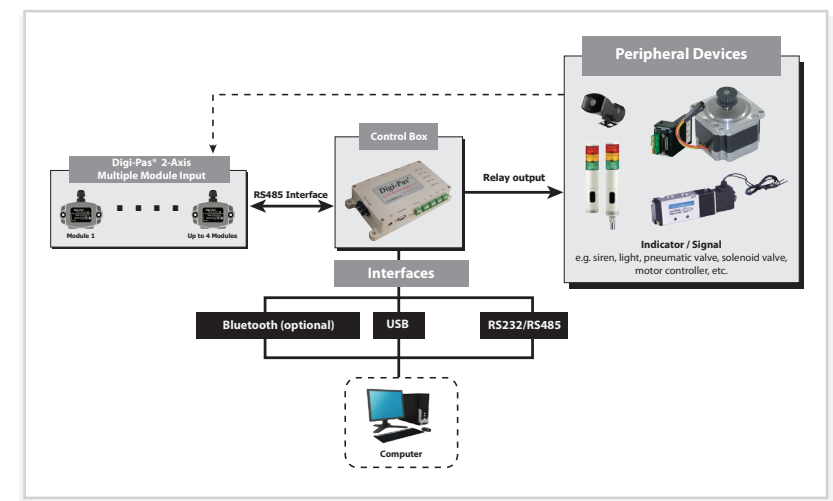
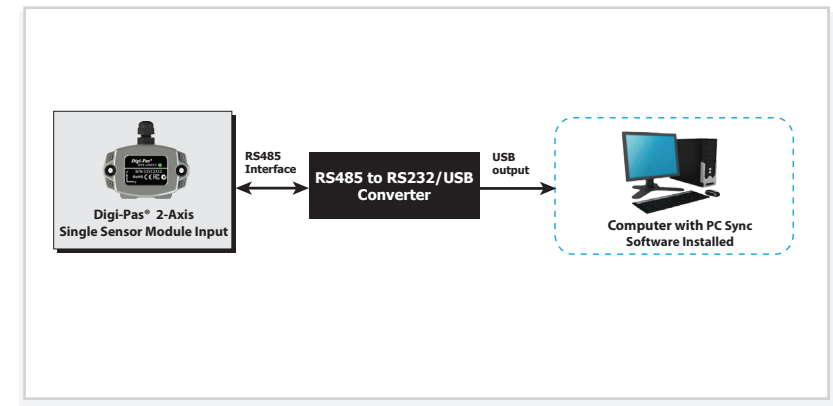


# Application Diagram

Application diagram 1- Multiple sensor using control box



Application diagram 2- Single Sensor connection



## PC System Requirements

User's PC is recommended the following items to be installed for using the PC Sync Software:

- Microsoft framework 3.5 for 32bit Windows OS or Microsoft framework 4.0 for 64bit Windows OS
- Windows 7 / Window 8 / Window 10

The following item are required:  
At least 1 GB RAM, at least 100MB free disk space on hard drive, Microsoft Excel 2007 or above,  
USB 2.0 Port or RS232 Port, Bluetooth adapter (for Bluetooth connection)

## Applications :



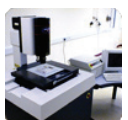
Offshore Platform



CNC



Robotic Arm



CMM



Industrial Printer



Satellite Dish



MRI Scanner

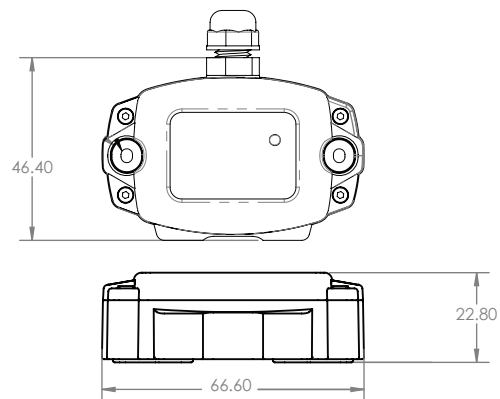
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**DIGIPAS TECHNOLOGIES INC.**  
**www.digipas.com**  
200 Spectrum Center Drive, Suite 300,  
Irvine, CA 92618 U.S.A

## Software Features Comparison

| Features                | Pc Sync Free Edition | Pc Sync Pro Edition |
|-------------------------|----------------------|---------------------|
| Relay Contact Output    |                      | ✓                   |
| SMART 2D BUBBLE®        |                      | ✓                   |
| Single-Axis Angle Meter | ✓                    | ✓                   |
| Single-Axis Angle Graph | ✓                    | ✓                   |
| Dual-Axis Angle Graph   |                      | ✓                   |
| Vibrometer Graph        |                      | ✓                   |
| Self Calibration        | ✓                    | ✓                   |

## Sensor Module Dimension (mm)



Scan QR code or visit  
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JCL-2-04000-99-001

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# 2-Axis Compact Sensor Module

Model : DWL-4000XY Series

2022  
MODEL



U.S. Pat. No: 9,459,121 B2

COMPACT, COST EFFECTIVE  
& PROGRAMMABLE

RS232 RS485 Bluetooth USB



For 'Plug & Play' option, use Digi-Pas® Compact Sensor Module with Digi-Pas® Control Box & PC-Sync Pro Software.

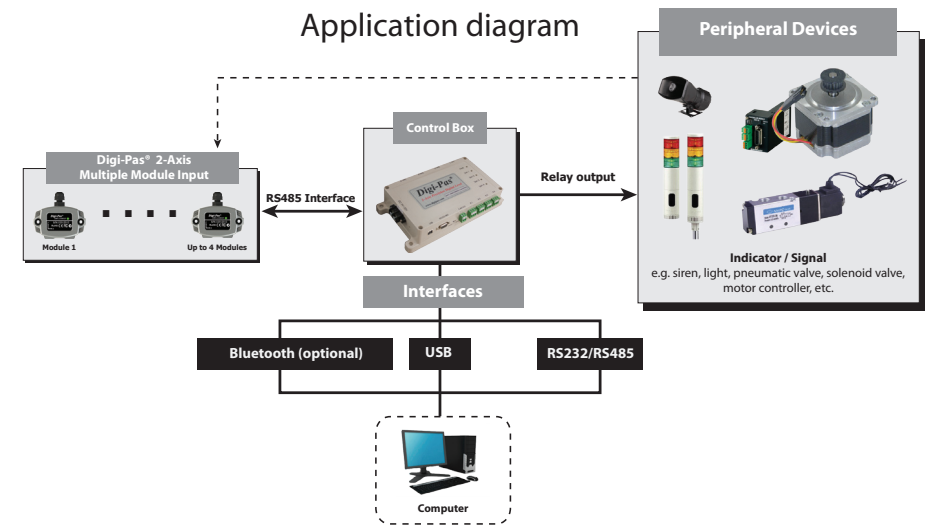
®Registered Design

## ACCURACY:

| DWL-4200XY   | DWL-4500XY    |
|--------------|---------------|
| ± 0.02°      | ± 0.002°      |
| ±350 µm/M    | ±35 µm/M      |
| ±0.004 in/ft | ±0.0004 in/ft |



## Application diagram



**Digi-Pas® DWL-4200XY and DWL-4500XY** are the most **Compact & Cost Effective** models yet of our iconic **2-Axis Inclination Sensor Modules** that are specifically designed to be integrated into machine/equipment/structure with less space needed. Come with the capability of real-time simultaneous monitoring of plane levelling position, 2D tilt angles, vibration measurement, and data logging function when used with the **'Plug and Play' PC Sync Software**. These compact intelligent modules are embedded with advanced MEMS sensor technology, developed for application engineers to ensure precision structural stability or angular position on any desired object.

These smart & compact inclination sensor modules are tough, durable, IP65 waterproof, have shock resistance, small footprint, and are enabled to communicate with external peripheral devices through various protocols such as **USB, RS232, RS485, & wireless Bluetooth.**

*Innovation & Technology Driven™*

Manufacturer  
Representatives:

Digi-Pas® USA (Americas)  
DigiPas Technologies Inc.  
info@digipas.com

Digi-Pas® Singapore  
JSB Tech Pte Ltd  
info@digipas.com

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info@digipas.co.jp

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info@digipas.de

Products tested by TÜV SÜD, SGS accredited body to comply with CE, FCC & RoHS, calibrated traceable to UKAS, JIS, NIST & DIN, and manufactured under SGS certified ISO quality standards:



# 2-Axis Compact Sensor Module

## Technical Specification

|                                      |                                                                                                                |                                                    |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Model                                | DWL-4200XY                                                                                                     | DWL-4500XY                                         |
| Measurement Range (Single Axis Mode) | 0.00° to ± 90.00°                                                                                              | 0.000° to ± 10.000°                                |
| Measurement Range (Dual Axis Mode)   | 0.00° to ± 15.00°                                                                                              | 0.000° to ± 5.000°                                 |
| Resolution                           | 0.01° (175 µm/M or 0.002 in/ft)                                                                                | 0.001° (18 µm/M or 0.0002 in/ft)                   |
| Accuracy                             | ± 0.02° at 0° to 2.00°; ± 0.04° at other angles                                                                | ± 0.002° at 0° to 2.000°; ± 0.004° at other angles |
| Repeatability                        | ± 0.01° (175 µm/M or 0.002 in/ft)                                                                              | ± 0.001° (18 µm/M or 0.0002 in/ft)                 |
| Cross Axis Error                     | Negligible (± 0.0025°)                                                                                         | Negligible (± 0.00025°)                            |
| Vibrometer (Relative g)              | 1.0                                                                                                            | 2.0                                                |
| Response time                        | 10ms (milliseconds)                                                                                            | 500ms (milliseconds)                               |
| Power Supply                         | 9V DC                                                                                                          |                                                    |
| IO communication protocols           | RS485: 8 Data bits, no parity, 1 stop bits, 115200bps<br>USB 2.0 or Wireless Bluetooth connectivity (optional) |                                                    |
| Sensor Module Waterproof Rating      | IP65                                                                                                           |                                                    |
| Sensor Module Base Material          | Zinc Alloy                                                                                                     |                                                    |
| Sensor Module Dimension (mm)         | 67(L) x 42(W) x 23(H)                                                                                          |                                                    |
| Sensor Module Weight (approx.)       | 400g                                                                                                           | 600g                                               |
| Operating Temperature                | -40°C to +85°C                                                                                                 |                                                    |

Note : Product Specification and appearance are subjected to change for product improvement without prior notice.

## ACCREDITATION

DWL-4000XY Series Tilt Sensor Modules accuracy is verified by accredited 3rd party independent calibration & test bodies and National Metrology Centre traceable to SI standard and NIST, JIS, UKAS & DIN under CIPM MRA.

## Advantages of Digi-Pas® 2-Axis Inclination Sensor Module

- **PLANAR & WIDE ANGLE RANGE MEASUREMENT**  
Precision levelling and tilt angles measurement essentially involve simultaneous 2-dimensional planes rather than single-axis. Digi-Pas® 2-axis intelligent tilt sensor modules having high precision and wide measurement range are capable of providing real-time levelling & vibration readings that empower application engineers to continuously monitor machine/equipment/structure angular positional status precisely and speedily.  
These small footprint MEMS driven 2-axis sensor modules effectively eliminate the limitations of using multiple single-axis sensors or bulky pendulum based sensors to achieve 2D levelling and planar angular measurements.
- **PROGRAMMABLE & USER-DEFINABLE SYSTEM**  
Digi-Pas® 2-axis tilt sensor module system is designed to be integrated into precision machine/equipment/structure enabling application engineers to instantly access angular positional status without the need for tedious and time-consuming programming.  
The angular measurement system enables user-defined settings to activate any external connected peripheral devices at ease.

## Sensor Module Overview

- High accuracy of 2-axis angle/level measurement of 0.02° or 0.002° (depending on model)
- Built-in Vibrometer for real-time vibration measurement
- User-friendly Professional PC Sync Software to configure the tilt sensor modules (OPTIONAL)

## Control Box Overview

- **Programmable Relay Contacts Outputs:**  
Enables user-defined tilt angle/vibration range limits settings to trigger peripheral devices (e.g. siren/alarm, valve, motor, strobe lights, etc.)
- **Multiple I/O communication protocols**  
i.e. USB, RS232, RS485 & Wireless Bluetooth connectivity (optional)

# Professional PC Sync Software

The PC Sync Software is a 'plug & play' interface software (embedded with National Instrument software) that enables application engineers to remote access to multiple tilt sensor modules instantly via wireless Bluetooth connectivity/ USB cable/ RS232 for plane levelling, 2D tilt angles and vibration measurement. With the remote real-time data acquisition, logging & analysis features, the software offers a comprehensive solution without the need for tedious and time-consuming programming.

## PC Sync Software Features

### Relay Contact Output

- Enables user to define pre-set condition to activate any connected peripheral devices e.g. siren/alarm, valve, motor, strobe lights, etc.
- User-defined settings, real-time feedback of relay output status and tilt sensor module measurement readings can be seen at a glance on PC screen

### SMART 2D BUBBLE®

- View and record real-time 2-axis angles readings from a selected tilt sensor module
- Simultaneous display of graphical bull's eye (with auto range feature) and numeric formats
- Plane surface's elevation point clearly indicated by Smart 2D Bubble®

### Single-Axis & Dual-Axis Angle Graphs

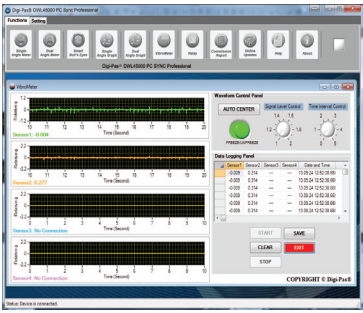
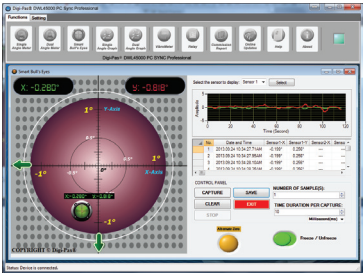
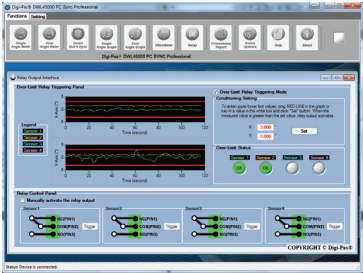
- Distinctive line graph display and numerical readings of angle/levelling measurement from multiple tilt sensor modules
- Enables identification and comparison of real-time results among multiple connected tilt sensor modules
- Enables data saving in Excel format

### VibroMeter Graph

- Numeric and graphical display of vibration magnitude and pattern/graph for effective vibration conditions assessment
- Simultaneous display of Vibrographs for multiple operating tilt sensor modules
- Fast sampling rate at 10ms (milliseconds) per data capture

### Single-Axis Angle Meter

- Graphical and numerical display for real-time single-axis or dual-axis angle readings of multiple tilt sensor modules
- Large, easy-to-read display with units in degree(°), mm/M or In/Ft



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