

OBE-FD

Optical BUS Extender Flexible Data

CAN Standard



OVERVIEW

The CAN (Controller Area Network) is a bidirectional data stream standardized by ISO specifications.

It is already popular nowadays with the automotive community as it represents the typical connection between on board controllers that exchange data. The need for passing data to and from microprocessor based units on vehicles is growing rapidly and the CAN will get even more popular in the future.

The usage of the bus is also expanding to other application areas requiring relatively high bit rates at a cheap price like industrial automation, intelligent home, etc...

Different speeds are accounted for by different standards.

The CAN FD (Flexible Data Rate) has been introduced as "second generation" of ISO 11898 compliant CAN Bus, in order to increase CAN's net throughput up to 5MB/s.

The differences are confined to the transceivers and, in particular, to few components in the transceiver circuitry.

The reasons for utilizing a CAN bus optical extender in an EMC hostile environment are more than one:

- *you may have part of the bus and attached equipment in the chamber being radiated from an antenna and part of same bus and related equipment to be kept out of the high field zone in the control room*

- *you may need to monitor and/or stimulate the bus during an immunity test from a remote terminal unit outside the anechoic chamber (CAN analyzer)*
- *you have to isolate a portion of the bus*

The Flexible Data Rate standard is covered by ISO specification 11898-2.

The ISO compliant TESEO product is OBE-FD, an extender over fibre which can reproduce communications both in High-Speed mode (up to 1MB/s) and Flex-Data mode (up to 5MB/s).

Each extender system consists of:

- **2 pcs OBE-FD:** two identical Rx/Tx units. They are shielded and battery powered to be independent from the bus power source, for example the vehicle battery.
- **1 pc CB12:** battery chargers, to recharge the OBE rechargeable battery. To be recharged, the battery can be easily removed and recharged apart. The CB12 has two battery slots.
- **FBxxx:** a bifiber cable, part number FBxxx, with xxx equal to the length expressed in meters. The standard cable is the 10 meters long FB010

The connections of the OBE-FD's to the electrical bus are a customer's responsibility.

The use of short twisted shielded wires is recommended

Optionally, the OBE-FD shielded module can be connected via optic fibre to a transceiver electrically identical, but contained in a plug-in that can be inserted into a standard 19 inch rack, to ease its control by a control room.

QUICK-CHANGE BATTERY

Thanks to a standard battery cell and a quick-change structure, the battery can be easily removed by the operator and replaced with another one. The battery is a standard cell Lithium rechargeable model, and it can be recharged apart with a standard battery charger.

The battery is retained by a EMC-proof seal metallic cap, than can be easily unscrewed using a screwdriver or a small coin.



TECHNICAL CHARACTERISTICS

OBE-FD

CAN-FD data rate	up to 5 Mbit/s (8Mbit/s with some limitations)
ISO11898-2 data rate	up to 1 Mbit/s
Bus interface	ISO11898-1, ISO11898-2, CAN-FD compliant
Electrical connector	DB9
Optical connectors	ST
Power supply	Rechargeable 3.7V Li-Ion battery (removable) – 18650 type
Battery operating time	30 hours (full charged element) @ 25°C
Battery charging time	< 1 hour
Fiber cable type	200 µm glass-type fiber
Fiber cable length	10 mt at max data rate
Dimensions & Weight	150 x 50 x 100 mm (W x H x D) - 630 g (battery included)
Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Shielding	200 V/m up to 18GHz

CB12

Mains Power Supply	100÷240Vac 50/60 Hz, 12 W max (optional DC input see manual)
Li-Ion 3.7V battery format	2 x 18650
Dimensions & Weight	133 x 35 x 70 mm (W x H x D) - 190 g (cable included)
Operating temperature	-25 °C to +55 °C
Storage temperature	-55 °C to +85 °C