

Digital optical transmission system DOtech Type K73 for K-Line diagnosis according to ISO 9141

Operating instructions



Principle of transmission

The transmission system consists of two identical transceiver circuits. The supply is done by an external battery U_{bat} . The system serves for the bi-directional optical transmission of digital K-Line signals (according to ISO 9141) in harsh electromagnetic environments and for bus simulations during emission tests.

Operating instructions

The transceiver circuits are interconnected to each other via two optical fibres. The RX-input of transceiver 1 is connected to the TX-output of transceiver 2 and the RX-input of transceiver 2 is connected to the TX-output of transceiver 1.

First, the power supply U_{bat} (red female connector) and the ground (black female connector) have to be connected to the transceiver circuits. Rectifiers to protect against reversed voltages are provided at the supply connector. The housing is directly connected to ground. Take care not to short circuit U_{bat} against the housing. The given upper and lower maximum ratings of the supply voltage may not be exceeded. Next, the K-line signal (green female connector) is connected.

Transceiver 1 and Transceiver 2 could be used on two different supply levels.

After connecting the supply voltage, the LEDs blink several times. Then the „Error-LED“ is switched off and one of the LEDs at the housing of the transceiver shows, if a 12V-system or a 24V-system is used. The switching of the internal pull-up resistors is carried out automatically by an internal μC -circuit that falls into sleep mode after initialisation. The μC can only be waked up by changing the supply voltage from 12V to 24V (or vice versa) or by completely removing and reconnecting the supply voltage (re-initialisation). The threshold voltage for the transition between the 12V- and the 24V-system is approximately 20V. Overstepping or understepping this voltage is also represented by the external LEDs. After switching the pull-up resistors, the μC falls asleep once again.

The optical fibres have to be connected carefully to the sensitive FSMA connectors of RX-in and TX-output.

If a bi-directional transmission of data is not necessary, the transceivers can also be used as a uni-directional digital fibre optic link (for baud rates up to 30 kBaud). For this use, only one RX-TX-pair is connected.

If the digital optical transmission system DOtech Type K73 is used for BCI-measurements, additional filtering should be used for the protection of all inputs above currents of 200 mA. An additional external BCI-filter is available on request as an option for severity levels up to 400 mA.