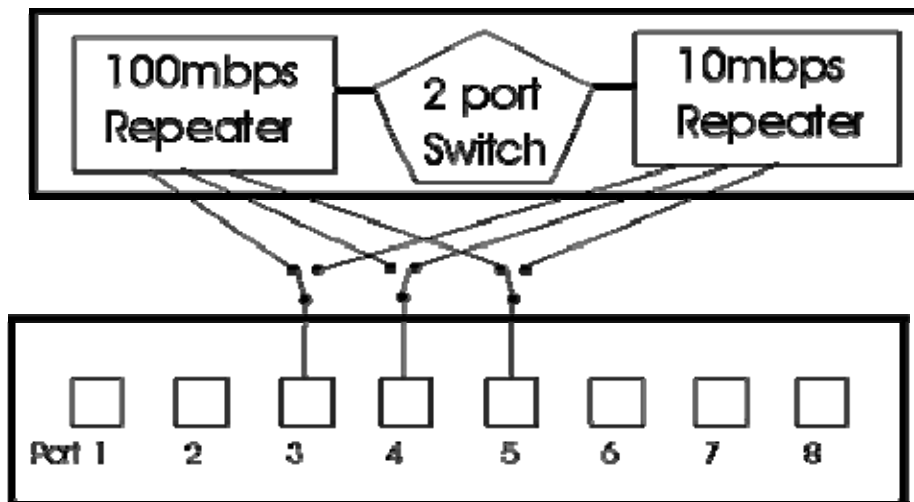

Topic / Issue: Dual Speed Hubs a Functional Description

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The following document explains the basic functionality of a Dual Speed Hub.
This document applies to all of Alloy's Dual Speed Hubs, and more than likely is generic for most dual speed hubs found in the industry.

A functional Diagram of a Dual speed hub with switch built in:



From the diagram above you will note that a Dual speed hub is actually two repeaters. One 10Mbps repeater and One 100Mbps repeater separated by a 2 port switch/bridge.

Each port on a Dual Speed Hub has the ability to autodetect the speed of the media that is connected to it and select which repeater it becomes a member of. (The 10Mbps or 100Mbps repeater)

Once a port has connected to one of the repeaters, communication with other ports of the same speed, becomes a simple repeating function..

BUT

For that port then to be able to communicate with ports connected via the other repeater (At the other speed), whether it is 10Mbps or 100Mbps, it must be forwarded via the internal 2 port Switch.

The Switch function

The Switch function regenerates the timing requirements for both the 10Mbps and 100Mbps groups, and allows the CSMA/CD mechanism to remain valid. Via the switch function, communication is possible across the two Physical speed groups.!!!

Note:

For a single Dual Speed Hub to have communication from 10 to 100, it must have a switch built in.

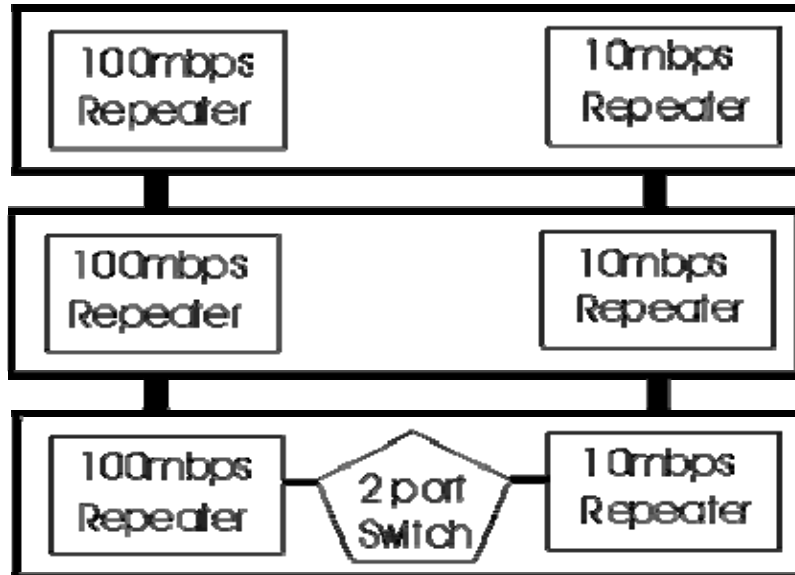
Stacking Dual Speed hubs

The stacking feature within these hubs allows for higher port densities.

When Stacked only one of the hubs requires the built in switch function..

The proprietary stacking cable passes both the 10Mbps and 100Mbps buses up the stacking cable and allows a single switch function, to do all of the switching for the total combined number of ports in the stack.

A functional diagram of a Dual Speed Hub stack. Only one has a built in switch!!



Once the Basic functionality of a Dual Speed Hub is understood, it is then important to look at the limitations in cascading of these devices.

The considerations are based around the standard Ethernet 5-4-3 rule, and the Fast Ethernet Class II limitations. Please see the following two pages for detailed background information on these two issues.

Summary:
(If required)