ShibaSoku®

LM108A

MULTI STATION

General

By combining the basic unit with a variety of options, the LM108A can become an optical pickup development system and a disc testing and inspection system supporting all types of optical pickups and discs.
The basic unit is configured of a stage, spindle motor, disc clamp, tilt stage for mounting optical pickups, and a power supply for the mechanisms.
This unit is designed to dramatically shorten engineering and manufacturing times for base sections used in experiments and development. The optical pickup development model requires options such as a unit for the drive unit board rack, a servo board unit, and an APC board unit in addition to the basic unit. Improved efficiency in experimentation and development activities is possible by combining units according to the user's design requirements.
These units can be controlled from a PC, and since commands are disclosed, the user can customize the control software to specific requirements to further enhance efficiency. The optical disc test and inspection model can be expanded into an auto test system by adding other options such as optical pickups that meet optical disc specifications, a limit equalizer unit, an HF and servo signal switching unit, auto test software, and peripherals.

Features

- Supports Blu-Ray, HD DVD, and other types of discs and optical pickups.
- Disc tester includes Shibasoku-made optical pickup, both blue laser and red laser are available.
- Auto testing of discs compliant with various standards is possible.
- Model without optical pickup is also available as an optical pickup development system.

Specifications

● Basic unit configuration: Disc drive unit, PC controller, software for manually controlling the mechanism.

- Disc drive unit: Configured of mechanisms such as a stage, disc clamp and spindle as single component, and tilt stage for mounting optical pickups, ···etc., and a power supply for the mechanisms.
- PC controller, display, control software: Spindle rotation, stage (measurement radius) position, and tilt stage position are controlled from a PC controller via RS-232C interface.

● Disc drive unit section

- Auto stage: Moved by spindle motor (disc)

Positioning accuracy	±20 μm
Repeat accuracy	±2 μm
Setting resolution	2 μm
Vertical straightness	±4 μm / 70 mm
Horizontal straightness	Within 5μm
Stage movement rage	22.0 to 63.5 mm

- Disc clamp section

Clamping method	Secured with screws (reverse thread)
Clamping area	26 to 29 mmϕ
Centering	Tapered cone
Axis/Surface deviation	≦5 μm (at clamping area)
Min. measurement radius	22 mm

- Spindle section

Bearing method	Ball bearings
Rotation modes	CAV: 500 to 10,000 rpm (1rpm setting resolution) CLV: False CLV (FCLV) using radial position control
Rotation direction	CW/CCW (viewed from lower side of disc, optical pickup side)
Jitter	500 to 1,000 rpm: ≦0.1% 1,000 rpm or more: ≦0.08% Note; Rotation fluctuation of 1 rotation cycle of motor. Z phase signal is measured, and jitter in1 rotation cycle of motor is measured.
Index output	1 pulse/rotation at home position, TTL level, negative polarity
FG pulse output	500 pulses/rotation, TTL level
Disc protection Accelerates	Decelerates in approx. 30 sec. during rotation start/stop only

- Tilt stage for mounting optical pickup (position adjustment mechanism)

Radial & tangential tilt stage (auto)

WD	Radial: 96 mm, Tangential: 68 mm (from pickup mounting surface)
Variable range	± 1.5°
Setting resolution	0.0006°

Z stage (manual)

Variable range	Height 7 mm
Resolution	0.01 mm

● Manual software for controlling mechanism: Controlled from PC controller via RS-232C interface. Runs under Windows 98/2000 (Japanese version)

- Spindle controls Rotation speed: CW/CCW, CAV/FCLV, Rotation ON/OFF, ···etc.
- Spindle position controls: Radial position
- Tilt stage controls: Tangential angle, Radial angle

● Optical pickup development model: In addition to the basic unit, user specifies optional units and software described below. Separate advice is required when stage for mounting optical pickup is manufactured. Unit for drive board rack, power unit, servo board unit, APC unit, software for creating applicable control data.

Specifications

●Optical disc evaluation & inspection model

In addition to the pickup development model, user specifies optional units and peripherals (advice required) described below.

- BD test model: Optical pickup (405 nm / NA 0.85), limit equalizer unit, address and decoder unit, switchboard unit, peripherals, testing software, etc.
- HD DVD test model: Optical pickup (405 nm / NA 0.85), switchboard unit, peripherals, test software, etc.
- DVD±R/RW, RAM high-speed test model: Optical pickup (655 nm / NA 0.60, 655 nm / NA 0.65, etc.), high-speed spindle, eccentric correction board unit, switchboard unit, peripherals, test software, etc.

●Optional units & software

- Drive unit board rack unit: Configured of a servo board, PU rack for APC board unit, mother board, control panel. Installed in disc drive unit. Includes PIO board for PC controller to control servo and APC.
- Power unit: Supplies power to servo unit, APC unit, optical pickup.
- Servo board unit: 2-board set comprising FT servo unit and LG jump control unit. Can be used for related commands.
  - FT servo unit: Inputs servo error signals and controls focus servo and tracking servo. Focus servo supports astigmatic method and knife edge method. Tracking servo supports push-pull method, DPP 3-beam method, heterodyne method, DPD method.
  - LG jump control unit: Performs tracking controls such as land/groove discrimination and jump control.
- APC board unit: Controls optical pickup output. Controls output during playback, record, and erase modes.
- Software for creating control data appropriate to writing tasks: Arbitrary waveform generator (Tektronix AWG510/610/710, etc.) that can be controlled on a LAN is used to create and generate control data to be applied in writing.
- Eccentric correction board unit: Reduces tracking servo difficulties caused by eccentricity when high-speed or high-density discs are used.
- Optical pickups: All types of optical pickups for BD, HD DVD, DVD ±R/RW and high-speed discs are available. Mount the specified optical pickup on the tilt stage of the disc drive unit.
- Limit equalizer unit: Limit equalizer and PLL unit compliant with BD standards. Installed on PU rack inside drive unit board rack unit.
- Address decoder unit: Imports and displays address information of BD standards.
- Switchboard unit: Switches all types of signals supplied to digital oscilloscope and filter required by various standards. Installed on expansion rack.
- Error test board unit (development planned): Tests for errors in data unit compliant with BD standards. Installed on expansion rack.
- Peripherals: Please inquire concerning arbitrary waveform generator, ···etc.

●General specifications

Power supply	AC 90 to 250 V, 50/60 HZ
Power consumption	Max. 200 VA (excl. controlling PC)
Operating temperature range	10℃ to 30℃ (23±3℃ recommended)
Relative humidity	20% to 80%RH (non-dewing)
Operating environment	Class 10,000 or less recommended
Dimensions	600 (W) x 300 (H) x 300 (D) mm
Weight	Approx. 30 kg
Accessories	Connection cable(RS-232C for PC) x1 Manual software for controlling mechanism x1set User's manual x1

ShibaSoku Co., Ltd.
●Sales Department 3-3-2, Hisamoto, Takatsu-ku, Kawasaki-shi, Kanagawa 213-0011, Japan
info@shibasoku.co.jp
Telephone +81-44-850-5133