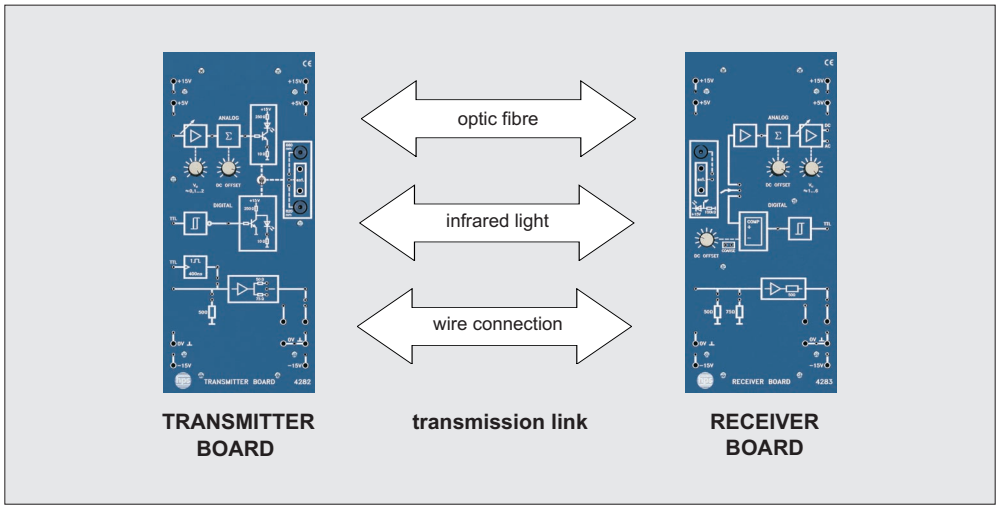
TRANSMITTER / RECEIVER BOARD

Type 4282 / Type 4283



- **Universal training system for the transmission of signals with optical fibres, infrared link or connection line**
- **Can be used with the MODULATION BOARD and the DEMODULATION BOARD, as well as with other hps training systems**
- **Also very suitable to perform experiments with usual commercial generators and measuring instruments**
- **With analog and digital channel suitable for all fundamental experiments of the fibre optics technology**
- **With two built-in transmit diodes of different wavelengths**
- **Two amplifiers and different terminating resistors allow experiments with coaxial lines**
- **Can be extended with an Optical Bench and with the COAXIAL BOARD**

The two Demonstration Boards

- **TRANSMITTER BOARD**

and

- **RECEIVER BOARD**

have been developed by hps SystemTechnik for experiments in transmission technology.
They allow to verify the differences between a signal transmission with optical fibres, with an infrared link and with normal lines.

In detail the following experiments can be made:

- Setting of the operating point of transmit diodes
- Characteristics of transmit diodes
- Attenuation measuring of optical fibres of different length
- Sensibility to interference of different transmission links
- Transmission of TTL signals through optical fibres

Additional experiments

- With the Optical Bench
- Infrared transmission
- Transmission with lines, e. g. with the COAXIAL BOARD

Function groups of the TRANSMITTER BOARD

- Analog amplifier for fibre optic transmission, with adjustable gain and setting of the operating point
- TTL channel with Schmitt trigger and matching circuit for the transmit diode
- 1 transmit diode, red
- 1 transmit diode, infrared
- Transmission field for additional transmit diode
- Line driver with different, additionally connectable output resistors

Function groups of the RECEIVER BOARD

- Fibre optic receive diode, fixed
- Reception field for additional receive diode
- Analog amplifier, DC offset and gain adjustable
- TTL channel, composed of a comparator with adjustable operating threshold and subsequent Schmitt trigger
- Amplifier with additionally connectable input resistors

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TRANSMITTER / RECEIVER BOARD

Type 4282 / Type 4283

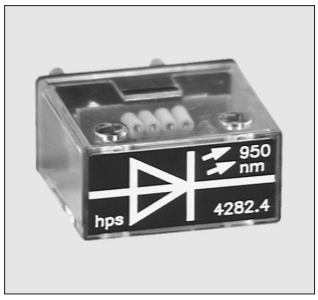
Mechanical Data

The front panel of the Boards is made of 5 mm thick laminate, matt blue in colour with white printing representing the built-in function groups. The rear of the Boards is protected with a grey plastic cover. Its shape allows the Boards to be placed at an ergonomically favourable angle for example on a table.

To conduct the experiments, the TRANSMITTER BOARD and the RECEIVER BOARD are placed on a table or suspended in an hps rack for demonstration purposes.

Accessories Recommended

- MODULATION BOARD (Type 4280)
- DEMODULATION BOARD (Type 4281)
- COAXIAL BOARD (Type 4284)
- Plastic Fibres of different lengths without plug:
  0.5 m (Type 4282.20)
  5 m (Type 4282.21)
  20 m (Type 4282.23)
- Optical Bench (Type 4185) with two Plastic Fibres (Type 4282.18) without plug
- Connecting plugs and leads
- IR Transmit Module (Type 4282.4)



- IR Receive Module (Type 4283.4)

Technical Data

TRANSMITTER BOARD (Type 4282)

Fibre optic transmission
- 1 LED: 660 nm, red
- 1 LED: 820 nm, infrared
- External LED: pluggable
  (e. g. infrared plug-in module for wireless transmission)

Analog transmission
- Amplifier: V_u = approx. 0.1...2
- DC offset: adjustable with potentiometer
- Frequency range: approx. 0 ... 80 kHz

Digital transmission
- TTL input: Schmitt trigger;
  matching circuit for transmit diode
- Transmission rate: max. 200 kHz

Amplifier
- Input resistor: 50 Ω; connectable with 2 mm plug
- Output resistors: 50 Ω; 75 Ω; connectable with 2 mm plug
- Frequency range: approx. 0 ... 5 MHz

Other
- Operating voltage and current:
  +15 V; -15 V (150 mA); +5 V (50 mA)
- Dimensions / weight: 133 x 297 x 110 mm (w x d x h) / 0.7 kg

RECEIVER BOARD (Type 4283)

Fibre optic transmission
- Receive diode: SFH 202, fixed
- External receive diode: pluggable
  (e. g. for wireless transmission)

Analog transmission
- DC offset: adjustable with potentiometer
- Amplifier: V_u = approx. 1 ... 6
- Frequency range: approx. 0 ... 80 kHz

Digital transmission
- Comparator and Schmitt trigger with TTL output
- Transmission rate: max. 200 kHz

Amplifier
- Input resistor: 37.5 Ω; 50 Ω; 75 Ω; 150 Ω,
  connectable with 2 mm plug
- Output resistor: 50 Ω
- Frequency range: approx. 0 ... 5 MHz

Other
- Operating voltage and current:
  +15 V; -15 V (50 mA); +5 V (50 mA)
- Dimensions / weight: 133 x 297 x 110 mm (w x d x h) / 0.7 kg

Subject to technical modifications.