

Building From Bass Up

A tiny class D monobloc amplifier from AudioControl, the ACM 1.300 includes its trademarked AccuBASS feature. This feature is incredibly important for OEM integration. Read on to find out why this amplifier has become very popular amongst those looking for a bass lift.

At the top level, the ACM 1.300 is simply a single channel (monobloc) amplifier providing 175 watts RMS to a 4 ohm load or speaker. Reduce the load to 2 ohms by connecting two 4 ohm speakers in parallel for instance, and you get 300 watts RMS. On first viewing, many are somewhat cynical about how such a large amount of power can be squeezed out of this tiny, lightweight box.

The ACM 1.300 is a class D amplifier. Class D is a way to make signals bigger but with greater efficiency than previous classes of amplifier. Before we go much further, it is important to know that a class D amplifier is not a “digital” amplifier despite being mistakenly described as such by many. It does however use a unique approach to handling audio signals. These are first converted from an amplitude specific voltage to a series of pulses of varying width. This is known as pulse width modulation (PWM). By doing this, an amplifier’s output stage can be created by simply switching transistors (more typically MOSFETs) from a fully on state to a fully off state for differing amounts of time. The result is passed through a Low-pass filter to restore it to its original “shape” only bigger. I could add a lot more detail to this description but will resist the temptation for now, as it could become quite technical and I may well lose myself and a few readers along the way. Suffice it to say that class D amplifiers are very efficient and extremely light-weight making them ideal for applications where a good deal of grunt is required, but where heat and weight are undesirable side effects.

There are many class D monobloc amplifiers on the market of varying quality. This class of amplification requires sophisticated filtering of the output to ensure the resulting output is “pure”. A lot of cost differential can be attributed to the complexity of the filtering as well as the general quality of components used.

In practice, the amplifier can be switched on via a remote switch voltage derived from the vehicle’s head unit or can automatically sense when an input signal is present and switch on as a result. AudioControl call this input sensing technology GTO (“Great Turn On” – They are a wacky bunch at AudioControl!). Using GTO can save your installer running a dedicated wire to the amplifier from the head unit, making installation a little quicker. The amplifier also contains a Linkwitz-Riley crossover with a 12dB/octave curve and equipped with bypass-able 80Hz or 120Hz filters. A full range of troubleshooting information is delivered via coded flashes of built in LED’s that will help your installer if anything goes awry with the product or its installation. Audio connections can be made via RCA or speaker input terminals. The latter being the most convenient way to pick up a feed from a vehicle’s head unit. However, there is an inherent issue with this which AudioControl have developed a unique solution for. The issue relates to the propensity of motor



ARC1 - optional remote level control

“ a class D amplifier is not a “digital” amplifier ”



GTO™ Signal Sense

AccuBASS® Bass Restoration

manufacturers to use the cheapest speakers they can lay their hands on. By using many “clever” tricks, manufacturer’s attempt to cover over the deficiencies inherent in inadequate speakers. One such scheme is to reduce the bass content in a head unit’s output as the volume is increased. This is done to protect the speakers from too much bass when the vehicle is being driven at speed or with the window down for instance. Of course, this leads to a very different sound than when the vehicle is stationary and being listened to at a low level – in your car dealer’s showroom for instance!

The AudioControl solution is a bass restoration technology called AccuBASS. In any system, the issue can be dealt with manually by simply turning the bass up when driving at higher levels. If this is done with the standard speakers, a great deal of distortion will be introduced. This will cause early failure of the speakers themselves. The sound will also quickly begin to sound pretty nasty! AccuBASS allows your installer to set a threshold at which bass is lifted to compensate for the roll off in a standard head unit. The installer can then set the amount of additional bass to add. These parameters will ensure that bass remains the same regardless of the volume setting on the head unit and as this happens in a standalone subwoofer amplifier, the standard squawkers are unaffected by the bass lift.

From time to time we all like a bit of extra bass. AccuBASS is not designed for this necessarily, and an optional remote level control is available for those who like a little extra from time-to-time while maintaining the integrity of your installer’s setting. The installation of a subwoofer to standard factory system will not cure all of the inherent problems with it. However, we all know that adding bass will help to make your listening experience more engaging and “fun”. A lack of bass often has drivers reaching for a talk radio station as their music collection is rendered unlistenable at higher levels. Improving the bass with the ACM 1.300 with AccuBASS and a suitable subwoofer will undoubtedly offer immediate improvement. Furthermore, the amplifier can out-run many others in its class meaning that when the time comes to upgrade your full-range speakers and add extra power, the ACM 1.300 will still do a very good job and will integrate even better sonically. □

Try listening to the following tunes to see if your car needs a bass boost!

