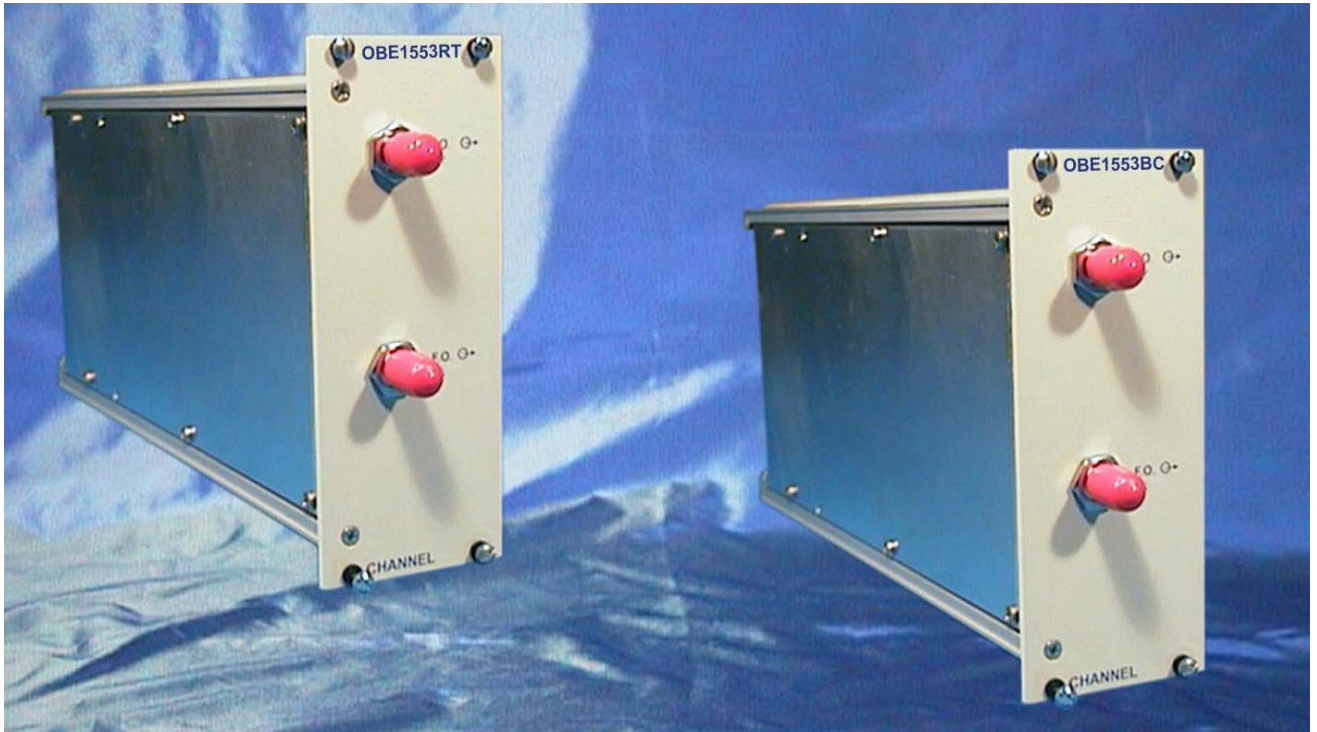


Optical bus extender 1553 OBE1553



The OBE 1553 system allows the bi-directional connection between a Remote Terminal Unit and a MIL-1553B bus by means of an optical fiber link.

TESEO OBE1553 constitutes a fiber optic extension of the 1553B avionic bus. By means of an OBE1553 a bidirectional connection can be made between a Remote Terminal Unit and a MIL-STD-1553B bus with the advantage of the electrical isolation and noise immunity provided by the fiber cable. A typical application is the connection of an avionic equipment to a distant bus.

The system is protocol transparent because the transmission is analog and the received signal is not regenerated: at each receiving side of the link the signal wave shape is unchanged like also its S/N ratio. A bus extender is formed of two transceivers, the OBE1553BC on the side of the bus, and the OBE1553RT on the side of the Remote Terminal Unit.

The transceivers look the same, but are not identical because some electrical differences exist to allow them to operate in the right way. Each transceiver is a plug-in module for insertion in an unshielded chassis IMAGE-MF (3 slots) or IMAGE-MF1 (7 slots) containing power supply, ON/OFF switch and associated indicator. Each transceiver occupies one slot. A redundant bus configuration occupies two slots in each of the two mainframes. The bifiber cable (200 μ m, ST connectors) introduces a delay of 10 nsec per meter, delay to be added to the 500 nsec caused by the transceivers.

Each transceiver makes available on a front panel connector the received signal for monitoring purposes.

TECHNICAL SPECIFICATIONS

For all the specified parameters and their meanings, reference shall be made to document MIL-STD-1553B.

OBE1553BC and OBE1553RT common characteristics:

Frequency band	10 kHz to 3 MHz
Common mode	20 Vpp, DC to 2 MHz
Spikes	≤200 mVpp
Zero crossing deviation	≤25 nsec
Output symmetry	±250 mV peak, line to line
Total delay	<2 μsec (110 m optical cable length)
Monitor output signal ratio	1/100
Optical connector	ST type
Bus connector	three-axial type
Monitor connector	BNC type
Operating temperature	0 to +50 °C
Storage temperature	-20 to +70 °C
Power supply	230 Vac –50 Hz

OBE1553BC specific characteristics:

Input impedance	1 kOhm min, from 75 kHz to 1 MHz
Input voltage	0.86 to 14 Vpp
Output voltage	18 to 27 Vpp (77 Ohm load)
Output noise	≤14 mVrmsnsec

OBE1553RT specific characteristics:

Input impedance	77 Ohm ±2% (after the transformer)
Input voltage	18 to 27 Vpp
Output voltage	0.86 to 14Vpp



SYSTEM PARTS

IMAGE-MF	3 Slots Mainframe
OBE1553BC	Opto-electronic interface, Bus Controller side
OBE1553RT	Opto-electronic interface, Remote Terminal side
FBmmm	bi-fibre optical cable (mmm is the length in metres)
IMAGE-MF1	7 Slots Mainframe (replaces IMAGE-MF)
FOBC ST	Optical feed-through

OPTIONAL

IMAGE-MF1	7 Slots Mainframe (replaces IMAGE-MF)
FOBC ST	Optical feed-through