

## Hex-5000 Hybrid EQ Xover overview:

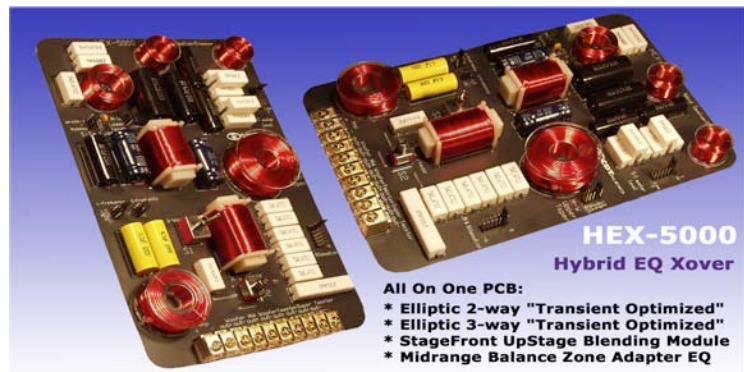
The Hex-5000 provides a parametrically adjustable variable crossover. In three-way mode with an additional subwoofer and electronic crossover a 5-way system is provided. In 2-way mode it would become a 4-way system with the subwoofer. Without the subwoofer the system "ways" are then 4-way and 3-way respectively. The label (2-way 3-way) nomenclature for S1 excludes reference to the subwoofer and S-tweeter. There are 9 adjustment areas on the module. Adjustment #6 has no effect in 2-way mode. The table below summarizes the adjustments.

Adjustment Number	Adjustment Name	Affects:	Positions (Typ.Pos.)	Effect
1	(S1) 2-Way / 3-Way	Selects System	2 (n/a)	Adds a Woofer in 3-Way Mode
2	L-Frequency	M-W and Tw crossover to S-Tweeter	3 (med)	1kHz to 5kHz
3	C-Frequency	M-W and Tw crossover to S-Tweeter	2 (Hi)	1kHz to 5kHz
4	S-Tweeter Level	S-Tweeter Level	7 (4)	5kHz to 20kHz+
5	S-Tw Fuse	S-Tweeter	2 (bypass)	Protect Tweeter
6	M-W Lower Taper	M-W Crossover	2 (Low)	350Hz/450Hz
7	(S2) M-W Phase	M-W Inverter	2 (+)	Invert or not M-W phase
8	M-W Upper Taper	M-W Crossover	5 (0.4)	Roll-off M-W at 1kHz-5kHz
9	M-W Attenuation	M-W Level	7 (4)	Control M-W level

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#### Notes:

Inserting a jumper over just one pin may occasionally be useful and has the following effect: Adjustment #2 - L-frequency - mutes the mid-woofer and tweeter  
 Adjustment #3 - C-Frequency - same as high setting  
 Adjustment #4 - S-Tweeter Level - mutes S-tweeter  
 Adjustment #5 - S-Tw Fuse - same as protect  
 Adjustment #6 - M-W Lower taper - creates first order high pass to Mid-Woofer (with non-resonant enclosure design)  
 Adjustment #8 - M-W Upper Taper - mutes Mid-Woofer  
 Adjustment #9 - M-W Attenuation - mutes Mid-Woofer



#### Functional Description of the Module S1 in the two-way position:

The Amp input passes into a tapped (adjustable) coil with three settings (adjustment #2) labeled L-frequency and is tapered off with two slope profiles (adjustment #3) labeled C-Frequency. This thus gives six possible combinations for crossing over the mid-woofer/tweeter as a system to the S-tweeter. The Amp input also goes to the S-Tweeter whose level and thus crossover also are altered by the (adjustment #4) S-Tweeter level setting. As the tweeter level is lowered the tendency for the crossover frequency to rise is compensated partially by also decreasing the response taper at the same time.

The S-tweeter fuse bypass (adjustment #5) can be set to bypass for the highest possible sound quality or to protect for protection and a very slight level drop as a consequence. The M-W Lower Taper (adjustment #6) has no effect in the two-way mode. The phase of the mid-woofer can be reversed or normal (+ or -) (S2 - adjustment #7) depending on which gives the best overall response flatness in the vehicle. The switch provides a rapid A-B function to provide easy selection of the best sound. The M-W Upper Taper jumper set (adjustment #8) is used to gradually taper off the mid-woofer gradually lowering its crossover frequency as the jumper moves toward 1.2 which is the maximum roll-off and therefore the minimum crossover frequency. The M-W attenuation jumper set (adjustment #9) modifies the overall level of the mid-woofer reducing it below 1kHz where the taper has little effect. These two settings blend smoothly together.

#### Functional Description of the Module S1 in the three-way position:

The Woofer terminals are active and the module should always have a woofer connected in this switch position. A fixed crossover in the 300Hz to 500Hz range results depending on the woofer characteristics and mounting. The tendency of woofers to have a rising response in this range is compensated for by gapping the crossover to the mid-woofer slightly. This gap and the amount of reinforcement in the crossover region may be altered with S2 as described above. The crossover is further adjustable by the M-W Lower Taper (adjustment #6). With the M-W Lower Taper in the Hi position there is more gapping and in the low position more overlap. The woofer crossover and level are fixed.

With a full set of instrumentation the switches and jumpers should be set for the flattest response. This can also be done by ear - listening critically to voice and music. There are 5,880 possible combinations of sound control settings in three-way mode and 2,940 in two-way mode excluding the protection for the s-tweeter, which has a slight effect on the s-tweeter level. The drivers used in the installation should be compatible within reason in efficiency and impedance for best operation.

The variation of parameters method in the Hex-5000 provides adjustability without passing the signal through complex narrow band equalizer circuits, which can color the sound.

