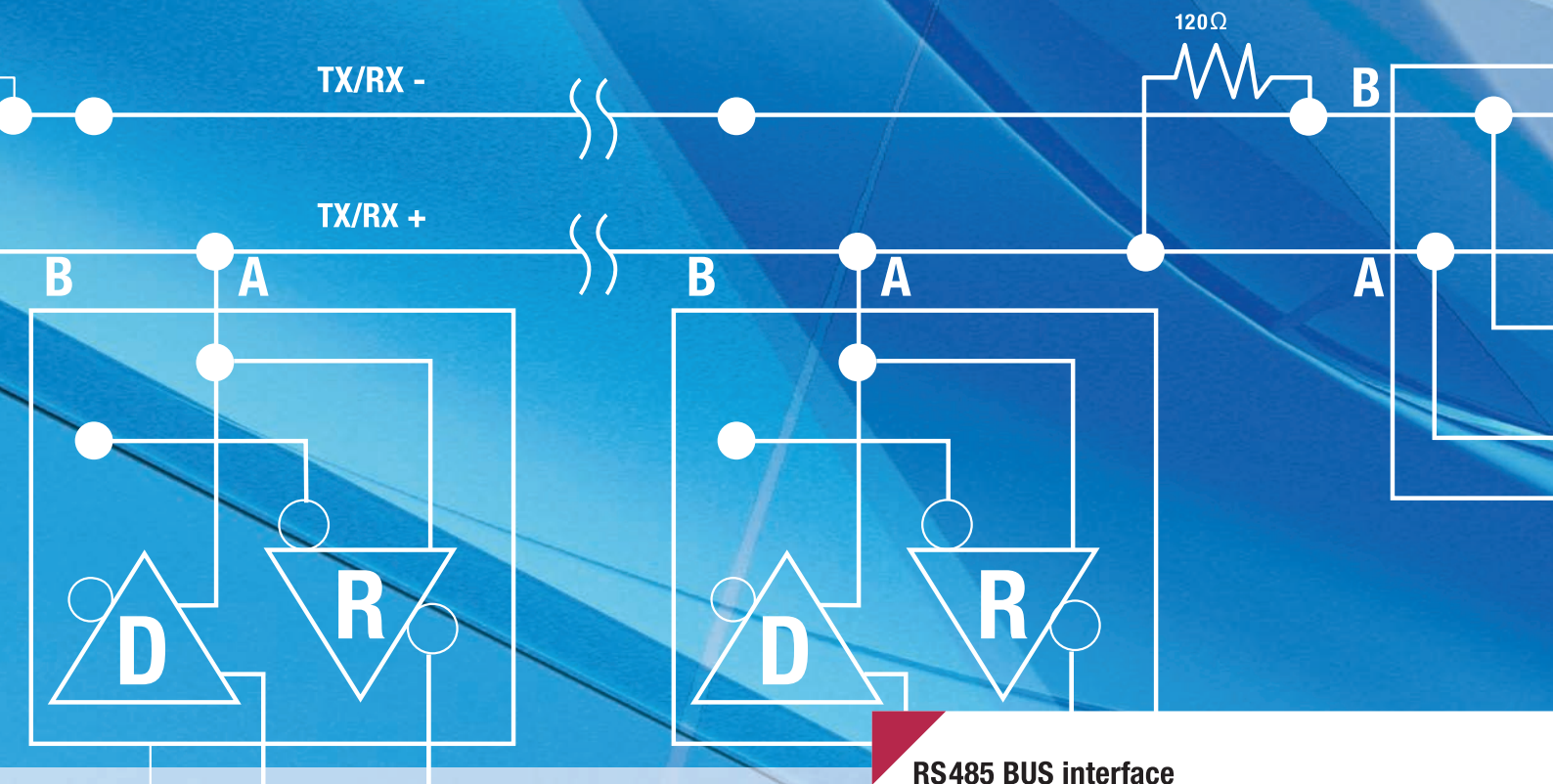


RS485 BUS))

Interface for serial data transfer

SURFACE TECHNOLOGY



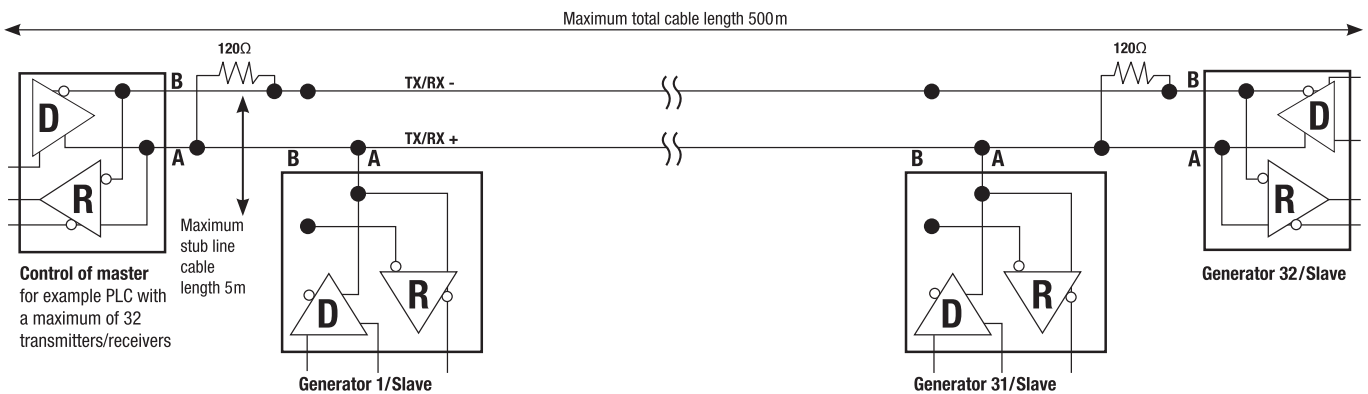
RS485 BUS interface

for extremely reliable serial data transfer over large distances. High bidirectional transfer rates.

- Bussystem with up to 32 users
- Maximum cable length 500m
- Monitoring and controlling of process-relevant functions
- High process reliability

RS485 BUS))

Interface for serial data transfer



The lines in this industrial bus interface work in push-pull operation. Only two cables are needed, and these are half-duplex controlled. The main advantage of the 2-wire technology lies in its multimaster ability: In principle, each user can exchange data with any other user. This RS485 bus is designed as a 2-wire unit (with or without handshake). The RS485 also allows several transmitters and receivers (up to 32) to be connected with the help of a protocol. The ISO Standard 8482 specifies a maximum cable length of 500m. Due to the length of the transfer cables, a large potential difference can occur between the signal earth of the data transmitter and the receiver.

Protocol

Since several transmitters operate on a shared line, a protocol is needed to ensure that only one data transmitter is active at any time. All other transmitters must be in a high-resistance state during this time. The RS485 Standard simply defines the electrical specifications for differential receivers and transmitters in digital bus systems. The ISO Standard 8482, on the other hand, also standardises the cable topology and stipulates a maximum cable length of 500m.

Physical transfer procedure

The serial data is transferred without reference earth as the difference in voltage between two corresponding cables. There is one pair of wires for each signal that is to be transferred – one inverted and one non-inverted signal line. The inverted cable is labelled as “A” or “+”, the non-inverted cable as “B” or “-”. The receiver just assesses the difference between the two cables to ensure that common-mode interference on the transfer line does not lead to falsification of the actual signal. Under load, the RS485 transmitters provide an output level of $\pm 2V$ between the two outputs. The receiver modules still recognize a level of ± 200 mV as a valid signal.

Maximum cable length

Using a symmetrical transfer process in combination with low-capacity and low-loss twisted pair cables, extremely reliable connections can be set up over a distance of up to 500m with high transfer rates. The use of high-grade twisted pair cables prevents crosstalk between the transmitted signals and, in combination with the shielding, also minimizes the sensitivity of the transmission device to noise/interference.

Scheduling

When using RS485 connections, the cable must always be connected to a scheduling network. This is to force the silent signal in the bus system during times when no data transmitter is active.

RS485 2-core bus

The RS485 2-wire bus is made up of the actual bus cable with a maximum length of 500m. The users are connected to this cable via a stub line no longer than 5m. The 2-wire bus is basically only half-duplex capable – this means that since only one transfer path is available, only one participant can send data at a time. Not until the data transfer is complete can the system send the responses of other participants. The best known application based on the 2-wire technology is the PROFIBUS.

**Our sales team will be happy to help you and answer any questions you may have. Give us a call:
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