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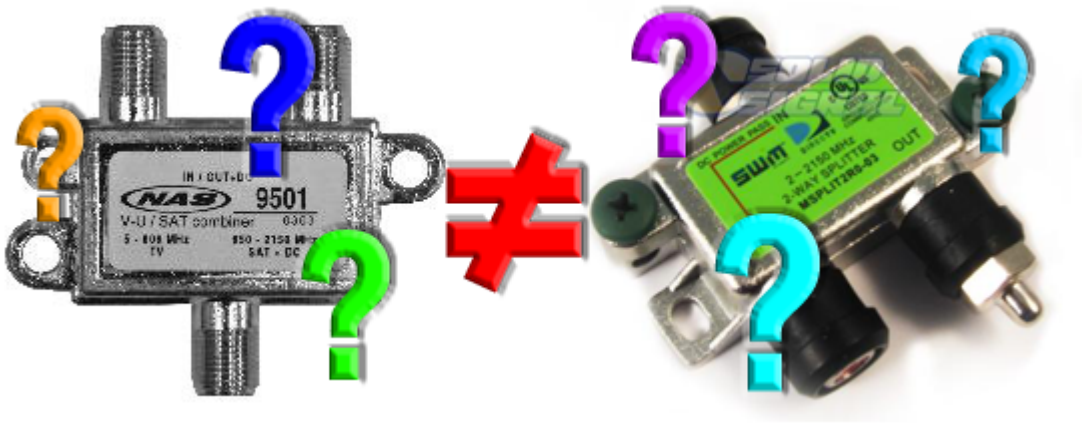
Taps, Diplexers, and Splitters and Combiners: What's the Difference?



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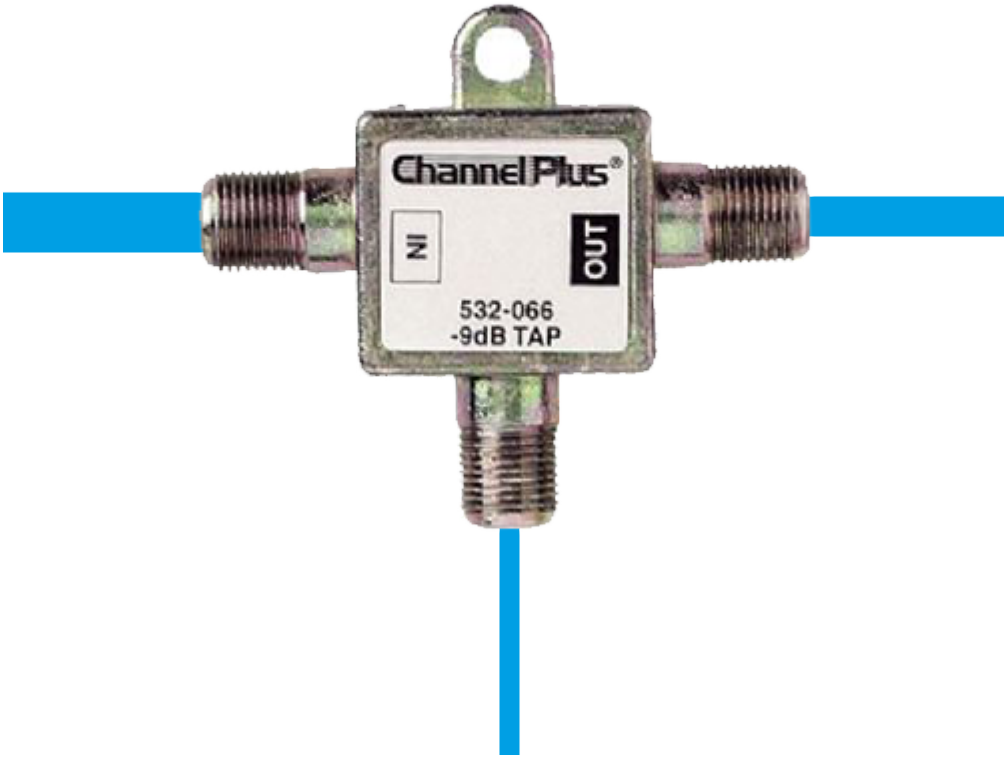
Yes, taps, diplexers, splitters, and combiners look alike and serve similar functions. You need to be aware of the differences between these consumer electronics products.

All these devices accept your TV signal before distributing that signal to multiple receivers. Each one does this task differently, however. This leaves you needing to know whether you need a tap, diplexer, combiner, or splitter for your specific installation. Telling these products apart is easy because the devices are labeled on the Solid Signal website. Here on the blog, we explain taps, splitters, combiners, and diplexers. This helps you understand how each is used in TV antenna or satellite dish installations.

What is a Tap?

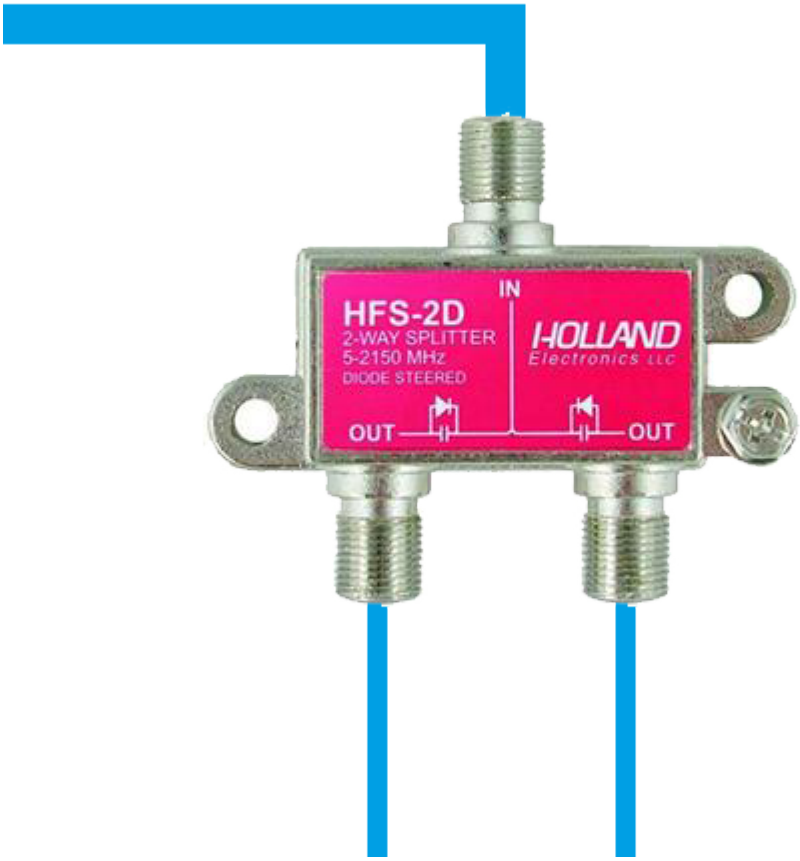
TAP



Let's look at taps first. These devices, also known as directional couplers, typically have one input and two outputs. (There are multiport taps too, as well as those with multiple inputs such as six in, 12 out.) A tap takes a signal that's too strong for a single device to use and splits it differentially. This means that the output leg going to an infrastructure device gets a weaker signal while the stronger signal continues to the next tap. These devices have at least 3dB port loss, which is roughly half the signal. Taps are typically used in schools, businesses, and other installations where multiple receivers are fed from the same signal source.

How About Splitters?

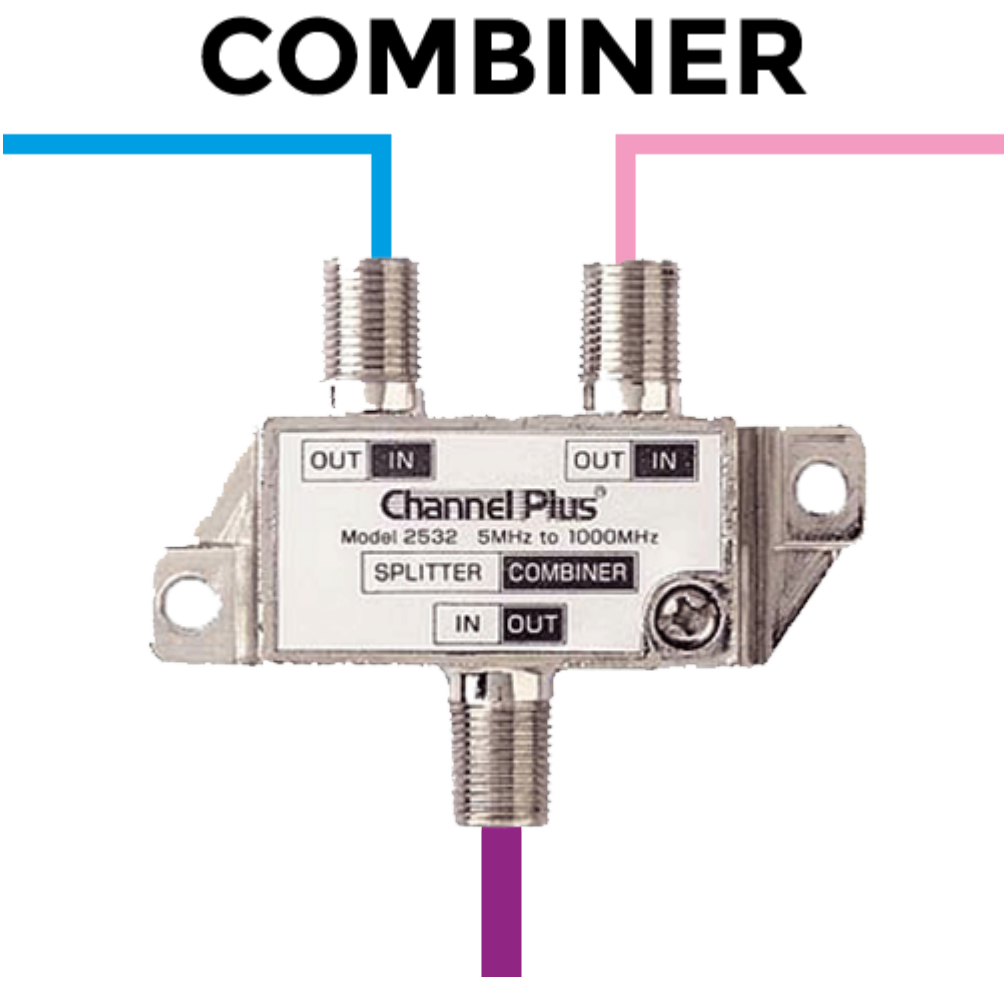
SPLITTER



As their name suggests, splitters evenly separate signal among the output legs. These units are often used to go straight to receivers or tuners. (Taps are primarily used to go to infrastructure devices such as multiswitches and modulators.) The amount of loss that's significant depends upon the incoming signal level. Like taps, splitters also experience a port loss of at least 3dB or roughly half the signal. Splitters typically experience a certain amount of insertion loss on each output legs:

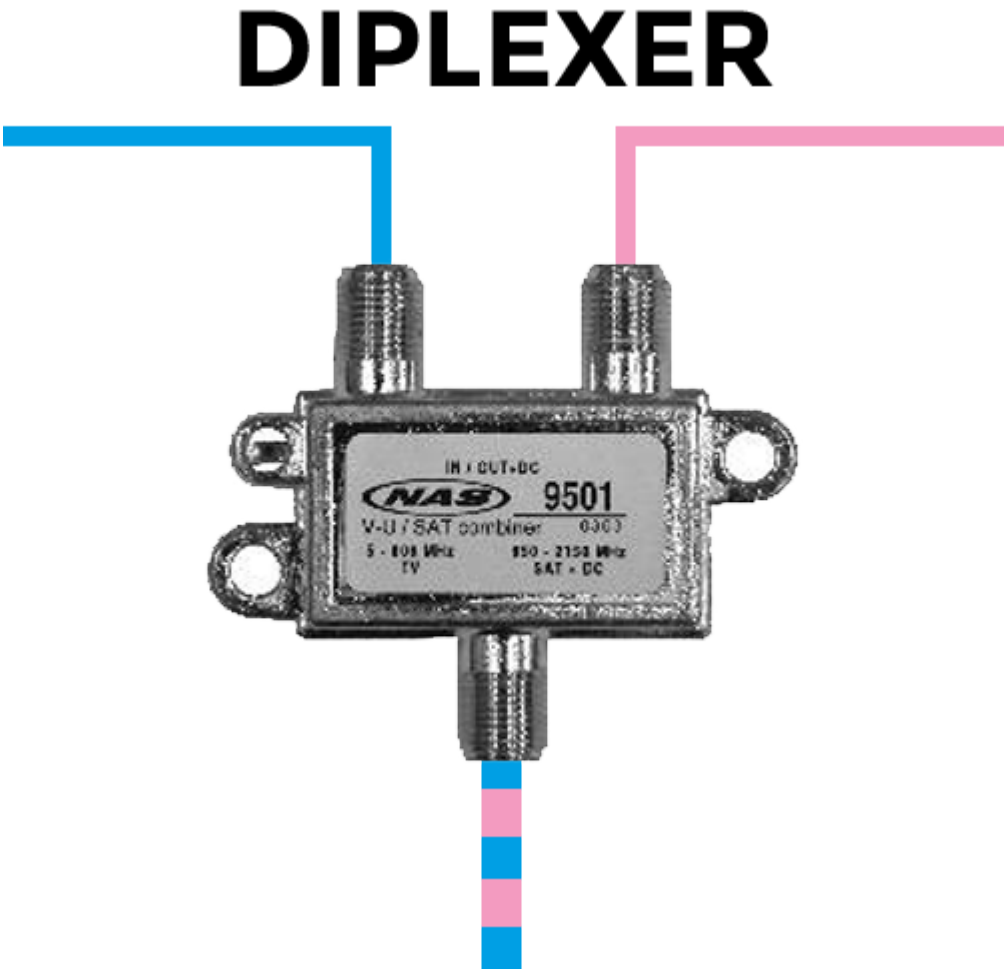
- A 2-way splitter has -3.5db signal degradation on each leg.
- 3-way balanced splitters have -5.5db-6.5db on all legs or -3.5db loss on one leg, and -7db on the other two (similar to using two 2-way splitters).
- Most 4-way splitters experience a -7db on each leg.
- An 8-way splitter experiences -12dB-14dB loss on each leg, depending upon the device.

And Then There Are Combiners



These are passive devices that look like a TV signal splitter, but the similarity ends there. Combiners operate exactly as the word “combine” means – they take signal from two or more sources then merge them onto a single line. This does not necessarily create a stronger signal, however. A combiner only runs two different types of TV signals through a single cable to the input on a TV receiver. These devices should be used when signals are meant to be combined. In some cases, a splitter can be used as a combiner by using the output legs as inputs and the input leg as an output.

Who Needs Diplexers?



Diplexers are small, box-like metal devices with one input and two outputs. And yes, they look very much like taps and splitters. These devices actively combine two or more sources in such a way that only a small frequency range from each source is allowed to pass. This ensures that the signals from each source don't interfere with each other. Diplexers are commonly used in commercial installations where things such as cable TV, internet, and antenna signals live on the same line. They cannot be used with modern satellite TV systems.

What About Amplified Splitters?

These devices are splitters with built-in amplifiers. Some units contain a potentiometer that increases or decreases the amount of signal from the booster as needed. This is used to counteract the effects associated with multiple splitters and long cable runs. Like taps, diplexers, and non-amplified splitters, these amplified splitters resemble a small metal box with one input leg and two or more output legs.

Why You Should Call Solid Signal

If you're not sure whether you need a tap, splitter, combiner, or diplexer, don't panic. Unless you're an experienced TV antenna or satellite dish installer, it's easy to get confused about these devices. To make things more confusing, different types of systems require different hardware. If you want to make sure you're using the right device to separate the signal, call us at 888-233-7563. Our product experts will recommend the right device. And if you're reading this after hours and need help, fill out the form below and send it to us. Someone will reach out to discuss your installation and the tap, splitter, combiner, or diplexer you need.

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Jake Buckler is a cord-cutter, consumer electronics geek, and Celtic folk music fan. Those qualities, and his writing experience, helped him land a copywriting gig at Signal Group, LLC. He also contributes to The Solid Signal Blog.