

PCD-400A/430A

Sensor Interface



Carrier wave type Compact and moderate prices

- Easy sensor connection using various types of input adapters
- Connects to PC using USB interface
- Measurement using 1 unit with 4 channels, up to 4 units with 16 channels possible
- 4 unit synchronous sampling using the connection connector set ST-1A (Optional accessory)
- Dynamic Data Acquisition Software DCS-100A (Standard accessory)
- Compact, lightweight
- Analysis of data using the Data Analysis Software DAS-200A (Optional accessory)

*For details of the Data Analysis Software DAS-200A, see chapter 4.

*For details of the TEDS, see chapter 9, page 9-17.

Connect the sensor interface to a PC via USB port. The PC will become a measuring instrument. Up to 4 units are stacked for measurement in 16 channels.

Configuration

■ Mainbody

PCD-400A (Strain)
PCD-430A (Strain, Voltage)

■ Input adapters (See page 3-131.)

Input adapter for strain-gage transducers UI-10A (TEDS compatible)
Input adapter for strain gages UI-11A (TEDS compatible)
Input adapter for strain gage with operating lever UI-15A
One-touch type input adapter for strain gages UI-16B
One-touch type input adapter UI-55A
Voltage input adapter UI-30A (For PCD-430A)

PCD-400A, PCD-430A common specifications

Measuring Targets	Strain gages and strain-gage transducers
Channels	4
Input Form	Balanced differential input
Synchronous Operation	Up to 4 units by 16 channels
Compatible Gage Resistance	Quarter bridge 2-wire system, 3-wire system: 120 Ω Half bridge system, full bridge system: 120 to 1000 Ω
Input Connector	D-sub 37-pin connector
Bridge Excitation	AC 2 V _{rms}
Gage Factor	2.00 fixed
Balance Adjustment	Resistance: Within $\pm 2\%$ ($\pm 10 \text{ k} \times 10^{-6}$ strain) Capacitance: Within 5000 pF
Balance Adjustment Methods	Resistance: Auto balance Capacitance: CST method (Capacitance self-tracking)
Nonlinearity	Within $\pm 0.1\%$ FS
Range	200, 500, 1 k, 2 k, 5 k, 10 k, and $20 \text{ k} \times 10^{-6}$ strain – 7 steps Accuracy: Within $\pm 0.5\%$ FS
Frequency Response	DC to 200 Hz, deviation: Within $\pm 10\%$
Sampling Frequencies	Max. 10 kHz (Synchronous 4-unit sampling for 16 channels at 10 kHz)
LPF	Transfer characteristic: 2nd order Butterworth Cutoff frequencies: 10, 30, 100 Hz, and FLAT (4 steps) Amplitude ratio at cutoff point: -3 ± 1 dB Attenuation: (-12 ± 1) dB/oct.
AD Converter	24 bits
Setting Value Storage	The range and balance adjustment value etc. are written to nonvolatile memory.
TEDS	Reads information from TEDS-installed sensors. (Input adapters: UI-10A and UI-11A only) Channel name writing (If the manufacturer's ID is Kyowa)
Interfaces	USB2.0 (Conforms to High-speed USB standards. USB3.0 supported)
Stability	Temperature Zero point: Within $\pm 0.2 \times 10^{-6}$ strain per $^{\circ}\text{C}$ Sensitivity: Within $\pm 0.05\%/^{\circ}\text{C}$ Time Zero point: Within $\pm 1 \times 10^{-6}$ strain per 8h (PCD-400A) Within $\pm 0.5 \times 10^{-6}$ strain per 8h (PCD-430A) Sensitivity: Within $\pm 0.3\%/8\text{h}$ (PCD-400A) Within $\pm 0.15\%/8\text{h}$ (PCD-430A)
Withstand Voltage	250 VAC for 1 minute between input and case
Operating Temperature	0 to 40°C
Operating Humidity	20 to 85% (Non-condensing)
Vibration Resistance	$\pm 29.42 \text{ m/s}^2$ (3 G) 5 to 200 Hz (12 cycles for each axis, 10 minutes/cycle)
Power Supply	11 to 16 VDC Connector type: RM12BRD-4PH (Hirose)
Current Consumption	PCD-400A: 0.7 A or less (12 VDC) PCD-430A: 0.9 A or less (12 VDC)
Dimensions	210 W $\times$ 35 H $\times$ 157.5 D mm (Excluding protrusions)
Weight	PCD-400A: Approx. 700 g PCD-430A: Approx. 750 g
Compliance	Directive 2014/30/EU (EMC) Directive 2011/65/EU, (EU)2015/863 (10 restricted substances) (RoHS)

PCD-430A about voltage measurement mode

Measuring Targets	Voltage
Input Form	Unbalanced
Range	1, 2, 5, 10, 20, and 50 V - 6steps Accuracy: Within $\pm 0.2\%$ FS
Frequency Response	DC to 1 kHz, deviation: -3 to 1 dB
HPF	2 steps of 0.2 Hz, OFF
LPF	Transfer characteristic: 2nd order Butterworth Cutoff frequencies: 10, 30, 100, 300 Hz and FLAT (5 steps)
	Amplitude ratio at cutoff point: -3 ± 1 dB Attenuation: (-12 ± 1) dB/oct.
Stability	Temperature Zero point: $\pm 0.008\%$ FS/ $^{\circ}$ C Sensitivity: $\pm 0.02\%$ / $^{\circ}$ C Time Zero point: $\pm 0.03\%$ FS/8h Sensitivity: $\pm 0.1\%$ /8h

Standard Accessories

USB cable N-38
Ground wire P-72
Dynamic data acquisition software DCS-100A (DVD)

Optional Accessories

DC power cable P-76
USB cable N-39
Connection cable N-97
Stacking connector set ST-1A
Stack fixture CN-20
AC adapter UIA345-12 (For 1 to 4 units of PCD) (For U.S.A.: UNI345-1238)
Conversion adapter FV-1A (For PCD-430A only)
Input adapter for strain-gage transducers UI-10A (TEDS compatible)
Input adapter for strain gages UI-11A (TEDS compatible)
Input adapter for strain gage with operating lever UI-15A
One-touch type input adapter for strain gages UI-16B
One-touch type input adapter UI-55A
Voltage input adapter UI-30A (For PCD-430A only)
Data analysis software DAS-200A

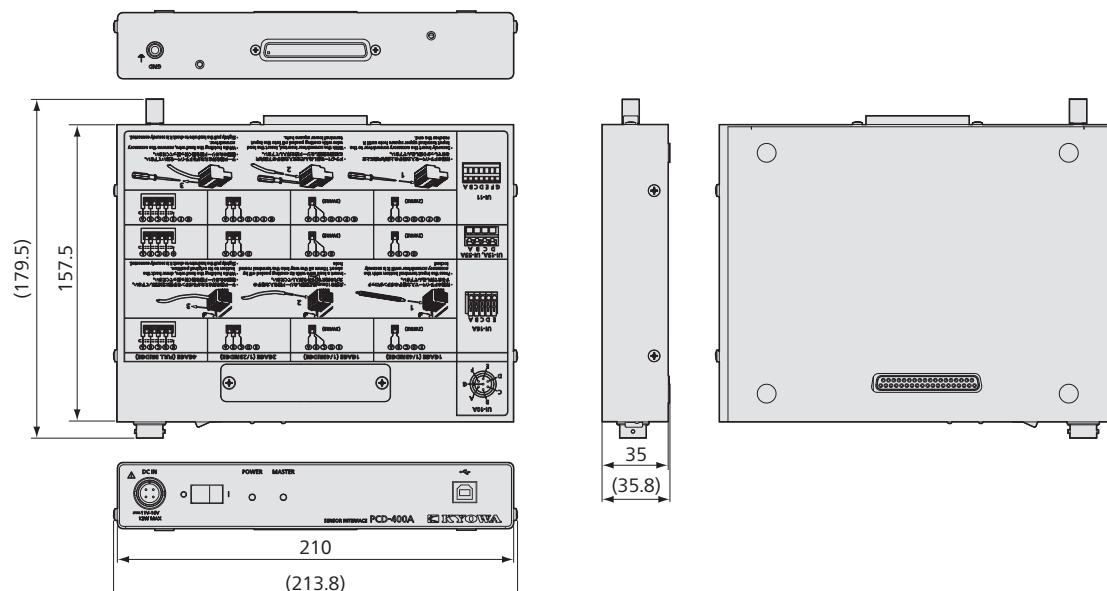
DCS-100A software, specification for control of PCD-400A/430A

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

Units	Up to 4 units (up to 16 channels)
Interface	USB
Saving Format	Saves the measured data in the PC folder. (KYOWA standard file format KS2)
Channel Conditions	Measuring ON/OFF, Measuring mode (strain), Range, Low-pass filter, Balance adjustment ON/OFF, Calibr. const., Offset, Gage factor, Unit, Channel name, Measuring range, Number of decimals, Rated capacity, Rated output, Chk. Val. (Up), Chk. Val. (Down), Offset ZERO ON/OFF (Display items can freely be selected.)
Sampling Frequency	1 Hz to 10k Hz (1/2/5 system)
Measure Mode	Manual, Manual (Set Record Data), Interval, Analog Trigger
Manual Measurement	Records data from REC to STOP or from REC to the number of data, specified on the Manual (Set Record Data).
Interval Measurement	Records data automatically based on the pre-set starting time and recording interval.
Analog Trigger Measurement	Starts/stops recording data based on the pre-set trigger conditions. (Trigger level value: Fixed)
Trigger Condition	
End Trigger	Settable
Delay	Up to 640000 data/CH for both start and end. The delay time varies with the number of channels.
Trigger Channel	Any 1 channel
Trigger Level	Physical quantity
Trigger Slope	Positive or Negative
Static Measurement	Every time the DCS-100A starts recording data, the DCS-100A additionally saves the moving-averaged measured data in a single CSV format file. *Measure Mode: Manual and Interval only.
Repeated Recording	When recording data for a long time, the DCS-100A saves data, every pre-set number of data or every pre-set interval, in the KS2 format file. *Measure Mode: Manual (Set Record Data) only.
Setting Environment	
Setting Hardware Configuration	Sets the unit names and units. Sets the unit name to the PCD-400A series. Loads the number of units from the PCD-400A series.
Automatic Transfer	Data file can automatically be transferred (CSV format, XLS format, XLSX format, or RPCIII format) upon completion of recording.
Optional Units	3 user-defined units can be registered.

■ Dimensions

PCD-400A/430A (PCD-430A is the same in dimensions.)



Simplified Configuration of the PCD-400A and PCD-430A

