

Getting Started Guide.

PCAS-1000A/B

Printed Circuit Assembly stress measuring Set

Thank you for purchasing KYOWA's product PCAS-1000A/B.

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 Guide and Instruction Manual. The standard accessory CD-R includes instruction manuals.

● STANDARD ACCESSORIES

The following accessories are include with PCAS-1000A/B.

When unpacking, check the contents to ensure that all accessories are enclosed.

Special case for PCAS-1000A/B.	1
Printed Circuit Assembly stress measuring Software (PCAS-100A)	1 (DVD-R)
The password of PCAS-100A	1
Product Warranty.....	1
Sensor interface(PCD-400A/B)	1
One-touch type input adapter (UI-55A)	1
AC adapter (UNI360-1540-AC)	1
USB cable (N-38: 1 m).....	1
Ground wire (P-72).....	1
Dynamic Data Acquisition Software (DCS-100A).....	1 (DVD-R)
The password of DCS-100A	1

● OUTLINE OF THE PRODUCT

◆ OUTLINE OF PCAS-1000A/B

PCAS-1000A/B is the set of Software(PCAS-100A), Sensor interface(PCD-400A/B), input adapter (UI-55A), and Special case. If a strain gage and Adhesives suitable for Printed Circuit board (PCB) is prepared, you can measure the stress concerning PCB.

◆ OUTLINE OF PCAS-100A

PCAS-100A is software for Printed Circuit Assembly stress measurement with the PCD-400A/B. You can masure Printed Circuit Assembly strain easily by using this software.

◆ PCD-400A/B FEATURES

- Connection with the PC is easy with the use of the USB interface.
- Since the PCD-400A/B 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.
- PCD-400A/B is capable of measurement of 4 channels. And maximum 16 channels(4 unit).
- Includes low-pass filter as standard equipment. Sampling frequency: Maximum 10 kHz

●Install PCAS-100A

Please log-on to your PC as an administrator. Before you install the PCAS-100A, please do not connect your computer to the PCD-400A/B with USB cable.

- (1) Insert the installation CD-R in your optical drive. Double-click "SetupPcas100A_****.exe" .
**** is the software version.
- (2) The following window appears.
When entering a password, please be sure to enter the password of the PCAS-100A.
The installer will install the USB driver and the PCAS-100A.
- (3) After installation, when you connect a PC to the PCD-400A/B with USB cable, USB driver is installed automatically and can be used the PCD-400A/B.
- (4) For details of the PCAS-100A, please see PCAS-100A INSTRUCTION MANUAL.

● SAFETY PRECAUTIONS (Please be sure to read the SAFETY PRECAUTIONS)

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

▪ PRIOR TO USE

For safe use of the PCD-400A/B, 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-400A/B, the following symbol mark is attached to the PCD-400A/B.

	Indicates "PROTECTIVE GROUND TERMINAL." Be sure to connect the GND terminal to the ground.
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▪ SAFETY SYMBOLS

For safety operation of the PCD-400A/B, 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.

WARNING

● WARNING

Be sure to observe the warning and precautions described in the PCD-400A Instruction Manual (FOR HARDWARE) or PCD-400B/430B Instruction Manual (FOR HARDWARE).

● Power supply

To prevent a fire hazard, ensure that the power supply voltage specified for the PCD-400A/B(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.

● AC adapter

To prevent an electric shock or fire hazard, always use the optional AC adapter (UNI360-1540-AC).

● Avoid using in environment with inflammable gas, etc.

To prevent the risk of fire hazard or explosion, do not use the PCD-400A/B in environment with inflammable gas, vapor, or dust.

● If any trouble occurs

To prevent a fire hazard, if smoke is emitted from the PCD-400A/B, immediately disconnect the AC adapter from the receptacle and stop using the PCD-400A/B.

● Avoid measuring object applied with high voltage.

Although the PCD-400A/B is insulated, if it is used for measuring objects with excessive high voltage, it may deteriorate its performance and cause trouble.

● Protective 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.

- Maximum input voltage range
The PCD-400A/B is a measuring instruments for a strain gage transducer and strain gage. Do not input high voltage. Or, it may lower the performance and cause troubles.

⚠ CAUTION

- CAUTION
Be sure to observe the safety precautions described in the PCD-400A Instruction Manual (FOR HARDWARE) or PCD-400B/430B Instruction Manual (FOR HARDWARE).
- Do not use the PCD-400A/B 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 PCD-400A/B.
- Use the PCD-400A/B 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 the PCD-400A/B in the specified operating humidity range 20 to 85 %.
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 PCD-400A/B immediately after the change in the environment.
Leave the PCD-400A/B 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-400A/B under dusty environment.
This can lead to performance problems and decreased operating efficiency. Be careful that dust may not enter the PCD-400A/B not only during operation but also under stored conditions.
- Use the PCD-400A/B under environment without excessive vibration or high impact.
Vibration resistance: 29.42 m/s² (3G), 5 to 200 Hz (unstacked)
Use the PCD-400A/B 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-400A/B in strong electromagnetic field.
Use the PCD-400A/B 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-400A/B 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.
- Use the PCD-400A/B under environment without excessive vibration or high impact.
Vibration resistance: 29.42 m/s² (3G), 5 to 200 Hz (when in operation)
Use the PCD-400A/B 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-400A/B in strong electromagnetic field.
Use the PCD-400A/B 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 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.

- The specifications of the AC adapter is as follows.

Model

: UNI360-1540-AC

Input Voltage

: AC100 ~ 240 V(50/60 Hz)

Output Voltage

: 15 V(4.0 A)

Operating temperature range

: 0 ~ 40 °C
- Avoid installing sensors and PCD-400A/B 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-400A/B. Or, it may cause electric shock hazards or damage the PCD-400A/B.
This warranty does not cover any damaged or defective parts that results from disassembling or remodeling.
- Handle the CD-R with care.
Do not expose the CD-R to direct sun light, high temperature, or high humidity.
Do not apply pressure to the CD-R by laying object or bending.
Dust, scratches, and fingerprints on either side of the DVD can cause write errors.
- Preheat the PCD-400A/B before use.
After the power ON, always preheat the PCD-400A/B for approximately 1 hour.

● CE MARKING

- Use a shielded cable for connecting PCD-400A/B units.
Wiring should be 30 m or less.
 - When using an USB cable other than the standard accessory (N-38), use an USB cable with the ferrite cores or wrap the clamp-on ferrite core around an USB cable.
 - Be sure to connect the GND terminal to the ground by using the optional ground wire (P-72).
 - Be sure to use the specified AC adapter (UNI360-1540-AC).
 - **DC power cable should be less than 3 m.**

● LIMITED LIFE PARTS AND PREVENTIVE MAINTENANC

The PCD-400A/B consists of various electronic components and those components, if not all, have a useful life. Using them exceeding the years specified according to each part type (useful life) may affect the characteristics of the PCD-400A/B, resulting in a malfunction or a failure. You need to replace parts with a regular preventive maintenance schedule.

- Limited life parts used with the PCD-400A/B are as follows.

 - Relay
A relay’s insulation will inevitably degrade or a relay itself willbe damaged.
 - Aluminum electrolytic capacitor
The signal-noise ratio will lower due to capacity low or smoke will be emitted due to liquid leak, resulting in a malfunction of the PCD-400A/B.
 - EEPROM
EEPROM will results in malfunctions or degraded performance.
 - AC adapter (optional accessory)
Heat and smoke will be emitted, resulting in an unstable voltage.

To operate the PCD-400A/B normally, finding a sign of the PCD-400A/B failure early by daily/periodic inspections and taking the corrective action are required. For inspection, contact KYOWA or our representatives.
*Major limited life parts; Relay, aluminum electrolytic capacitor, EEPROM, AC adapter
* All components do age and will fail.

● PCD-400A/B REPLACEMENT BEFORE THE END OF SERVICE LIFE

Preventive maintenance and replacement parts are a cost-effective way of keeping the performance and extending the service life of the PCD-400A/B. Regardless of the replacement parts, the PCD-400A/B itself gradually deteriorates with age. Before the expected service life is reached, consider replacing the PCD-400A/B with a new one or the latest series as preventive maintenance.