# What is RS422 protocol? | Explained

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What is RS422 protocol? Another name of RS-422 is TIA/EIA-422; it provides standard technical support in the electronics industry. The RS422 was introduced mainly to get the higher data rates on serial data communication than the RS-232. So, we can say that the RS422 is an updated version of the RS232 protocol.

# What is RS-422?

For increasing the data rate in sending data from transmitter to receiver, the concept of RS 422 has been introduced. It can send the data at the rate of 10 Mbps and provides reliable transmission up to 50 feet since it can seamlessly transmit data at a distance of 4000 feet. Like maximum distance, the maximum data rate of RS-422 is 100 kbps. Basically, the application of RS-422 belongs where high speed is required and the signal is used to transmit reliability by covering maximum distance. RS-422 to generally conduct twisted pair cable for sending and receiving data.

# What does RS 422 stand for?

RS-422 mentions electrical specifications regarding a digital signaling circuit, it basically represents a technical standard of serial communication.

# Electrical specifications

- It uses a single-ended multi-drop cable for transmitting data.

- The data can be transmitted from one transmitter, but at the other end, there may be 10 receivers.
- RS 422 is eligible to transmit data by following full-duplex and half-duplex communication mode.
- This type of serial communication is capable of sending the data at a maximum distance of 4000 feet with a speed of 100 kbps.
- The maximum data rate of RS-422 for 50 feet distance is 10 MBPS.
- It needs at least four wires for sending data and follows the point-to-point transmission method.
- This type of serial communication has the capability of driving the output current is 150 mA.

The relationship between cable length and signaling rate is proportional, which means the signaling rate becomes slower concerning the increase of cable length.

# RS-422 is full-duplex?

RS-422 takes assistance of twisted pair cable at the two ends for sending data. It transmits data by following full-duplex mode, and one transmission is directed by utilizing two wires apiece.

# Is RS 422 analog or digital?



RS-422 serial port transmits digital data through twisted pair cable from transmitter to

receiver.

# Comparison between RS-232 and RS-422

RS-232 follows the standard communication process and is used as a computer port. If we see a configuration of standard RS-232, then we can see it consists of 9 pin connector, which is commonly known as DB9. The pin's location can be determined from left to right in the following way: Data Carrier Detect, received data, transmit data, data terminal ready, ground, data set ready, request to send, clear to send, and the last one is ring detector. Sometimes, RS-422 frequently uses a DB9 connector for communication purposes.

Sometimes some devices use an extra terminal block or connector transmission and did not have any particular connectors. From the fundamental conception, the working of RS-232 and RS-422 is kind of different because RS-422 is capable of connecting more than one device at a time with the assistance of repeaters.



For connecting printers and monitors with the computers generally, the application of RS-232 serial port is seen. Comparatively, RS-422 is capable of transmitting data for more distance than RS-232. Moreover, RS-232 can support to transmit data up to 920 kbps. For the automation process and to meet the requirements of some industrial applications, RS-422 is mostly chosen. They are also capable to support cloud or network systems.

# How RS-422 Works?

The construction of RS-422 is designed so that it can deal with a greater noise level and is compatible with transmitting the data through a long cable. Basically, RS-422 is fixed between the two ends of transmitter and receiver. It can provide data up to 10 receivers and it is possible with the help of differential current drive output, which offers high support to suppress noise.

According to the operations of RS-422, it can be said that it is consummate to transmit data for long connections, which is better than RS-232 and Ethernet. It follows two wires for transmitting data; if the first wire's value is greater than the next one, it provides 0 as output and provides 1 for the opposite wires' opposite values.

# Advantages of RS-422

- This is one of the fastest serial communication ports, whose data rates 10mbps.
- One of the advantages of RS-422 is it has a multidrop configuration, which offers loads up to 10 units.
- It is compatible with suppressing the noise.
- It can support the long cable length reaches up to 4,000 feet.
- It follows a point to point communication strategy.

# Disadvantages of RS-422

- In serial communication, it is often used.

- It follows and unidirectional data flow during transmission.
- For most of the communication processes, it consists of one transmitter only.
- It is not compatible to deal with a multi-point network.
- Sometimes it uses the half-duplex communication mode for transmitting data.


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