

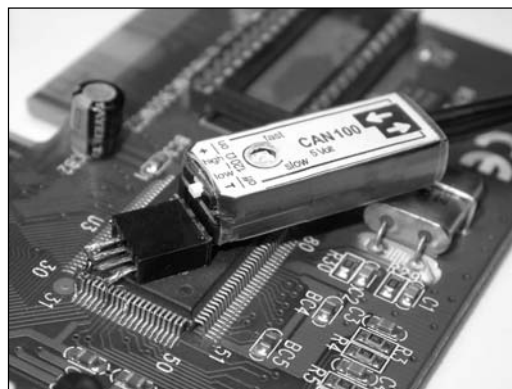
LANGER

EMV-TECHNIK

Operating instructions

CAN 100 Optical fibre probe

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Transmission of high-speed CAN signals via optical fibre

1. Use

Transmission of high-speed CAN signals via optical fibre especially

- during EMC measurements
- at high potential differences (high voltage)

2. Operation

2.1. Mechanical connection

The CAN 100 has a GND, a supply and two CAN pins.

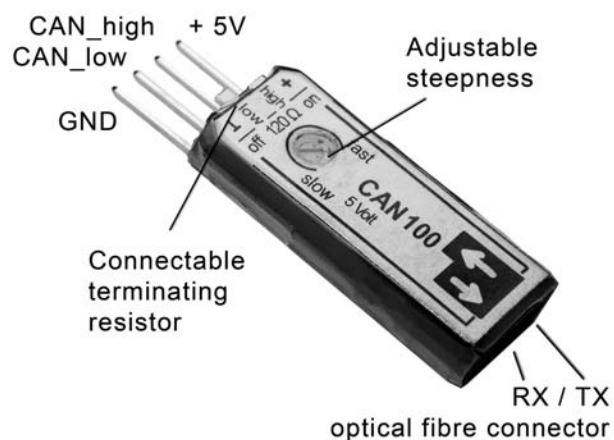


Figure 1 CAN 100 pin assignment

The CAN 100 must be connected with the device under test (DUT) at a very short distance to prevent errors during burst and ESD measurements under RF radiation. The usual probe tips are too big. We recommend that you solder the CAN 100 directly to the module via a **socket** (included in the delivery) to confine the arrangement to a small space:

Glue the socket to the circuit board or IC of the DUT (super glue or double-face adhesive tape) and connect to the DUT with jumper wire according to the CAN 100 pin assignment.

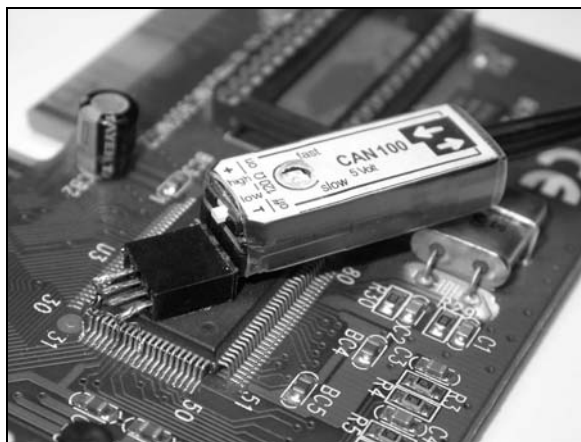


Figure 2 CAN 100 in the module

To avoid measuring errors make sure:

- to arrange the CAN 100 close to the DUT's GND surfaces.
- to tap the current from the immediate vicinity of the signal (pins or blocking capacitor of the IC associated with the signal).

The closer the CAN 100 housing is arranged to the GND system of the DUT and the shorter the GND connection between the CAN 100 and the GND of the module is, the higher its disturbance immunity.

2.2. Optical connection

The double optical fibre is simply plugged into the CAN 100. The two individual optical fibres are of different lengths at both ends and can thus be assigned to the correct CAN 100 opening. The optical fibre which is slightly longer must always be connected to the optical input, the shorter one to the optical output. The longer optical fibre must also be pushed farther into the CAN 100 (up to the limit stop) so that the double optical fibre is flush with the CAN 100 when connected correctly.



Figure 3 CAN 100 connection with the optical fibre

The maximum length of the optical fibre is 10 m.

The delay of the optical receivers, however, limits the permissible length to 6 – 10 m with a transmission rate of 1 Mbit/s depending on the steepness and reaction time of the other connected CAN participants.

This limitation does not apply if the CAN 100 is simply used to "intercept" an existing CAN connection between other participants.

2.3. Electrical connection

The CAN 100 has to be connected to the GND and supply voltage of the electronic module and both CAN pins to the CAN signals of the electronic module. An internal 120 Ohm matching resistor can be switched on (for operation as a master) via the switch at the CAN 100 if required.

The steepness of the signals output by the CAN 100 can be changed with a screwdriver. A minimum steepness is required depending on the transmission rate. The regulator should be set to "fast" for a transmission rate of 1 Mbit/s (state on delivery).

2.4. Using of the 12 V – adapter A01

If the high disturbance immunity of the CAN 100 is not needed – e.g. for the CAN 100 outside of the shielded chamber - it is possible to use the 12 V DC power adapter A01 as shown in Figure 4.

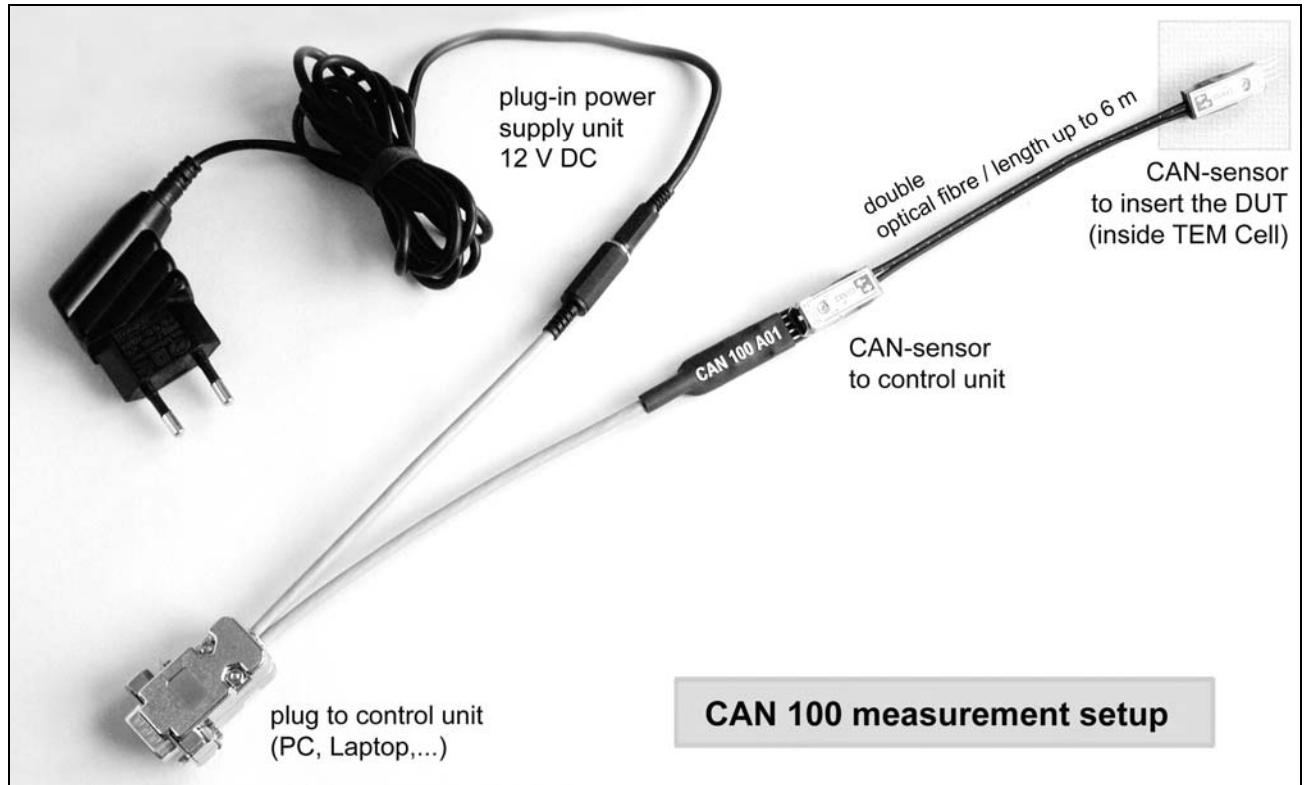


Figure 4 CAN 100 connected by 12 V adapter A01

The CAN-signal is connected to the 9-pin D-Sub male connector:

PIN3 – GND
 PIN2 – CAN-low
 PIN7 – CAN-high

3. Technical specifications

Dimensions (incl. plug-connector)	37x12x8 mm
Supply voltage	4.5 ... 7.0 Volt
Electric strength	+/- 15 V
Current input	approx. 40 mA (recessive) max. approx. 80 mA (master, reception, dominant)
Max. transmission rate	1 Mbit/s
CAN transceiver	SN65HVD251
Optical fibre connection	2 x 2.2 mm Ø
Max. optical fibre length	10 m (6 m at 1 Mbit/s)

4. Safety instructions

- Never use any damaged or defective devices.
- Always observe the operation and safety instructions for the respective disturbance source used (burst generator, RF power amplifier, transmitting aerials etc.).
- Only technically competent personnel skilled in the field of EMC are allowed to use the device under the influence of disturbances.
- The CAN 100 may only be connected and disconnected if it is free from any influences.

5. Scope of delivery

Item	Designation	Type	Quantity
01	Sensor	CAN 100	2
02	12 V adapter	A01	optional
03	Plug-in power supply unit	12 V DC	optional
04	Double optical fibre	10 m	1
05	Adapter socket	4-pole	6
06	enamelled copper wire 0.2 mm	Reel of 34 m	1
07	Transport case with foam insert	(240x185x50) mm	1
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