

EMCtools

**Fiber optic transceiver
Microbox**

1000Base-T1

EMCtools

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Introduction and use

Functional tests e.g. in test-labs often require insulated Ethernet, FlexRay, CAN- (Controller Area Network) and LIN-busses (Local Interconnect Network) to control the device under test. For this purpose special fiber optic transceivers are available. They allow bidirectional data transmission of signals via fiber optic cables and can be used during susceptibility tests at high field strength. Quite often these transceivers use enhanced filtering at the electrical bus connectors. This filtering affects signals and may have major effect on emission tests.

Our *EMCtools* Microbox was designed for emission and susceptibility tests. Using multilayer technology and sophisticated circuit design full CAN/LIN compliance and the ability to perform tests at electromagnetic fields of 270V/m and above could be achieved. The handy plastic housing allows tests with limited test space.

The *EMCtools* Microbox uses standard multimode fiber optic cables and allows direct connection to the electric bus (e.g. CAN-/LIN-Cab) via SUB-D (tbd) female connectors.

Using our Microboxes a complete fiber optic bus connection can easily be arranged.

Versions

EMCtools provides different Microbox versions:

1. EMCtools Microbox FlexRay
2. EMCtools Microbox CAN FD (Flexible Datarate)
3. EMCtools Microbox High Speed CAN
4. EMCtools Microbox Low Speed CAN
5. EMCtools Microbox Low Speed Single Wire CAN
6. EMCtools Microbox LIN
7. EMCtools Microbox K-Line (can also be used for L-Line)
8. EMCtools Microbox J1850 (class B – single wire, VPW)
9. EMCtools Microbox J1708
10. EMCtools Microbox SENT
11. EMCtools Microbox RS-232
12. EMCtools Microbox RS-485
13. EMCtools Microbox Ethernet 100Base-Tx (standard Ethernet)
14. EMCtools Microbox 100Base-T1 (automotive Ethernet)
15. EMCtools Microbox 1000Base-T1 (automotive Ethernet)

Technical data Microbox 1000Base-T1 (automotive Ethernet)

Datarate:	1000Mbit/s
Bus transceiver:	Marvell 88Q211x
Power supply:	6 – 35V DC 400mA / 6V, 200mA / 12 V, 100mA / 24V
Fiber optic:	F-LC standard multimode optical fiber 50/125µm OM3/OM4
Bus-connector:	9-pin Sub-D (tbd)
Bus options setting:	Master / Slave
Ambient temperature:	storage/operation: -40°C – 85°C (-40 - 185 °F)

Delivered devices of the system and accessories:

Microbox Ethernet-Set:

- 2 pcs EMCtools Microbox Ethernet 1000Base-T1
- 1 pcs printed manual
- 2 pcs power supply cable (1m) with cable ferrite (DC-plug: Switchcraft S761K)
- 2 pcs cable ferrite for bus cable (Ferrite: Würth Part-No: 74271142)

Available accessories:

- a) fiber optic cable 10m, F-LC, duplex (Mod. 620)
- b) fiber optic cable 20m, F-LC, duplex (Mod. 630)
- c) rechargeable Battery Box for EMCtools Microbox (Mod. 350)
 - to be used inside the EMC chamber
- d) Plug-In wall supply for EMCtools Microbox (Mod. 165 or Mod.167)
 - to be used outside the EMC chamber
- e) ESD-Protector for ESD-Tests (Mod. 610)
- f) ESD-Protector Tester for ESD Tests (Mod. 615)