more
Interface	10BASE-T/100BASE-TX or more/USB2.0/CAN (Depending on the measurement device being controlled)

Monitor Display	
Y-time graph	The X axis is the time axis, and the Y axis is the measured physical display, and display of up to 16 channels is possible. Display of 1 to 10 graphs on 1 screen is possible.
Y-time (DIV) graph	Physical variables of up to 16 channels are graphed on Y-axis with X-axis for time. Different from the above Y-time graph, zero point of channel can freely be moved to a desired position on a division of Y-axis.
X-Y graph	Graph display for both the X/Y axis using arbitrary 8-channel is possible
Bar graph	Display of up to 32 channels on 1 graph is possible. Display of 1 to 4 graphs on 1 screen is possible. Peak hold ON/OFF numerical value display is possible
Graph scale	Y axis on Y-time graph, X axis and Y axis on X-Y graph, and Y axis on bar graph can be automatic scaled.
auxiliary line	Adding any auxiliary lines on X axis or Y axis of Y-time graph, X-Y graph and bar graph is possible.
Bar meter	Display of an arbitrary channel horizontally or vertically is possible.
Circular meter	Variable of 1 desired channel can be displayed on a horizontal or vertical bar meter.
Numeric data Display	Shows numeric data of desired 1 or 16 channels or all channels.
Display color	Arbitrary change of graph units is possible.
Title and labels	A desired title and labels for x axis and y axis can be set.
Number of simultaneously displayed windows	32 numeric windows and 32 graph windows, 64 in total, can be simultaneously displayed, including reproduced data windows. *Note: The number of windows depends on a PC's CPU and memory.
Comparative data	Displays the comparative data (previous KS2 format file) on the Y-time graph [excluding the Y-time (all channels) graph and Y-time (DIV) graph], and X-Y graph for comparing the monitor data. The max. size of the data file is 10 MB.
Dual-display	Capable of moving the numeric windows and graph 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 measurement conditions	Capable of saving and loading both measuring conditions and the sensor information file(CSV format file).

Data Confirmation	
Y-time graph	Physical variables are graphed on Y axis with X axis for time. Up to 16 channels can be graphed and 1 to 10 graphs can be shown on a window.
Y-time (DIV) graph	Physical variables of up to 16 channels are graphed on Y-axis with X-axis for time. Zero point of channel can freely be moved to a desired position on a division of Y-axis.
X-Y graph	Variables of desired every 8 channels for both X and Y axis are graphed in free combinations
Numeric window	Shows numeric data in a list.
Display color	Freely changeable graph by graph
Title and label	A desired title and labels for X and Y axes can be set.
Cursor display	Enables indication of the value at the cursor position in a proper engineering unit.
Number of simultaneously displayed windows	32 numeric windows and 32 graph windows, 64 in total, can simultaneously displayed, including reproduced data windows. *Note: The number of windows depends on a PC's CPU and memory.
Data file size that can be displayed	Up to 10MB data can be displayed in the graph/numeric table at one time. displays any range of 10MB data if the data size is more than 10MB.
File conversion	Desired range or data of a desired channel can be extracted and converted to CSV, XLS, XLSX, or RPCⅢ format file.
Graph scale	Capable of displaying auto-scale value and full-scale value on the Y-time graph (Y axis), X-Y graph (X axis and Y axis), and bar graph (Y axis). The Y-time graph (Y axis) can be changed to 1-axis, 2-axis and channel.
Auxiliary line	Capable of displaying the desired auxiliary line on the Y-time graph (X axis and Y axis), X-Y graph (X axis and Y axis), and bar graph (X axis and Y axis).(Up to 4 auxiliary lines each for both X axis and Y axis.)
Max./min. / average value	Capable of displaying the max./min./average value within window on the Y-time graph.(Capable of displaying the max./min./ average value when the number of channels is 1 or 2)
Dual-display	Capable of moving the numeric windows and graph windows onto the sub display.

Setting Environment	
Setting controlled recorder	Choose the applied recorder and set recorder's specific conditions.
Data file destination	Measured data is saved in storage medium of the controlled recorder. Can also be directly saved in the hard disk of PC, while it is limited by the sampling frequency and the number of measuring channels.
Automatic transfer of data file	Data file can automatically be transferred to the hard disk of PC upon completion of recording
Automatic transfer of CSV file	CSV data file can automatically be transferred upon completion of recording.
Optional units	3 user-defined units can be registered.
Pause function	Yes/No is selectable

Data file	
Saving format	Kyowa standard file format KS2 to save data in the PC.
File coupling	Data files saved in controlled recorders operated in synchronization can be combined to a single data file at the time of collection by the PC.

Major Functions Added by Software Options

Optional software	Simultaneous acquisition of video numeric data arithmetic operations **DCS-101A**	EDX-3000B dedicated real-time process optional software **DCS-103A**	GPS data acquisition option software **DCS-104A**	CANdb file read optional software **DCS-105A**	1000-channel measurement optional software for UCAM-550A only **DCS-106A**
Video recording	30fps	30fps		• Sets CAN conditions of DCS-100A by reading CANdb file. • Applicable conditioner cards: CAN-40A, CAN-41A • Applicable card for optional slot: ECAN-40A EGPC-40A	• Enables to perform measurement from 301 to 1000 channels
Video reproduction	Yes	Yes			
Arithmetic operations in real time	Yes	Yes			
FFT analysis	Yes	Yes			
Linear spectrum	Yes	Yes			
Power spectrum	Yes	Yes			
Cross spectrum	Yes	Yes			
Auto-correlation	Yes	Yes			
Cross-correlation	Yes	Yes			
Filtering		Yes			
Digital filter		IIR filter			
Characteristics		2nd to 4th order Butterworth			
HPF/LPF		Flat to one-half the sampling frequency			
Differentiation / Integration		Yes			
Moving averaging		Yes			
GPS data acquisition			Yes		
CANdb file read				Yes	
1000-channel measurement					Yes

Instrument-dependent Specifications (1)

	PCD-400A/430A
Number of controllable units	Max. of 4 units for 16 channels
Interface	USB2.0 (Conforms to Hi-Speed USB standards. Can also be operated in a USB3.0 port.)
Data file destination	A hard disk in the PC(KS2 format)
Channel conditions	Measurement ON/OFF, strain mode, range, LPF, balance ON/OFF, calibration constant, offset, gage factor, unit, channel name, measuring range, number of decimals, rated capacity, rated output, upper value check, lower value check, offset zero ON/OFF (any display item selectable)
Sampling frequency	1 Hz to 10 kHz (1-2-5 series)
Measuring mode	Manual, manual (Data points preset), interval, analog trigger
Manual measurement	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.
Interval measurement	Automatically measures at preset intervals from the preset starting time.
Trigger measurement	Automatically measures according to preset trigger conditions.
Trigger conditions End trigger	Settable
Delay	For pretrigger and post-trigger, max. 640000 data points
Trigger channel	1 desired measuring channel
Trigger level	Setting by physical quantity
Trigger slope	Up, down
Static measurement	Each time data acquisition is started, measurement data processed using a moving-average model is added to and saved as a CSV file. * Available in manual or interval mode
Repetitive acquisition	In long-term data acquisition, a specified amount of data is saved in KS2 file at specified intervals. * Available in manual mode (with the amount of acquired data specified)
TEDS information	Can be read with the UI-10A or UI-11A input adapter mounted and TEDS-installed transducer connected.
Environment/ Configuration	Settings for the unit name and unit Unit name can be set on the PCD-400A Number of connected units readable from the PCD-400A
Automatic data file	Automatic file conversion upon the end of measurement (CSV, XLS, XLSX,or RPCⅢ format)
Communication check	Version of PCD-400A/430A is read.
ADC solutions	24 bits

	EDS-400A	
Number of controllable units	Max. 4 units for 32 channels	
Interface	LAN (10BASE-T/100BASE-TX)	
Channel conditions	Measuring channel, measuring mode (strain/voltage), range, zero suppression ON/OFF, calibration constant, offset, unit, channel name, measuring range, rated capacity, rated output, numerical value display digits (selection of arbitrary display items is possible.)	
Measuring conditions Data file destination	**In case of a CF card inserted in the EDS-400A**	**In case of a data file folder in the PC**
Sampling frequency	1 Hz to 100 kHz (Depending on the number of measuring channels)	1 Hz to 10 kHz
Data file size	Max. 2GB (Depending on the number of measuring channels)	Depending on the hard disk capacity
Manual measurement	Collects from REC to STOP, or from REC until the specified amount of collection data.	Measures 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		Automatically measures at preset intervals from the preset starting time.
Trigger measurement	Automatically measures according to preset trigger conditions.	Automatically measures according to preset trigger conditions.
Trigger conditions End trigger	Cannot be set.	Settable
Delay	Pretrigger delay: Max. 2000 data points Pretrigger delay depends on sampling frequency.	Pretrigger and post-trigger delay: Max. 32000 data points Pretrigger and post-trigger delay depends on sampling frequency and the number of measuring channels.
Trigger channel	1 desired measuring channel of master unit	1 desired measuring channel
Trigger level	Setting by physical quantity	
Trigger slope	Up, down, or both	
Setting measuring conditions	By reading measuring conditions saved in the CF card, or online from the PC via LAN	
Monitoring	Possible on graph and numeric windows. Execution of zero suppress, test signal output and saving conditions in the CF card are possible.	
Collecting acquired data	Online from the CF card to the PC via LAN Offline from the CF card inserted to the PC	
Erasing acquired data	Possible online or offline	
Environment/ configuration	Number of connected units IP address is set online from the PC via LAN, or offline by reading from the CF card. Communication check enables reading the version of EDS-400A.	

Basic operation is common to all Kyowa instruments.
Thus, the software can be used immediately upon changing the applied instrument to another.

Instrument-dependent Specifications (2)

	EDX-100A	EDX-200A
Number of controllable units	Max. 8 (Max. 256 channels)	Max. 8 (Max. 256 channels)
Interface	USB 2.0 or LAN (10BASE-T/100BASE-TX)	USB 2.0 or LAN (10BASE-T/100BASE-TX)
Applicable conditioner cards	CVM-40A/41A, CDV-40B(-F), DPM-42B(-F, -I, -I-F), CCA-40A(-F), CDA-44AS/45AS, CTA-40A, CFV-40A, CAN-40A, CAN-41A, CDV-44AS, AD-40AS(-F)	CDV-40B/A(-F), DPM-42B(-F, -I, -I-F), CCA-40A(-F), CVM-40A/41A, CDA-44AS/45AS, CTA-40A, CFV-40A, CAN-40A, CAN-41A, CDV-44AS, AD-40AS(-F)
Option cards	———	ECAN-40A, EGPC-40A, and ETIM-40A
Channel conditions	Measuring channel, measuring mode, range, HPF, LPF, balance ON/OFF, calibration ON/OFF, calibration constant, offset, unit, channel name, measuring range, rated capacity, rated output, number of display digits (Display items can be selected freely.)	Measurement ON/OFF, mode, range, HPF, balance ON/OFF, CAL range, CAL ON/OFF, calibration constant, offset, units, CH name, measuring range, decimal point, number of subsequent digits, rated capacity, rated output, digital filter, sampling frequency(select dual sampling high-speed, low-speed, high-speed+low-speed) (selection of arbitrary display items is possible.)
Sampling method	Simultaneous sampling of all channels	High-speed/low-speed dual sampling
Sampling frequency	1 Hz to 100 kHz (Depending on the number of measuring channels)	1 Hz to 100 kHz (Depending on the number of measuring channels)
Manual measurement	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.
Interval measurement	Automatically measures at preset intervals from the preset starting time.	Automatically measures at preset intervals from the preset starting time.
Trigger conditions	Automatically measures according to preset trigger conditions.	Automatically measures according to preset trigger conditions.
End trigger	Settable	Settable
Delay	Pretrigger and post-trigger delay: Max. 262144 data points.	Pretrigger and post-trigger delay: Max. 262144 data points.
Trigger level	Setting by physical quantity	Setting by physical quantity
Trigger slope	Up, down	Up, down
Measuring conditions	**In the case of saving acquisition data in the CF Card**	
Measuring mode	Manual, manual (Data points preset), interval, analog trigger, external trigger, composite trigger	Manual, manual (Data points preset), interval, analog trigger, external trigger, composite trigger
Data file size	Max. 2GB	Max. 4GB
Analog trigger conditions		
Trigger channel	1 desired measuring channel of stand-alone or master unit	1 desired measuring channel of stand-alone or master unit
Composite trigger conditions		
Trigger source	Selectable from 2 desired channels of stand-alone or master unit and external trigger	Select from analog channels (master EDX arbitrary 4 channels), external trigger, manual trigger
AND/OR	Signals of selected trigger channels and external trigger signal can be AND or OR.	Logical distinction using AND/OR for trigger source is possible.
Measuring conditions	**In the case of saving acquisition data in the hard disk of PC**	
Measuring mode	Manual, manual (Data points preset), interval	Manual, manual (Data points preset), interval
Data file size	Until limits of hard disk capacity	Until limits of hard disk capacity
Analog trigger conditions		
Trigger channel	Arbitrary 1 channel	Arbitrary 1 channel
Setting measuring conditions	By reading measuring conditions saved in the CF card, or online from the PC via USB or LAN	By reading measuring conditions saved in the CF card, or online from the PC via USB or LAN
Monitoring	Possible on graph and numeric windows.	Possible on graph and numeric windows.
Collecting acquisition data	It is possible to set so that upon completion acquired data is automatically transferred to the PC and converted to CSV format. Online from the CF card to the PC via USB or LAN Offline from the CF card inserted to the PC	It is possible to set so that upon completion acquired data is automatically transferred to the PC and converted to CSV format. Online from the CF card to the PC via USB or LAN Offline from the CF card inserted to the PC
Erasing acquired data	Possible online or offline	Possible online or offline
TEDS information	Reading sensor's information and setting to channel condition automatically	Can be read from TEDS-installed transducer to set channel conditions.
Environment/ configuration	Number of connected units and types of mounted conditioner cards use/disuse of slots and conditioner cards can be set. Hardware configuration can be read via USB or LAN. IP address is set online from the PC via LAN, or offline by reading from the CF card. Communication check enables reading the version of EDX-100A.	Number of connected units and types of mounted conditioner cards Use/disuse of slots and conditioner cards can be set. Hardware configuration can be read via USB or LAN. IP address is set online from the PC via LAN, or offline by reading from the CF card. Communication check enables reading the version of EDX-200A.

	EDX-10A Series
Number of controllable units	Max. 4 (Max. 16 channels)
Interface	USB 2.0
Measuring unit	Strain measuring unit EDX-11A, voltage measuring unit EDX-12A, thermocouple measuring unit EDX-13A
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 is possible.)
Sampling method	Simultaneous sampling of all channels
Sampling frequency	1 Hz to 20kHz (1-2-5 series)(Depending on the number of measuring channels)
Measuring mode	Manual, manual (Data points preset), interval, analog trigger
Manual measurement	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.
Interval measurement	Automatically measures at preset intervals from the preset starting time.
Trigger measurement	Automatically measures according to preset trigger conditions.
Analog trigger conditions	•End trigger : Settable •Delay : For both pretrigger and post-trigger, max. 262,144 data points •Delay differs depending on the number of measurement channels •Trigger channel : Arbitrary 1 channel •Trigger level : Set depending on physical quantity •Trigger slope : Up, down
Data file destination	PC hard disk
Data file size	Depends on the capacity of PC hard disk.
Setting measuring conditions	From the PC via USB
Monitoring	Possible on graph and numeric windows.
Automatic data file conversion	Automatic file conversion upon the termination of measurement(CSV, XLS, XLSX, or RPCⅢ format)
Environment/ configuration	Number of units connected, entering instruments name, and reading hardware configuration

EDX-3000B

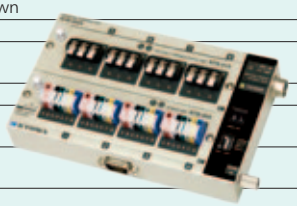
Number of controllable units	Max. 10 (Max. 640 channels)	
Interface	LAN (10BASE-T/100BASE-TX)	
Applicable conditioner cards	CVM-40A/41A, CDV-40B(-F), DPM-42B(-F/-I/-I-F), CCA-40A(-F), CDA-44AS/45AS, CTA-40A, CFV-40A, CAN-40A/41A, CDV-44AS, AD-40AS(-F)	
Channel conditions	ON/OFF, measuring modes, range, HPF, LPF, balance ON/OFF, CAL range, CAL ON/OFF, calibration constant, offset, unit, channel name, measuring range, rated capacity, rated output, numeric display digits (any display items can be selected)	
Sampling method	Simultaneous sampling of all channels	
Acquired data	**Saved in Built-in HDD/SSD**	**Saved in PC hard disk**
Sampling frequency	1 Hz to 200 kHz(1-2-5 series, 2^n series, External clock) (Depending on the number of measuring channels)	1 Hz to 10 kHz(1-2-5 series, 2^n series, External clock)
Data file size	EDX-3000B-H: 300GB, EDX-3000B-S: 30GB	Until limits of hard disk capacity
Measuring mode	Manual, manual (Data points preset), interval, analog trigger, digital trigger, external trigger, composite trigger	Manual, manual (Data points preset), interval, analog trigger
Manual measurement	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.
Interval measurement	Automatically measures at preset intervals from the preset starting time.	Automatically measures at preset intervals from the preset starting time.
Trigger conditions	Automatically measures according to preset trigger conditions.	Automatically measures according to preset trigger conditions.
End trigger	Settable	Settable
Delay	Pretrigger and post-trigger delay: Max. 4194304 data points per channel.	Pretrigger and post-trigger delay: Max. 4194304 data points per channel.
Analog trigger conditions	Trigger channel : Any 1 channel Trigger level : An engineering value Trigger slope : Up, down	Trigger channel : Any 1 channel Trigger level : An engineering value 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 : Any 4 analog/digital channels, an external trigger channel, or a manual trigger channel AND/OR : AND/OR can be used for analog trigger, digital trigger and external trigger.	——
Repetitive acquisition	For long-term acquisition, this saves to KS2 file at specified amount of data (specified periods) *Available when the measuring mode is manual (Data points preset)	
Setting measuring conditions	From the PC via LAN On the mainframe to which the keyboard, mouse and display are mounted	
Monitoring	Possible on graph and numeric windows.	
Collecting acquired data	It is possible to set so that upon completion acquired data is automatically transferred to the PC and converted to CSV format. Online from the HDD or SSD to the PC via LAN. Offline from the USB memory inserted to the PC	
Erasing acquired data	Possible online or offline	
TEDS information	Reading sensor's information and setting to channel condition automatically	
Environment/ configuration	Number of connected units and reading/setting configuration of the mounting conditioner Checking communication : Reads version of EDX-3000B Checking function : The LED on the front panel of EDX-3000B can be lit Others : Inner/outer oscillator, operating beep, balance value, ON/OFF inner speaker, 16-bit/24-bit ADC solution	

UCAM-550A

Number of controllable units	Max. 20 (Max. 1000 channels), an optional software DCS-106 is required. Max. 6 (Max. 300 channels), without DCS-106.
Interface	LAN (10BASE-T/100BASE-TX)
Channel conditions	Measuring channel, measuring mode, range, calibration constant, offset, unit, initial value, channel name, digits after decimal point, rated capacity, rated output (Display items can be selected freely.)
Sampling frequency	1, 2, 10, 20, 50 Hz
Measuring modes	Manual, manual (Data points preset), interval, analog trigger
Measuring functions	Measure: Measured value = Sensor output value – Initial value Original: Measured value = Sensor output value
Calibration constant computation	ON/OFF setting in all channels of one batch Formula : Measured value X calibration constant + Offset
Initial value setting	Measures the initial value of each sensor
Manual measurement	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.
Initial value setting	Automatically measures at preset intervals from the preset starting time
Trigger measurement	Automatically measures according to preset trigger conditions
Trigger conditions	End trigger: Settable Delay:Pretrigger and post-trigger delay: Max. 3000 data points per channel Trigger channel:1 desired measuring channel Trigger level:Set in a proper engineering unit Trigger slope:Up, down
Setting/Reading parameters	Internal parameters of UCAM-550A can be read and set.
Stroke change	Yes
Environment/ configuration	Number of connected units, equipment name and IP address can be set. Configuration of measuring units can be read.

NTB-500A

Number of Controllable units	Max. 8 (Max. 64 channels)
Interface	CAN Using the USB / CAN converter (Kvaser Leaf Light HS v2)
Saving format	Measurement data is saved in the PC hard disk(saved as a KS2 file)
Channel conditions	Measurement ON/OFF, mode, range, ZERO, calibration constant, offset, units, channel title, measuring range, digits after decimal point, rated capacity, rated output (selection of arbitrary display items is possible.)
Sampling frequency	1Hz to 1kHz (Depending on communications cable length and number of measuring channels)
Measuring mode	Manual, manual (Data points preset), interval, analog trigger
Manual measurement	Measures from a press of the REC button to a press of the STOP button or to the preset number of data points.
Interval measurement	Automatically measures at preset intervals from the preset starting time.(Can change the acquisition interval every 5 steps or each step)
Trigger measurement	Automatically measures according to preset trigger conditions.
Analog trigger conditions	•End trigger : Settable •Delay : For both pretrigger and post-trigger, max. 262144 data points (depending on the number of measuring channels) •Trigger channel : Arbitrary 1 channel •Trigger level : Set depending on physical quantity •Trigger slope : Up, down
TEDS information	Reading sensor's information and setting to channel condition automatically
Setting/reading parameter	Reading and setting of NTB-500A internal parameters is possible.
Stroke change	Yes
Environment/ configuration	Connected units, communications cable length, component name, measuring unit settings Reading hardware configuration from the NTB-500A is possible.
Data file automatic conversion	At the end of measurement, automatically converts the file (CSV, XLS, XLSX, or RPCⅢ format).
Arbitrary unit settings	3 units can be set



Optional Software

DCS-101A Simultaneous Acquisition of Video and Numeric Data/Arithmetic Operations

Applicable instruments	EDS-400A, PCD-400A/430A, EDX-10A, EDX-100A, EDX-200A, UCAM-550A, and NTB-500A
Video data acquisition	
Applicable camera	DirectX-compatible camera (webcam the OS can recognize as an image device)
Number of applicable cameras	1
Resolution	Max. 640 x 480 (Depending on the camera)
Frame rate	Max. 30 frames/s(Depending on the camera)
Saving file format	AVI
Number of capture windows	1
Operations	Video monitoring/recording in linkage with measuring operation, and zooming
Measuring conditions for simultaneous acquisition of Video and numeric data	
Data file destination	Data file folder in the PC
Measuring mode	Manual, manual (Data points preset)
Sampling frequency	Max. 10 kHz
Video playback	
File format	AVI
Number of playback files	1
Number of playback windows	1
Operations	playback, stop, pause, frame-by-frame forward, backward, zoom, and change of playback speed
Synchronized cursor	Video can be played back in synchronization with the cursor on a graph.
Arithmetic Operations	
Number of calculation channels	Max. 32
Calculation channel conditions	Calculation ON/OFF, arithmetic expression (within 200 alphanumeric characters), number of display digits, and channel name (within 40 alphanumeric characters)
Printout	Calculation channel conditions can be previewed and printed out.
Reading/saving	Calculation channel conditions can be read and saved as a calculation channel condition file. Matrix conditions can be read and saved as a condition file (CSV format).
Operations	Calculation channel data can be monitored and recorded together with measuring data, and is saved in the measuring data file.
Arithmetic Expression	
Applicable channels	Measuring channels, calculation channels
Operators and constants	+, –, *, ^ [power], PI [π], and ( ) [parentheses]
Calculation functions	SQR Square root; ABS Absolute value; SIN Sine; COS Cosine; TAN Tangent; ASIN Arc sine (Return value: Radian); ACOS Arc cosine (Return value: Radian); ATAN Arc tangent (Return value: Radian); DSIN Arc sine (Return value: Angle); DCOS Arc cosine (Return value: Angle); DTAN Arc tangent (Return value: Angle); LOG Common logarithm; LN Natural logarithm; EXP Exponent; HMX Maximum principal strain; HMN Minimum principal strain; HSM Maximum shearing strain; SMX Maximum principal stress; SMN Minimum principal stress; SSM Maximum shearing stress; DEG Direction of principal strain
Measuring conditions in linkage with arithmetic operations	
Data file destination	Data file folder in the PC
Measuring mode	Manual, manual (Data points preset), interval, analog trigger
Sampling frequency	Max. 10 kHz
FFT analysis	
Analysis type	Linear spectrum, power spectrum, cross spectrum, autocorrelation, and cross correlation
Number of analytical data	256, 512, 1024, 2048, 4096, and 8192
Window functions	OFF, Hamming, Hann, Fejer, Blackman, and Gaussian
Number of result windows	Max. 8
Image display of analytical results	Linear spectrum : Amplitude (linear)/(log) phase
	Power spectrum : Amplitude (linear)/(log)
	Cross spectrum : Amplitude (linear)/(log) phase
	Autocorrelation : Correlation
	Cross correlation : Correlation
Saving	The analyzed results can be saved as FFT analysis file (CSV format)

* Core2Duo 3 GHz or advanced CPU is required for recording video and performing arithmetic operations simultaneously.
* When CAN measuring is controlled by EDX-100A and EDX-200A, CAN channel can not set to the arithmetic expression.

DCS-104A GPS Data Acquisition

Applicable instruments	EDS-400A, PCD-400A/430A, EDX-10A, EDX-100A, EDX-200A, and EDX-3000B
GPS data acquisition/Monitoring	
Acquired data	Latitude, longitude, travel direction, travel speed, receiving status, number of receiving satellites
Monitored data	Desired ones of the above in real time
Data file	GPS data is saved in the same folder as the KS2 file of acquired physical variables with the same file name with extension NMEA.
Measuring conditions for GPS data acquisition	
Data file destination	Data file folder in the PC
Measuring mode	Manual, manual (Data points preset)

Applicable GPS receiver	
Interface	RS-232C or USB (In the case of USB, a USB-to-serial conversion driver should be provided to make the connection similar to RS-232C connection.) If the PC has no COM port for RS-232C connection, use an RS-USB conversion adapter.
Output format	NMEA-01183
Geodetic system	WGS-84
Number of connective units	1
Operation checking system	HOLUX Comet USB/3XHL Sanjose Antares 48USB/UBX5

* No DCS-104A is required for acquisition of GPS data if EDX-200A with ETIM-40A or EGPC-40A card are used.

DCS-103A Real-time Process of EDX-3000B

Applicable instrument	EDX-3000B
Video data acquisition	
Applicable camera	DirectX-compatible camera (webcam the OS can recognize as an image device)
Number of applicable cameras	1
Resolution	Max. 640 x 480 (depends on the applied camera)
Frame rate	Max. 30 frames per second (depends on the applied camera)
Saving file format	AVI
Number of capture windows	1
Operations	Video monitoring/recording in linkage with measuring operation, and zooming
Measuring conditions for simultaneous acquisition of Video and numeric data	
Data file destination	Data file folder in the PC
Measuring mode	Manual, manual (Data points preset)
Sampling frequency	Max. 10 kHz
Video playback	
File format	AVI
Number of playback files	1
Number of playback windows	1
Operations	playback, stop, pause, frame-by-frame forward, backward, zoom, setting playback speed (1/20, 1/10, 1/5, 1/2, 1, 2, 5, 10 or 20 times)
Synchronized cursor	Video can be played back in synchronization with the cursor on a graph.
Analysis	
Arithmetic operations	
Number of calculation channels	Max. 32
Calculation channel conditions	Calculation ON/OFF, expression (within 200 alphanumeric characters), unit, number of display digits, and channel name (within 40 alphanumeric characters).
Operations	Calculation channel data is monitored and recorded together with measuring data, and is saved in the same data file.
Arithmetic expression	
Applicable channels	Measuring channels (analog channels), calculation channels *CAN channel cannot be put in arithmetic expression.
Operators & Constants	+, –, *, ^ [power], PI [π], and ( ) [parentheses]
Calculation functions	SQR Square root SIN Sine TAN Tangent ASIN Arc sine ACOS Arc cosine ATAN Arc tangent LOG Common logarithm LN Natural logarithm EXP Exponent HMX Maximum principal strain HMN Minimum principal strain HSM Maximum shearing strain SMX Maximum principal stress SMN Minimum principal stress SSM Maximum shearing stress DEG Direction of principal strain ABS Absolute value COS Cosine

FFT analysis	
Algorithms	Linear spectrum, power spectrum, cross spectrum, auto-correlation, and cross-correlation
Analyzed data points	256, 512, 1024, 2048, and 8192
Window functions	OFF, Hamming, Hann, Fejel, Blackman, and Gaussian
Result windows	Max. 8
Result graphs	
Linear spectrum	Amplitude (linear) or (log), Phase
Power spectrum	Amplitude (linear) or (log)
Cross spectrum	Amplitude (linear) or (log), Phase
Auto-correlation	Correlation
Cross-correlation	Correlation
Saving	The analyzed results can be saved as FFT analysis file (CSV format)
Measuring conditions for FFT analysis	
Sampling frequency	Max. 10 kHz
Filtering	
Applicable channels	Measuring channels (analog channels)
Digital filter	IIR filter
Characteristics	Butterworth
HPF/LPF	Flat to one-half the sampling frequency
Order	0: None, 2nd to 4th
Differentiation/Integration	
Applicable channels	Measuring channels (analog channels)
Number of times	0: None, 1 to 2
Moving averaging	
Applicable channels	Measuring channels (analog channels)
Simple moving averaging	0: None, 2 to 5000
Measuring conditions for arithmetic processing	
Data file destination	Data file folder in the PC Note: If the number of controlled units is 1, the data file may be saved in the HDD/SSD of the EDX-3000B.
Measuring mode	Manual, manual (Data points preset)
Sampling frequency	Max. 10 kHz

* When data files saved at the hard disk of EDX-3000B, calculation condition conforms EDX-3000B.
* When data files are saved at data save folder of PC, the number of controllable units is up to 4.

DCS-105A CANdb File Read

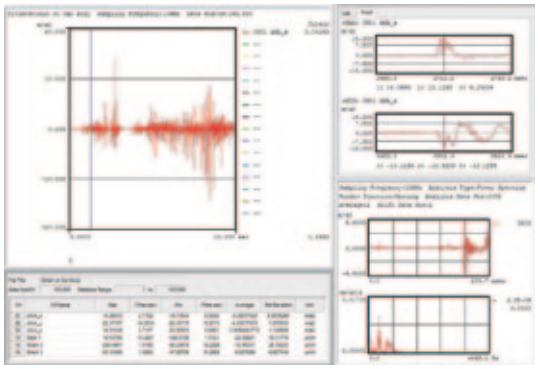
Applicable instrument	EDX-100A, EDX-200A, and EDX-3000B
Applicable conditioner cards	CAN-40A, CAN-41A
Applicable card for optional slot	ECAN-40A, EGPC-40A(EDX-200A only)
Function	Sets CAN conditions of DCS-100A by reading CANdb file. Up to 512 channels of CAN data can be inputed if EDX-200A with ECAN-40A or EGPC-40A, furthermore without reducing the number of analog channels

DCS-106A 1000-channel for UCAM-550A

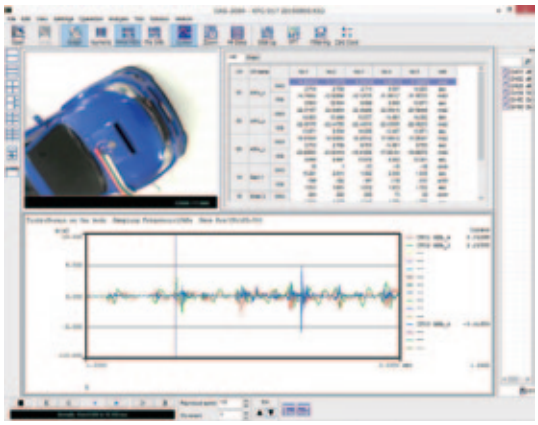
Applicable instrument	UCAM-550A
Function	Enables UCAM-550A (20 units) to perform measurement up to 1000 channels
Operating environment	
OS	Windows Vista, 7, 8/8.1 Japanese/English 32/64 bits support If 64-bit OS, operates in WOW64 environment
CPU	Intel Core i5 2.6 GHz or more
Memory	If OS is 32-bit Vista or 7, 8/8.1, 2 GB or more If OS is 64-bit Vista or 7, 8/8.1, 4 GB or more
Display	1024×768 pixels

DAS-200A Data analysis software

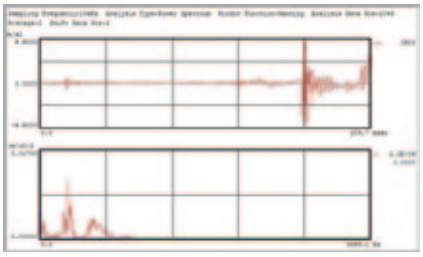
Most suitable for playing back and analyzing Kyowa standard format data files



Graph & numeric



Playing back video & reproducing data



FFT analysis

The data analysis software DAS-200A enables data reproduction and analysis for further effective and efficient use of measured data saved in Kyowa standard data file formats KS1 and KS2.

- One data file can be processed for waveform display, FFT analysis, statistic operation, header information display, tabulation of numeric data and setting display conditions.
- Data file can be extracted and converted to CSV file.
- Statistic processing
- Arithmetic operation
- FFT analysis
- Histogram analysis
- Filtering
- Differentiation/integration
- Saving/reading graph display and analysis condition file
- Playback function of the acquisition video.
- Printer output

Specifications are subject to change without notice for improvement.
For the latest information: http://www.kyowa-ei.com/eng/

Safety precautions Be sure to observe the safety precautions given in the instruction manual in order to ensure correct and safe operation.

ISO 9001
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Cat. No. 908c E4-1

Printed in Japan September 2015