Difference Between Multiplexer and Demultiplexer

Multiplexer	Demultiplexer
A multiplexer is a combinational circuit that accepts numerous data inputs but only produces one output.	The demultiplexer is a combinational circuit that takes a single input and distributes it to multiple outputs.
A digital switch is referred to as a multiplexer.	A demultiplexer is a digital circuit that demultiplexes signals.
It requires multiple inputs of data and signals.	It requires single input of data and signals.
It has single data output.	It has n data output.
It is used at the transmitter end in time-division multiplexing.	It is used at the receiver end in time-division multiplexing.

Multiplexer and Demultiplexer

Multiplexer and Demultiplexer are a type of combinational circuits. The difference between them arises with the number of inputs received and their outputs. Let us understand each of them in detail.

What is Multiplexer?

Multiplexers are the combinational circuits in digital electronics. A multiplexer (or mux; often written multiplexor), also known as a data selector, is a device that chooses one of numerous analog or digital input signals and sends it to a single output line. The second set of digital inputs, known as select lines, controls the selection. A multiplexer of 2^n inputs has n select lines, which are used to select which input line to send to the output.

Instead of having one device per input signal, a multiplexer allows numerous input signals to share one device or resource, such as an analog-to-digital converter or a communications transmission channel. Multiplexers can also be utilized to implement multiple-variable Boolean functions.

What is Demultiplexer?

A demultiplexer (or demux) is a device that takes a single input and selects signals from the compatible mux's output, which is linked to the single input and a common selection line. On the receiving end, a multiplexer is frequently used in conjunction with a complementary demultiplexer.

A demultiplexer is essentially a combinational circuit that can receive only one data input but distributes it to multiple outputs. In a nutshell, it's the inverse of a multiplexer, although they're not diametrically opposed. It deconverts a signal into its constituent signals, which are unrelated and distinct.