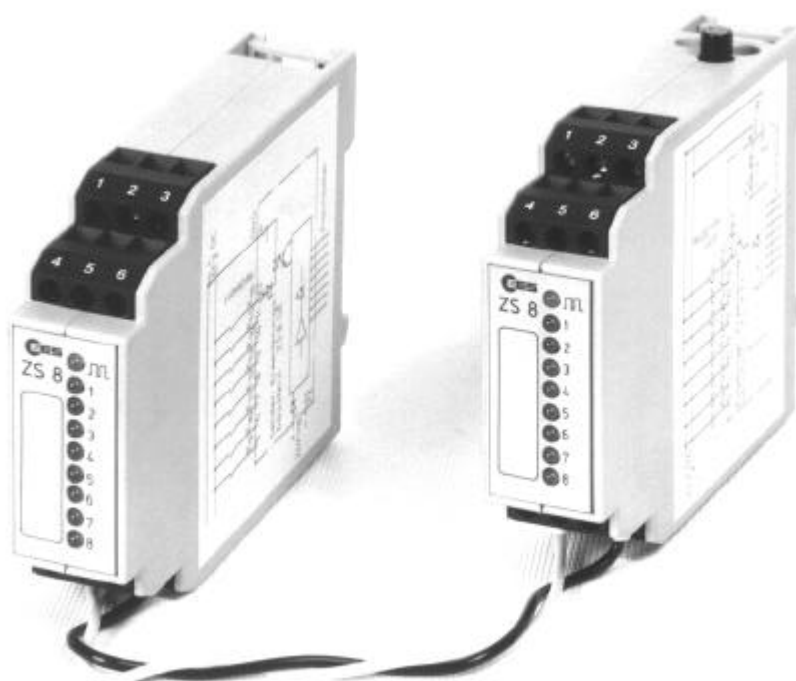


2-Wire-Teletransmission System

8 or 16 channels in one direction up to 15 km
width 22,5 mm; to be snapped onto DIN-rail

ZS 8



Basic module for 8 channels, to be extended up to 16 channels
Transmission by 20 mA current loop
Suitable for all types of cables
Supply- and input voltage 24 V DC
Potential separation input/supply/2-wire 4 kV
Supervision of 2-wire function by watch dog
High security against disturbance of transmission
Short protected transistor outputs
LED status indication

The solution in case of narrow control cables ...

Technical description:

In widely branched industrial plants, railway depots and in building process control technique, it is often necessary to transfer only few messages or also orders via available cable systems with saving of wires. In these cable systems, energy lines often run in parallel and even control lines at different voltage levels in the same cable.

In spite of interferences due to e.g. 16 2/3 Hz and 50 Hz as well as switching impulses, the transmission must be liable, i.e. no high demands must be made on the quality of the available cable.

The basic design of the serial transmission system ZS 8 is made for the transmission of 8 messages and consists of a ZS 8 transmitter as well as a ZS 8 receiver. Via a ribbon cable bridge, the system can be enlarged to 16 messages by means of the ZS 8 transmitter extender and receiver extender module or alternatively by analog module ZS 8-AS and ZS 8-AE to transmit one value of 8 bit solution (see last page).

Each module is located in a plastic housing with a width of only 22.5 mm and can be snapped on a Din rail. At the front plate, 8 red LED's are located for indicating the status of the messages as well as a green LED as a watchdog for monitoring the two-wire transmission. This indicator extinguishes in the case of a line break or a short-circuit. The receiver is equipped with 8 short circuit-proof PNP transistor outputs with free wheeling diodes so that filament lamps or solenoid valves and contactors can immediately be triggered. The max. on-load current is 0.2 A. In order to obtain a high transmission reliability, each message is transmitted 4 times before being declared valid. The outputs are switched off if the transmission is disturbed.

The potentials of the input circuit of the transmitter are isolated towards the supply voltage and the two-wire circuit by means of optocouplers with 4 kV. Furthermore, the two-wire input of the receiver is equipped with an optocoupler so that also the potentials of the two-wire line and the supply voltage as well as the outputs are isolated towards each other by 4 kV. Thus, no fault current loops can be formed. The switching threshold of the inputs are about 16 V so that possible hum pick-ups cannot cause a reaction. Furthermore, the connections for supply voltage, inputs and two-wire are protected against wrong polarisation.

Any standard signal cable can be used as a transmission line with a max. loop resistance of not more than 10 kOhm. The transmission rate is adjusted to a 4,800 Baud as a standard. In the case of very short connection lengths, this can be modified to 14,200 Baud by factory or to 600 Baud in the case of very long connection lengths.

The minimum duration time of an input signal is about 800 ms with 600 Baud, about 100 ms with 4,800 Baud and about 35 ms with 14,200 Baud for obtaining a valid transmission.

In the case of an intensive parasitic coupling to the two-wire line, this can efficiently be suppressed by paralleling a resistor to the terminals 8 and 9 of the receiver module by way of trial. Each delivery is therefore equipped with a 220 Ohm, 470 Ohm and 1 kOhm resistor.

The ribbon cable required for extending to 16 channels is part of the scope of delivery of the extender modules.

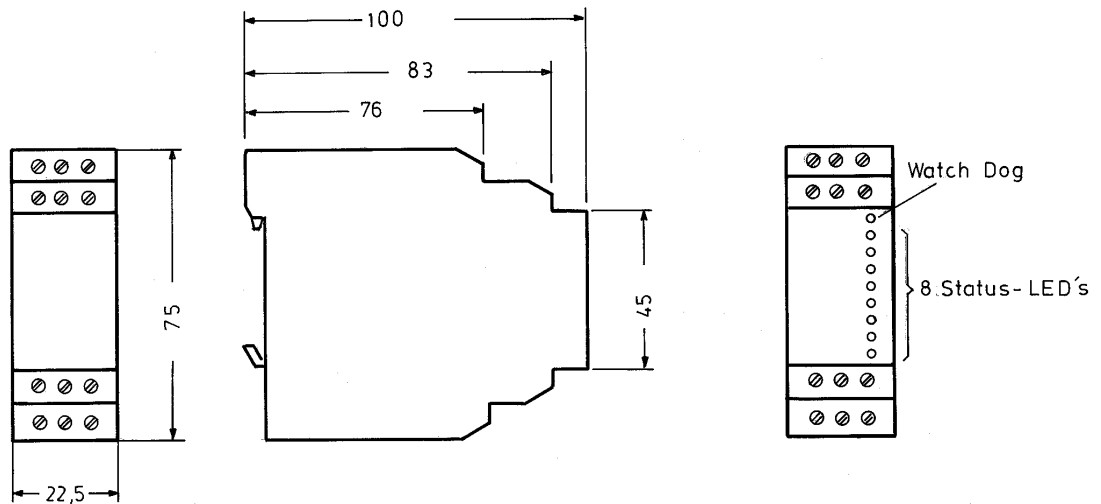
Transmission time depending on baud rate:

Baudrate	600	1200	2400	4800	9600	14 200
Max. transmitting time	800 ms	400 ms	200 ms	100 ms	50 ms	35 ms

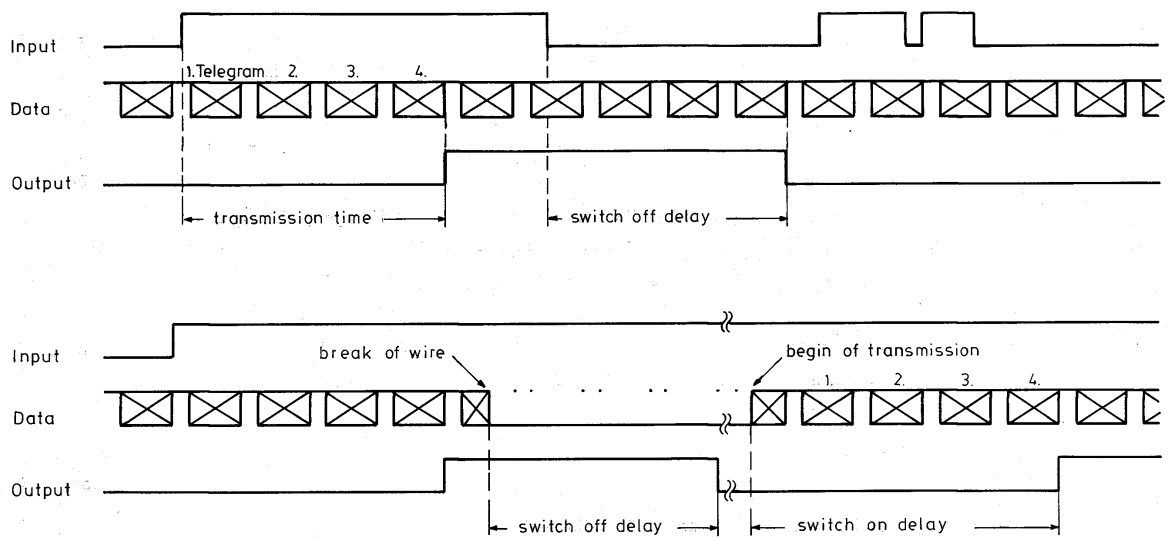
Types of modules:

Transmission module **ZS 8 S**
 Transmission extending module **ZS 8 SE**
 Receiver module **ZS 8 E**
 Receiver extending module **ZS 8 EE**

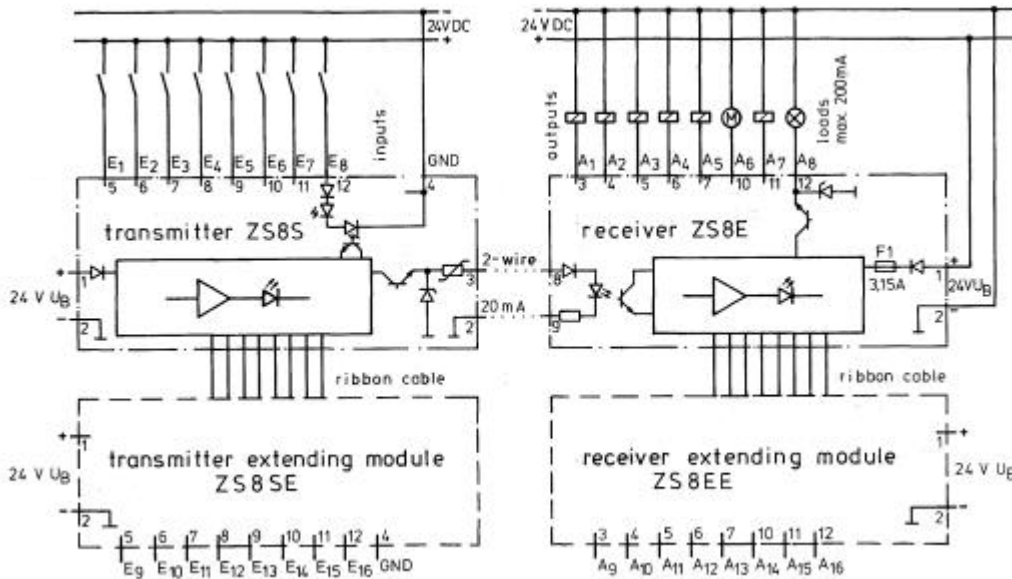
Dimensions:



Data transmission diagram



Wiring plan:



Technical data:

Supply voltage	20 ... 33 V DC
Power consumption Transmitter	appr. 1 W
Power consumption Transmitter extension	appr. 0,2 W
Power consumption Receiver	appr. 0,5 W + load current (each 0,2 A)
Power consumption Receiver extension	appr. 0,5 W + load current (each 0,2 A)
Input voltage	appr. 16 ... 35 V DC (other on request)
Input current	each max. 7 mA
2-wire voltage	max. 33 V/25 mA
Loop resistance	max. 10 kΩ
Transmission rate	4800 Baud (other on request)

Mechanical data:

Mounting transmitter	arbitrarily
Mounting receiver	vertical
Operating temperature	-20° ... +60 °C without condensation
Storage temperature	-20° ... + 70 °C without condensation
Relative humidity	< 75 % mean group F DIN 40040
Protection	IP 40
Connecting cross section	1,5 ²
Weight	approx. 0,12 kg

Conditioned on technical alternatives.

Suitable Power Supplies and DC/DC-Transducers will be found
in Product Group 10

EES Elektra Elektronik GmbH & Co Störcontroller KG

Hummelbühl 7-9 · D-71522 Backnang/Germany · Postfach 12 40 · D-71502 Backnang
Telefon: 07191/182-0 · Telefax: 07191/182-200 · e-Mail: EES-Backnang@t-online.de