

# OLE Series

## Optical lin extenders

OBE-LIN / OBE-LIN2



By **OLE** (Optical Lin Extender), we mean a fiber optic link employed to extend a LIN bus. LIN is an acronym for Local Interconnect Network, that is a low cost, low speed, serial communication bus for distributed electronic systems on board a vehicle. It is a sort of complement to other buses like CAN that are used for faster or more demanding applications. It is a one-wire bus and typically it connects in a very cost effective way smart sensors and actuators where bandwidth and versatility of CAN connections are not necessary.

The need for a fiber optic extension of LIN may arise mainly for the performance of immunity tests in an anechoic chamber.

In such case the EUT attached to LIN network must be radiated by a transmitting antenna while the LIN analyzer or any other component appended to the LIN (Auxiliary Test equipment) is placed outside of the radiated zone, normally in the control room. The decoupling between EUT and Auxiliary Test Equipment is easily achieved by means of a fiber optic cable inserted between two transceivers that transform the electrical signal into an optic signal and viceversa. As EMC automotive tests require high field levels, at least the transceiver placed in the chamber close to the EUT must be RF shielded.

# OLE CONFIGURATION

## An extender consists of:

- Two identical transceivers (RX/TX units) called OBE-LINs. Each unit is shielded and configurable through a manual switch to the LIN master or slave standard. The OBE-LIN does not contain any battery. The OBE-LIN unit that is inside the chamber is supplied by the EUT 12 VDC positive battery node (VBAT, GND). The OBE-LIN unit that is outside the chamber is supplied by a 12VDC dedicated power supply.
- One OBE-LIN-ALIM power supply; 110/230Vac mains supply, 12VDC, 0,5A, to supply the OBE-LIN unit that is outside the chamber. The VBAT, LIN bus and GND pins are available on the DB9 Female connector for user connections.
- A bifiber cable FBxxx, with xxx equal to the length expressed in meter. The standard cable is FB010, 10 meter long. The fiberconnectors are ST type and the fiber cable is sized 200/230 um.
- Two DB9 female connectors that the customer may use for its connections. The electrical cable between the EUT and the nearby OBE-LIN is the responsibility of the customer. In the presence of the radiating field the connection is critical and must be short.

## TECHNICAL CHARACTERISTICS

- |                               |                                      |
|-------------------------------|--------------------------------------|
| ▪ <b>Data rate</b>            | 20kbit/s                             |
| ▪ <b>Bus interface</b>        | Lin spec. Compliant rev. 1.2         |
| ▪ <b>Bus termination</b>      | 30kW (slave)/1kW (master) selectable |
| ▪ <b>Electrical connector</b> | DB9 Male                             |
| ▪ <b>Optical connector</b>    | ST                                   |
| ▪ <b>Power supply</b>         | 12V from power supply or car battery |
| ▪ <b>Fiber cable type</b>     | 200um                                |
| ▪ <b>Fiber cable length</b>   | > 100mt                              |
| ▪ <b>Dimensions</b>           | 129 x 79 x 29.5 mm (L x W x H)       |
| ▪ <b>Operating temp.</b>      | 0 to 50°C                            |
| ▪ <b>Shielding</b>            | 200V/m up to 18GHz                   |

## SYSTEM PARTS

- |                                    |                                |
|------------------------------------|--------------------------------|
| ▪ <b>OBE-LIN</b>                   | RXTX Transceivers units (x 2)  |
| ▪ <b>OBE-LIN-ALIM</b>              | 12V power supply for OBE-LIN   |
| ▪ <b>FB010</b>                     | 10mt Bifibre cable             |
| ▪ <b>Two DB9 female connectors</b> | May be used to connect OBE-LIN |



OBE-LIN Front view

OBE-LIN Rear view

