

Data flow

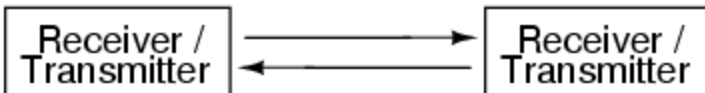
Buses and networks are designed to allow communication to occur between individual devices that are interconnected. The flow of information, or data, between nodes can take a variety of forms:

Simplex communication

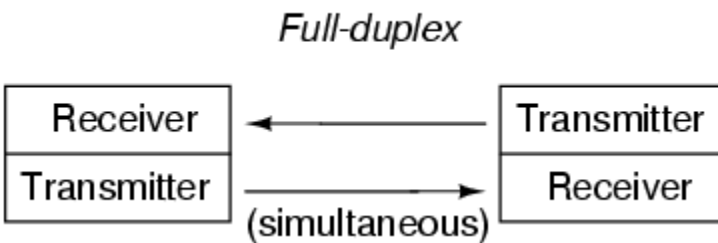
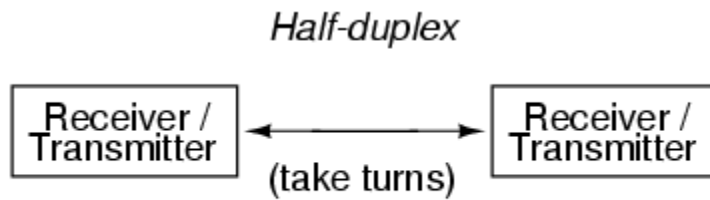


With simplex communication, all data flow is unidirectional: from the designated transmitter to the designated receiver. BogusBus is an example of simplex communication, where the transmitter sent information to the remote monitoring location, but no information is ever sent back to the water tank. If all we want to do is send information one-way, then simplex is just fine. Most applications, however, demand more:

Duplex communication



With duplex communication, the flow of information is bidirectional for each device. Duplex can be further divided into two sub-categories:



Half-duplex communication may be likened to two tin cans on the ends of a single taut string: Either can may be used to transmit or receive, but not at the same time. Full-duplex communication is more like a true telephone, where two people can talk at the same time and hear one another simultaneously, the mouthpiece of one phone transmitting to the earpiece of the other, and vice versa. Full-duplex is often facilitated through the use of two separate channels or networks, with an individual set of wires for each direction of communication. It is sometimes accomplished by means of multiple-frequency carrier waves, especially in radio links, where one frequency is reserved for each direction of communication.

Source: http://www.allaboutcircuits.com/vol_4/chpt_14/3.html