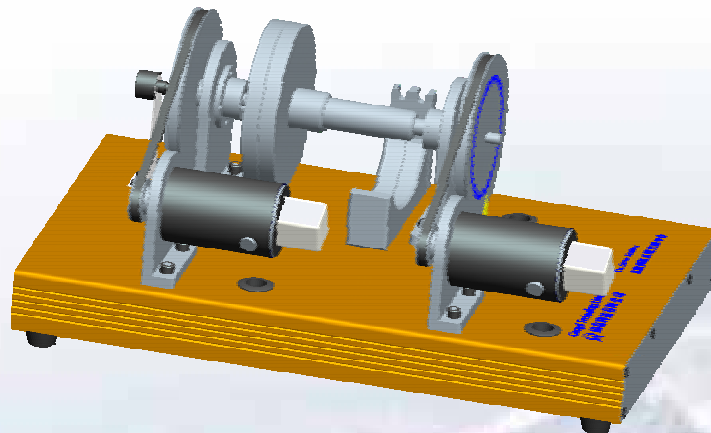


# DC Servo Trainer

## USER AND EXPERIMENTAL MANUAL

Suitable for GSMT Series

*First Edition, July, 2009*



Be sure to give this instruction manual to customers!

- Thank you very much for purchasing DC SERVO TRAINER (GSMT Series) of Googol Tech.
- Be sure to read this manual carefully before operation.
- For any technical trouble, call us or visit <http://www.googoltech.com> on the World Wide Web for consultation.
- After reading this manual, keep it handy so that it can be referred to at anytime.

# Contents

Copyright Statement .....	I
Disclaimer .....	I
Trademarks.....	I
CAUTIONS ON SAFETY.....	I
CAUTIONS ON USING .....	I
For Technical or Customer Support .....	II
Contents .....	3
Overview.....	4
Experiment 1: DC servo motor modeling and identification .....	6
Experiment purpose .....	6
Experimental principle.....	6
Experiment device.....	8
Experiment content .....	9
Experiment 2: Intelligent servo controller .....	10
Experiment purpose .....	10
Experiment principle.....	10
Experiment device.....	13
Experiment content .....	13
Experiment 3: Sensor measurement and motor control in MATLAB.....	15
Experiment purpose .....	15
Experiment principle.....	15
Experiment device.....	17
Experiment content .....	17
Experiment 4: DC servo velocity adjustment with PID .....	18
Experiment purpose .....	18
Experiment principle.....	18
Experiment device.....	19
Experiment content .....	19
Course project .....	20
Experiment 5: Control system using root locus method .....	20
Experiment 6: Control system design using frequency response analysis .....	20
Experiment 7: Control system design using pole-placement method .....	20
Experiment 8: PID controller design for analogue control system .....	20