

GETTING STARTED GUIDE

PCD-400B/430B SENSOR INTERFACE

Thank you for purchasing KYOWA's product PCD-400B/430B Sensor Interface.
Read this GETTING STARTED GUIDE carefully in order to make full use of the high-performance capabilities of the product.
Do not use the product in methods other than described in this Getting Started and Manual.
The standard accessory DVD includes instruction manuals.

● STANDARD ACCESSORIES

The following accessories are packed with the PCD-400B/430B.
When unpacking, check the contents to ensure that all accessories are enclosed.

Dynamic Data Acquisition Software (DCS-100A)	1 (DVD)
USB cable (N-38;1 m)	1
Ground wire (P-72)	1
Test Certificate and Warranty	1 each

● OPTIONAL ACCESSORIES

AC adapter	UNI360-1540-AC
USB cable	N-39(2 m)
DC power cable	P-76(2 m)
Connection cable	N-97(10 cm)
Stacking kit	ST-1B
Input adapter for strain gage transducer	UI-10A(TEDS supported)
Input adapter for strain gage	UI-11A(TEDS supported)
Input adapter for strain gage with operating lever	UI-15A
One-touch type input adapter for strain gage	UI-16B
One-touch type input adapter	UI-55A
Input adapter for voltage	UI-30A
Data Analysis Software	DAS-200A

● SAFETY PRECAUTIONS (Do not forget to read the safety precautions prior to use.)

The PCD-400B/430B is designed to be used according to "8. Specifications." Do not use the PCD-400B/430B in an environment exceeding the specifications. Or, it may cause trouble.

• PRIOR TO USE

For safe use of the PCD-400B/430B, do not forget to read the "Safety Precautions" prior to use.
Kyowa Electronic Instruments Co., Ltd. assumes no liability for any damage resulting from the user's failure to comply with the safety precautions.
For safety operation of the PCD-400B/430B, the following symbol mark is attached to the PCD-400B/430B.

	Indicates "GROUND TERMINAL." Be sure to connect the GND terminal to the ground.
	Indicates the operator must refer to an explanation in the INSTRUCTION MANUAL in order to avoid the risk of injury or death of personnel or damage to the instrument.

• SAFETY SYMBOLS

For safety operation of the product, the following symbol marks are used in the Instruction Manual.

 WARNING	Improper operation of the system may result in death or severe injury of the operator.
 CAUTION	Improper operation of the system may result in injury of the operator and physical damage of the system.

WARINIG

- **Warning**
Be sure to observe the warning and precautions described in the PCD-400B/430B Instruction Manual (FOR HARDWARE).
- **Power supply**
To prevent a fire hazard, ensure that the power supply voltage specified for the PCD-400B/430B (11 to 16 VDC) matches the local line voltage before connecting the system to the DC power. When using the optional AC adapter, check the voltage range of the AC power outlet before connecting.
- **Avoid using in environment with inflammable gas, etc.**
To prevent the risk of fire hazard or explosion, do not use the PCD-400B/430B in environment with inflammable gas, vapor, or dust.
- **If any trouble occurs**
To prevent a fire hazard, if smoke is emitted from the PCD-400B/430B, immediately disconnect the AC adapter from the receptacle and stop using the PCD-400B/430B.
- **Ground**
Be sure to connect the GND terminal to the ground. Or, it may cause an electric shock hazard, lower the performance, and cause trouble.

CAUSION

- **Caution**
Be sure to observe the safety precautions described in the PCD-400B/430B Instruction Manual (FOR HARDWARE).
- **Do not use the PCD-400B/430B outdoors.**
Or, it may cause electric shock, fire hazard, lower the performance and cause troubles.
- **Do not turn ON the power switch immediately after turning it OFF.**
After turning OFF the power switch, wait (5 seconds) until the power supply is shut OFF before turning ON the power switch again. If the power is repeatedly turned ON and OFF within 5 seconds, rush current generated by switching the power ON may damage the product.
- **Avoid measuring object applied with high voltage in strain measuring mode.**
Although the PCD-400B/430B is insulated, if it is used for measuring objects with excessive high voltage, it may deteriorate its performance and cause trouble.
- **Always input voltage within allowable voltage range of ±50 V in voltage measuring mode.**
When measuring object in voltage measuring mode, do not input voltage lower than -50 V or higher than +50 V. The PCD-400B/430B is not insulated in voltage measuring mode. If voltage exceeding the allowable voltage range (+50 V) is input, performance of product may be deteriorated and cause trouble.
- **Use the PCD-400B/430B within temperature ranging from 0 to 40 °C.**
Use at temperatures exceeding the specified range may lower the performance and cause trouble. If use under direct sunlight or in a cold place is inevitable, prepare a sunscreen or take proper measures to keep it warm.
- **Use in an environment with a humidity of 20 to 85 % (no condensation).**
Use in a humid place exceeding the specified range or where it is exposed to splashing water may lower the performance and cause trouble.
- **Do not use the product immediately after the change in the environment.**
Leave the PCD-400B/430B as it is until it becomes adaptable to the environment. Abrupt change in ambient temperature due to transportation, etc. may cause dew condensation, which may result in lower performance and troubles.
- **Do not use the PCD-400B/430B under dusty environment.**
This can lead to performance problems and decreased operating efficiency. Be careful that dust may not enter the PCD-400B/430B not only during operation but also under stored conditions.
- **Use the PCD-400B/430B under environment without excessive vibration or high impact.**
Vibration resistance: 29.42 m/s² (3 G), 5 to 200 Hz (unstacked)
Use the PCD-400B/430B in an area where vibration and impact can be kept within the scope of specifications.
Continuous vibration or severe impact may cause deteriorated performance and system failure.
- **Do not use the PCD-400B/430B in strong electromagnetic field.**
Use the PCD-400B/430B in a magnetic field environment where the PC may be used. Performance may be lowered and erroneous operation and troubles may result if it is used near a telemetry system, microwave oven, electronic furnace or any other equipment generating a strong magnetic field.
- **Do not use the PCD-400B/430B under poor conditions.**
When using a DC power supply, use within the range of 11 to 16 V DC. When using the optional AC adapter (UNI360-1540-AC), use within the range of 100 to 240 V AC (50/60 Hz). Use a power supply that is free from momentary power failures and noise.
- **The specifications of the optional AC adapter (UNI360-1540-AC) is as follows.**
Input voltage: AC100 ~ 240 V (50/60 Hz)
Output voltage: 15 V (4.0 A)
Operating temperature range: 0 ~ 40 °C
*This AC adapter has a limited life. Please purchase a new product after about 5 years.
- **Do not pull cords and cables.**
Lay cords and cables with a certain allowance so that any unreasonable force is applied to the connections. Pulling or applying unreasonable force may cause trouble or interrupt the measurement.
- **Avoid installing sensors and PCD-400B/430B near a welding machine.**
Failure to do so will pose the risk of erroneous data, malfunction and failure.
- **Do not disassemble or remodel the PCD-400B/430B.** Or, it may cause electric shock hazards or damage the PCD-400B/430B. This warranty does not cover any damaged or defective parts that results from disassembling or remodeling.
- **Handle the DVD with care.**
Do not expose the DVD to direct sun light, high temperature, or high humidity.
Do not apply pressure to the DVD by laying object or bending.
Dust, scratches, and fingerprints on either side of the DVD can cause write errors.
- **Preheat the PCD-400B/430B before use.**
To ensure accurate measurements, allow approximately one hour of warm-up time after turning on the power before starting measurements.

● OUTLINE OF THE PRODUCT

The PCD-400B/430B is a measuring instrument that allows easy measurement by simply connecting it to a personal computer via the USB interface.
The PCD-400B is a measuring instrument that can measure strain.
The PCD-430B is a measuring instrument that can measure strain and voltage.
The PCD-400B/430B supports compact measurement of up to 4 units (16 channels) by stack connection.

◆ FEATURES

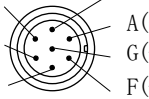
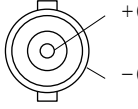
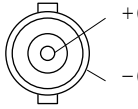
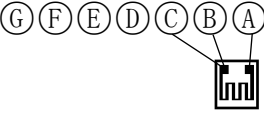
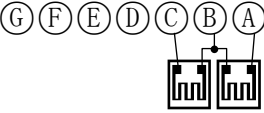
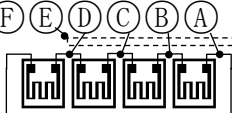
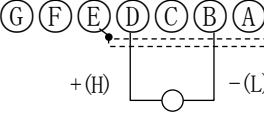
- Connection with the PC is easy with the use of the USB interface.
- When using the PCD-430B, either strain input or voltage input can be selected for every channel.
- Since the PCD-400B/430B has a bridge box built-in, it is capable of conducting a quarter-bridge-system experiment or half-bridge-system experiment for strain gages solely by itself.
- The PCD-400B/430B is provided with input adapters applicable for the sensors.
- Since the PCD-400B/430B is capable of measurement of 4 channels per a unit and maximum 16 channels with 4 units, the PCD-400B/430B is applicable for measurement in a wide range from a simple experiment to advanced measurement. Sampling frequency: Maximum 10 kHz.
- When stacking multiple units, the stacking kit (ST-1B, optional accessory) enables easy stacking without using synchronous cables.
- Single USB cable and single AC adapter (UNI360-1540-AC, optional accessory) enable measurements of maximum 4 units (16 channels).
- Includes low-pass filter as standard equipment.
- When using TEDS compatible sensors, by loading sensor information with TEDS function, the PCD-400B/430B is capable of laborsaving when setting amplifier.
- You can measure and record data easily by using the DCS-100A*.
- The DAS-200A is optional software that reproduces and analysis data after recording.

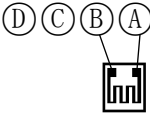
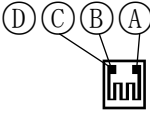
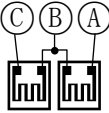
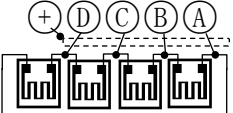
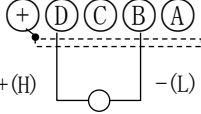
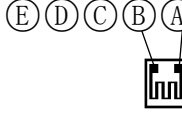
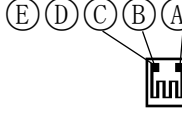
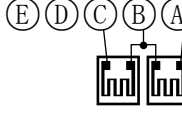
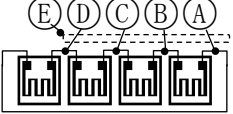
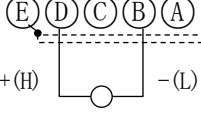
* Note

- To connect devices on the control software DCS-100A, click the icon labeled PCD-400 Series.
- The model displayed in CH condition setting is the model of PCD-400A and PCD-400B is displayed as PCD-400. The model of PCD-430A and PCD-430B is displayed as PCD-430.

● INPUT ADAPTER AND CONNECTION

For details, refer to the PCD-400B/430B Instruction Manual (FOR HARDWARE).

Adapter	Applicable gage, Voltage Input	Connection, Terminal name	Remarks
UI-10A	Specified for the full gage system For strain gage transducer Gage resistance: 120 to 1000 Ω	C (-BV) D (+SIG) E (Shield) 	TEDS supported Inputting Voltage B: - (L) D: + (H)
	Voltage input FV-1A is used		—
UI-30A	Dedicated for voltage input		—
UI-11A	Quarter bridge system (2-wire system connection) Gage resistance: 120 Ω		A: +BV B: -SIG C: -BV D: +SIG E: Shield F: +TEDS G: -TEDS
	Quarter bridge system (3-wire system connection) Gage resistance: 120 Ω		TEDS supported
	Half bridge system Gage resistance: 120 to 1000 Ω		
	Full bridge system Gage resistance: 120 to 1000 Ω		
	Voltage input		—

Adapter	Applicable gage, Voltage Input	Connection, Terminal name	Remarks
UI-15A UI-55A	Quarter bridge system (2-wire system connection) Gage resistance: 120 Ω		A: + BV B: - SIG C: - BV D: + SIG (+): Shield
	Quarter bridge system (3-wire system connection) Gage resistance: 120 Ω		TEDS not supported
	Half bridge system Gage resistance: 120 to 1000 Ω		
	Full bridge system Gage resistance: 120 to 1000 Ω		
	Voltage input		—
UI-16A UI-16B	Quarter bridge system (2-wire system connection) Gage resistance: 120 Ω		A: +BV B: -SIG C: -BV D: +SIG E: Shield
	Quarter bridge system (3-wire system connection) Gage resistance: 120 Ω		TEDS not supported
	Half bridge system Gage resistance: 120 to 1000 Ω		
	Full bridge system Gage resistance: 120 to 1000 Ω		
	Voltage input		—

● PRECAUTIONS ON CE MARKING

Product has been confirmed that it complies with EN61326-1:2013 (EMC test requirements for equipment intended to be used in a basic electromagnetic environment, Class A Group 1) under the following conditions. When using this product in EU countries, be sure to meet the following conditions.
Note that the measures required to satisfy the standards may vary depending on the system configuration, wiring, etc.
Therefore, it is necessary for the customer to confirm that the entire device complies with the CE marking.

- The DC power cable should be less than 3 m long.
- Be sure to use a shielded cable for connecting to this device. Also, the wiring length should be 30 m or less.
- If you are using a USB cable other than the standard accessory N-38, use one with ferrite cores near the connectors at both ends of the cable, or attach clamp-type ferrite cores separately.
- Use the GND terminal on the back of the device by grounding it using the supplied ground wire.
- use the optional AC adapter.