

PRESS RELEASE

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Yokogawa Announces Release of TB200 Optical Power Meter for Development and Production of Next-generation Optical Disk Equipment

Tokyo, Japan - Yokogawa has developed the TB200 Optical Power Meter to measure the optical power output of equipment used with next-generation optical media such as Blu-ray and HD DVD^{*} disks. The TB200 will be released on June 17.

The TB200 inherits the core performance and functionality of the TB100 blue-light compatible power meter, which was designed for R&D of next-generation optical disks. Constructed specifically for use at manufacturing sites and packed with extra functions, the TB200 covers a wide range of applications, from research to production, of equipment related to next-generation optical disks, including semiconductor lasers, pick-ups, and drives.

^{*}Blu-ray Disc and HD DVD are registered trademarks of their respective groups.

Development Background

Devices such as next-generation optical disk recorders that use blue lasers (with a shorter wavelength than the red laser for DVDs) are already on the market, and optical disks of this type are now becoming widespread. Since laser power is used to read and write to these optical disks, it is important to be able to measure the laser power magnitude during the optical disk development and production processes.

The conventional TB100 optical power meter was jointly developed in February 2003 by Yokogawa, which has years of experience in optical disk-related equipment, and Ando Electric Co., Ltd., an affiliated company* with excellent optical measurement technology. The TB100 is used for laser power measurement by many manufacturers in Japan and other countries who are engaged in the R&D of next-generation optical disk equipment.

As next-generation optical disks proliferate, there will be increasing demand for equipment having just one pickup that can support all three disk generations, i.e., next-generation optical disks, DVDs, and CDs. And as next-generation optical disk equipment enters production, there is a need for optical power meters with features such as removable sensor units and remote-control capabilities.

The TB200 optical power meter has been developed in response to these market trends and user needs.

* In April 2004, Yokogawa integrated Ando's communication measurement business.

Product Features

1. Flat wavelength sensitivity characteristics for the three wavelengths used with next-generation optical disks, DVDs, and CDs

Emission wavelengths inevitably vary in laser diodes (light source), so it is not possible to measure optical power precisely with measuring instruments that use regular photodiodes (photodetection block) whose wavelength sensitivity changes, unless the wavelength is previously examined and the measurement wavelength is set accordingly.

The wavelength sensitivity of the TB200 is controlled to approximately 1% within ± 5 nm of the center wavelength in each of the three wavelength bands: 405 nm (next-generation optical disks), 660 nm (DVDs) and 785 nm (CDs). This means it is possible to measure optical power even more precisely and reduce the measurement time, without having to set the measurement wavelength as with regular optical power meters.

2. Sensor with a large photodetection area for evaluating next-generation optical disk equipment

In the case of next-generation optical disks, a high-NA^{*} lens (wide-angle lens) is used to achieve high-density recording (writing). If a wide-angle lens with 0.85 NA (approximately 60° angle of incidence) is used, the photoreceptive surface area necessary to measure optical power at a distance of 3 mm from the focal point will be a circle with a diameter of 10 mm. Since the sensor of the TB200 has an 18 mm wide photodetection area, stable measurement is possible without finely adjusting the positions of the lens and sensor.

* NA stands for numerical aperture, which determines the optical focusing characteristics of a lens. A higher NA means better focusing of the beam, allowing for high-density recording.

3. Essential structure and functions for manufacturing next-generation optical disk equipment

The TB200 optical power meter has been developed for use in conventional R&D and on the production line. It is designed so that the cover outside the sensor can be removed to allow the sensor unit alone to be attached to the production equipment. This design gives more flexibility in installation and frees up space for the production equipment. In addition, the TB200 has remote-control functions essential for the manufacturing of next-generation optical disks, such as the setting on an external PC of the display mode for the measurement wavelength and measured values, and the forwarding of measured data to an external PC.

Major Target Markets

Manufacturers of next-generation optical disk recorders, players, and drives

Manufacturers of next-generation optical disk pickups and laser diodes

Manufacturers of next-generation optical disks

Manufacturers of next-generation optical disk testing equipment

Applications

Research, development, and production of next-generation optical disks

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