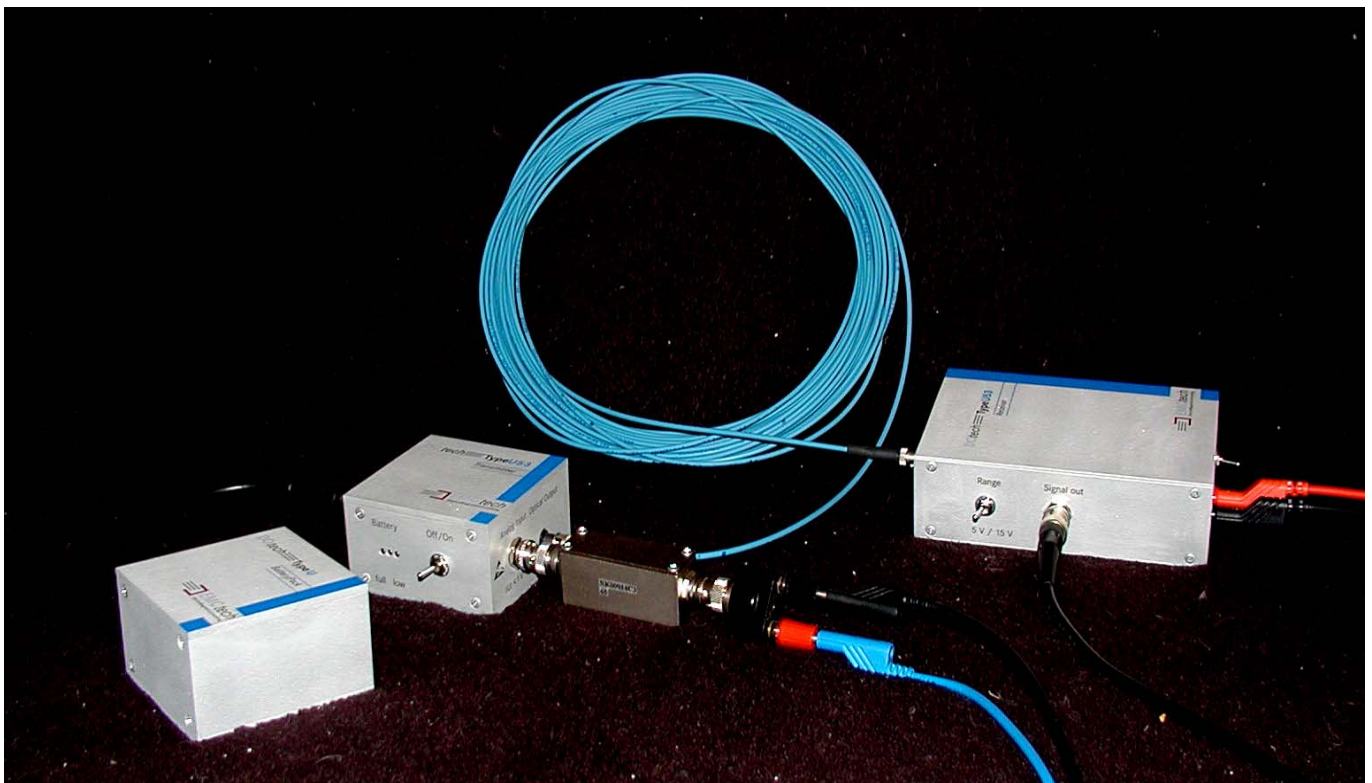


# Digital optical transmission system DOtech Type U53:

## Technical specification

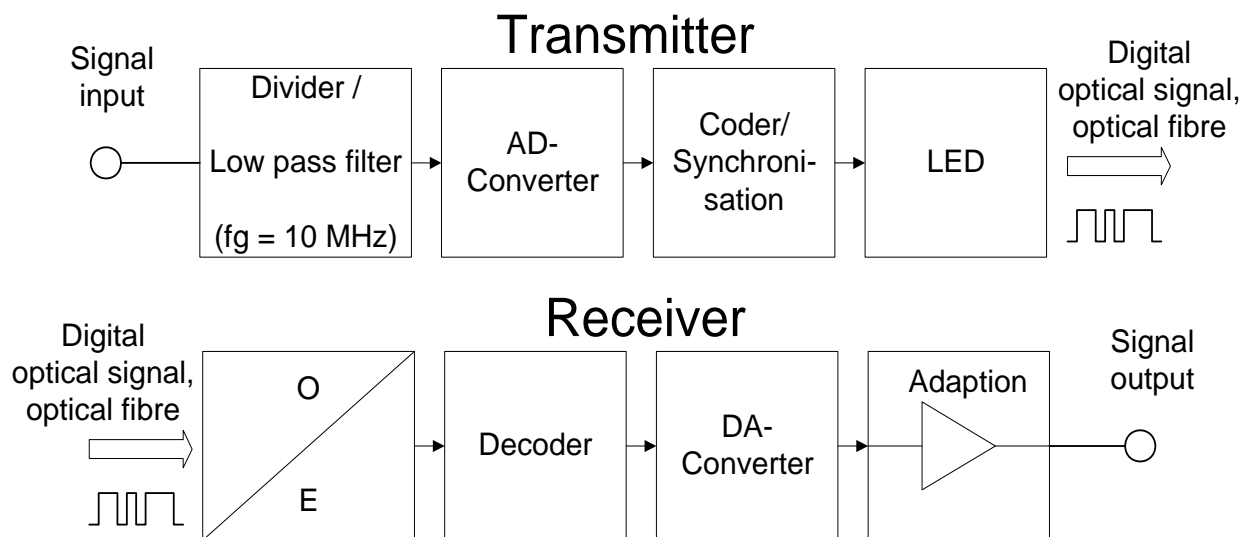


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## Use and principle of transmission

The measuring system is designed for non-reactive optical and digital transmission of analogue signals with a resolution of 8 bit and a maximum bandwidth of 10 MHz. It consists of a transmitter with a separate battery supply, of a low pass filter with combined divider for the signals to be measured; a 62.5/125µm multimode optical fiber and a receiver unit. The system is used in harsh electromagnetic environments like during susceptibility tests in EMC anechoic chambers, in TEM cells or striplines. It is immune against electromagnetic fields of high intensity above the specified transmission bandwidth. The signal to be measured is filtered, sampled, digitized and transmitted via a broadband optical fibre link to the receiver circuit.

There, the digital data is reconverted into an analogue signal and is available at the signal output for evaluation through a load of high impedance like a digital oscilloscope. Figure 1 shows the measuring principle of the digital optical transmission system DOtech Type U53.



**Figure 1: Measuring principle of the digital optical transmission system DOtech Type U53**

## Technical data

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### System

Frequency-/ measuring range:	DC – 10 MHz +/- 5.0 V (ratio $U_{in}/U_{out}=1:1$ ) +/- 15.0 V (ratio $U_{in}/U_{out}=1:1$ ) +/- 30.0 V (ratio $U_{in}/U_{out}=2:1$ )
Digital resolution:	8 Bit
Guaranteed accuracy:	$\leq 1 \text{ LSB} @ \hat{E} < 500 \text{ V/m} @ f_{\text{Susceptibility}} \geq 60 \text{ MHz}$
Housing:	aluminum

### Transmitter

Maximum $U_{in}$ (without divider):	+/- 1.0 V
Divider ratios:	1:5; 1:15; 1:30
Transmitter battery (rechargeable):	$5.7 \text{ V} < U_{\text{Akku}} < 7.0 \text{ V}$
Minimum operating time:	4 h
Battery check/display:	3 LEDs
Input connector type:	BNC
Connector type for battery pack:	BNC
Ambient temperature:	0 °C – 70 °C
Storage temperature:	-20 °C – 85 °C

### Receiver

Receiver output voltage range:	5 V/15 V, selectable, at loads of high impedance ( $R_{in} \geq 10 \text{ k}\Omega$ )
Battery supply:	12 V – 13 V from an external, potential free battery supply
Maximum output current:	60 mA
Output connector type:	BNC
Ambient temperature:	0 °C – 50 °C
Storage temperature:	-20 °C – 85 °C

### Fibre optical link

Multimode-fibre:	62.5/125 $\mu\text{m}$
Optical connector type:	ST

### Delivered devices of the system/accessories

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- One satellite as transmitter unit
- One satellite as receiver unit
- Four dividers for each transmitter with the divider ratios 1:1, 5:1, 15:1, 30:1
- One external battery pack including coaxial cable to connect the transmitter
- Optional battery charger
- Optional multimode optical fibre 62,5/125 $\mu\text{m}$  (length: 20 m)