



Planar Inverted Pendulum

Googol Technology (HK) Limited

The planar inverted pendulum series of products adopt an open architecture control solution and a modularized experiment platform. Using an XY table or 2-DOF planar robot arm module as the base platform then adding a 2-DOF ball joint, you can create a one-stage or two-stage inverted pendulum to provide a more challenging research and experiment platform. A planar inverted pendulum simulates more closely the control and visual effect of an inverted handstand of an acrobat or the launching position control of a missile or rocket.



Features

- Modularized Experiment Platform



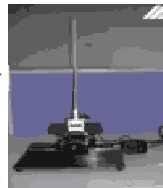
XY-Table



2 DOF Ball Joint



2 DOF Robot Arm



Planar 1-stage Inverted Pendulum with XY-Table



Planar 1-stage Inverted Pendulum with Robot Arm

Planar 2-stage Inverted Pendulum

- Industrial Grade Experiment Platform
 - XY table, 2-DOF robot arm and 2-DOF ball joint are all designed and manufactured according to industrial standards.
 - Industrial incremental encoder and AC servo motor
- Open Architecture
 - Hardware platform based on PC and DSP-based motion controller.
 - Experiment verification program (DOS version), with source codes provided.
- User Creativity
 - Develop and test one's own control algorithm.
 - Challenge the control problems concerning the two-grade Planar IP control algorithms

Specification

XY Table

Travel Distance (X x Y)	Max. Motion Velocity	Length x Width x Height	Repeated Positioning Accuracy	Load Ability	Weight
250mm x 250mm	250mm/s	650mm x 650mm x 150mm	0.02mm	15Kg	< 30Kg

2-DOF robot arms

- Please refer to the relevant technical specifications of robot products of Googol Technology.

2-DOF Ball Joint

Rotation Range (RX x RY)	Unbalanced Torque	Length x Width x Height	Weight
>±30°x ±30°	<0.0005Nm	100 x 80 x 80mm	< 0.5Kg

Ordering Guide

Model Number	Model Name	Description
GPIP2001	Planar One-Stage Inverted Pendulum With XY Table	<ul style="list-style-type: none">• customized XY Table• planar single-stage inverted pendulum module• inverted pendulum control system (motion controller + two-axis servo motors)• control box, houses a power supply, a servo amplifier, and terminal interconnections• planar single stage inverted pendulum experiment software pack (DOS version), with source code
GPIP2002	Planar Two-Stage Inverted Pendulum With XY Table	<ul style="list-style-type: none">• GPIP 2001• planar two-stage inverted pendulum module
GPIP2011	Planar One-Stage Inverted Pendulum With Robot Arm	<ul style="list-style-type: none">• GROB 3001 two DOF robot arm• planar single-stage inverted pendulum module
GPIP2012	Planar Two-Stage Inverted Pendulum With Robot Arm	<ul style="list-style-type: none">• GPIP 2011• planar two-stage inverted pendulum module