

CLEAR SPACE NON-GUIDED LASER-BASED INTELLIGENT OPTICAL TRANSCEIVER

Description:

Communications using optical methods have been developing for years. In particular, those carried out in free space or the atmosphere allow the effective establishment of links at distances of several kilometers if collimated medium-power solid-state lasers and avalanche photodiodes are used. The present invention proposes a new intelligent optical transceiver that solves the remote monitoring of the status of the transceiver, allowing the construction of intelligent nodes in the optical network, the distributed management of the transceiver functions by a set of embedded and hierarchical microcontrollers that perform automatic monitoring of the laser beam, the automatic control of the transmitted laser power, the sensitivity of the receiver or the thermal management of the system among other functions. Thus, it is not only a matter of solving the problem of point-to-point communication of a laser beam modulated at high speed by means of a certain standard, but also solving a problem associated with the different control mechanisms necessary to maintain the system parameters within certain values. optimal conditions that allow stable and reliable communication. The present invention provides an optical transceiver that allows the development of a communication system that actively or "intelligently" maintains its parameters at an optimal value.

Keywords:

[Transceivers](#), [Laser](#), [Telecommunications](#), [Optics](#)

Sectors:

[ICT](#)

Areas:

[Telecommunications](#), [Internet and Networks](#)



Advantages:

Among the main advantages of the present invention, we highlight: • The control of the transmitted laser power as well as the sensitivity of the photodetector are adjustable parameters depending on the degree of dispersant particles. • It has an element for measuring ambient humidity and a control system that changes the transmitted power and the sensitivity of the photodetector automatically. • It has a thermal control mechanism. • Maintains beam alignment regardless of the movement of the support bases.

Uses and Applications:

This invention has its utility as a solution for the tracing of permanent data networks and as an alternative to wired pairs, fiber optic or radio frequency links, within the field of the electronic industry of high speed optical communications in which modulated laser beams are involved.

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