

PCD-400B Series

Sensor Interface



2
-48

Measuring Instrument



Data Logger

Amplifier

Indicator
&
Display

Handheld



User-friendly and efficient PC connection type

- Channels: 4/unit (Max. 16)
- Easy sensor connection via various input adapters
- Noise-resistant carrier type
- No bridge box required
- Lineup includes PCAS-100A software (sold separately) specializing in reliability evaluations for PCBs

This measuring instrument measures simply by being connected to a PC via USB interface. Easily expanded to up to 16 channels by stacking. PCAS-1000B set (p. 3-39) including PCD-400B, PCAS-100A, and standard accessories is also available.

Model

Model	Measuring Target
PCD-400B	Strain
PCD-430B	Strain, Voltage

To Ensure Proper Usage

Please note that it cannot be used with stack connection to PCD-400A/430A.

PCD-400B, PCD-430B Common Specifications

Measuring Target	Strain gages and strain-gage transducers
Channel	4
Input Form	Balanced differential input
Synchronous Measurement	
	Up to 4 units by 16 channels
Compatible Gage Resistance	Quarter bridge system 2-wire, 3-wire: 120 Ω
	Half bridge system, full bridge system: 120 to 1000 Ω
Input Connector	D-sub 37-pin connector
Bridge Excitation	2 VAC _{rms}
Gage Factor	2.00 fixed
Balance Adjustment	Resistance: Within ±2% (±10 k × 10 ⁻⁶ strain)
	Capacitance: Within 5000 pF
Balance Adjustment Method	Resistance: Auto balance
	Capacitance: CST method (Capacitance self-tracking)
Nonlinearity	Within ±0.1% FS
Range	200, 500, 1k, 2k, 5k, 10k, and
	20k × 10 ⁻⁶ strain – 7 steps
	Accuracy: Within ±0.5% FS
Frequency Response	DC to 200 Hz
	Deviation: Within ±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)
Interface	USB2.0 (Conforms to High-speed USB standards. USB3.0 supported)
Stability	Temperature
	Zero point: Within ±0.2 × 10 ⁻⁶ strain per °C
	Sensitivity: Within ±0.05%/°C
	Time
	Zero point: Within ±0.5 × 10 ⁻⁶ strain per 8 h
	Sensitivity: Within ±0.15%/8 h
Withstand Voltage	250 VAC for 1 minute between input and case
	250 VAC for 1 minute between input channels
Operating Temperature	0 to 40°C
Operating Humidity	20 to 85% (Non-condensing)
Vibration Resistance	±29.42 m/s ² (3 G)
	5 to 200 Hz (12 cycles for each axis, 10 minutes/cycle)
	*Unstacked
Power Supply	11 to 16 VDC
	Connector type: RM12BRD-4PH (Hirose)
Current Consumption	PCD-400B: 0.7 A or less (12 VDC)
	0.6 A or less (15 VDC)
	PCD-430B: 0.9 A or less (12 VDC)
	0.7 A or less (15 VDC)
Dimensions	210 W × 35 H × 157.5 D mm (Excluding protrusions)
Weight	PCD-400B: Approx. 650 g
	PCD-430B: Approx. 670 g
Compliance	Directive 2011/65/EU, (EU)2015/863
	(10 restricted substances)(RoHS)
	Directive 2014/30/EU (EMC)
Degree of Protection	IP30 (JIS C 0920/IEC 60529)
	*Except when the one-touch type input adapter UI-55A is connected and when the adapter is not connected.

*The specifications apply to the state in which the temperature has stabilized after preheating time of 1 hour.



Data Logger

Amplifier

Indicator
&
Display

Handheld

PCD-430B Specifications about Voltage Measurement Mode

Measuring Target	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: Within -3 to 1 dB
HPF	0.2 Hz or OFF (2 steps)
LPF	2nd order Butterworth
	Cutoff frequencies:
	10, 30, 100, 300 Hz and FLAT (5 steps)
	Amplitude ratio at cutoff point: -3 ± 1 dB
	Attenuation characteristics: -12 ± 1 dB/oct.
Stability	Temperature
	Zero point: Within $\pm 0.008\%$ FS/ $^{\circ}\text{C}$
	Sensitivity: Within $\pm 0.02\%/^{\circ}\text{C}$
	Time
	Zero point: Within $\pm 0.03\%$ FS/8 h
	Sensitivity: Within $\pm 0.1\%/8$ h
Withstand Voltage	None

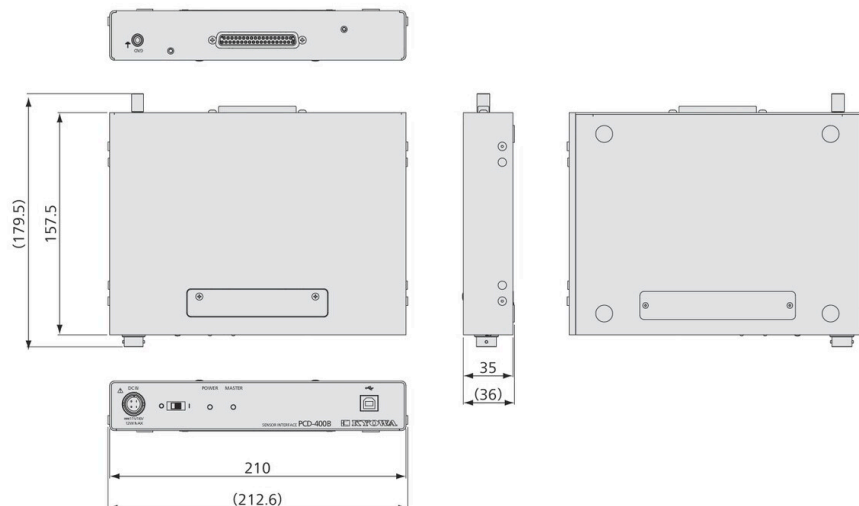
- **Standard Accessories** USB cable N-38
Ground wire P-72
Dynamic data acquisition software
DCS-100A (DVD)
- **Optional Accessories** DC power cable P-76
USB cable N-39
Connection cable N-97
Stacking kit ST-1B
AC adapter UNI360-1540-AC
(For use outside Japan, purchase an optional AC power cable.)
Conversion adapter FV-1A (For PCD-430B 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-430B only)
Data analysis software DAS-200A

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

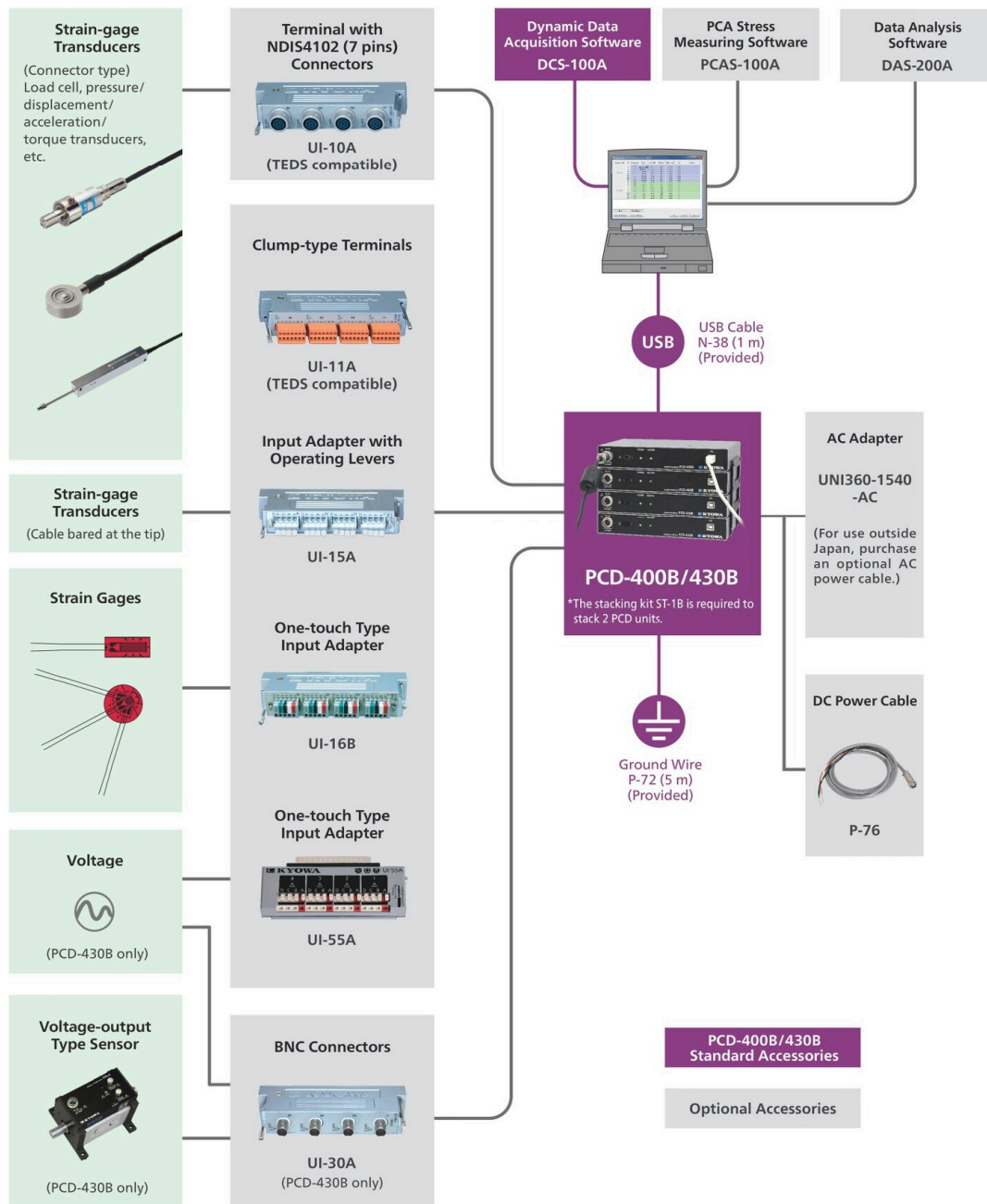
*For details of DCS-100A, see chapter 4.

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-400B series.
	Loads the number of units from the PCD-400B 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-400B/430B (The figure is PCD-400B.)



Data Logger

Amplifier

Indicator & Display

Handheld