3. RACK MOUNTING

As you have seen repeatedly in this manual, the MPDI-4 is a Class A device. Class A circuitry unavoidably generates heat. How one chooses to rack-mount these devices can have a significant affect on the ambient temperature inside the enclosure. We have done everything we can (short of using a fan) to improve the thermal performance and we have put them through "worst case" rack mounting scenarios to make sure that they will perform reliably under those conditions. However, we just want to make people aware of how the various rack mounting options will affect the thermal performance.

THE WORST POSSIBLE WAY TO MOUNT MULTIPLE MPDI-4s IN A RACK, IS TO STACK THEM ONE ON TOP OF EACH OTHER. When three MPDI-4s are stacked on top of each other in a rack, the one in the middle will maintain an average internal ambient temperature of about 120˚F (49˚C). If you stack 6 of them, the middle units can get up to 130˚F (54˚C), 8 of them can get over 140˚ F (60˚C). The MPDI-4 is protected by thermistors. When the units get in the 140˚F (60˚C) range, the thermistors will start to shut down the various DC voltages. **THIS IS VERY IMPORTANT!! IF THE LIGHT IN THE VU METER TURNS OFF AND/OR THE MPDI-4 STOPS PASSING AUDIO WHILE THE POWER SWITCH IS TURNED ON, THAT MEANS THAT A THERMISTOR HAS TRIPPED BECAUSE THE UNIT IS RUNNING TOO HOT!!** Simply turn off the MPDI-4, change the rack mounting situation such that it allows the unit to run cooler and then power it back up. Everything should be fine. The thermistors will reset themselves after the unit cools down and if the new rack mounting arrangement keeps things cool enough, it will not happen again. The temperature at which components inside the unit would start to actually burn up is around 220˚F (105˚C). We are a long ways away from that, but there is a catch: the closer you get to that temperature, the shorter life span the internal components will have.

WE STRONGLY RECOMMEND LEAVING A GAP BETWEEN EACH MPDI-4 MOUNTED IN A RACK. If you mount the MPDI-4 with even just a 1/3 of a rack space between each unit, the average internal ambient temperature will be 105˚F - 115˚F (41˚C- 46˚C). An MPDI-4 sitting by itself in a rack will maintain an average internal temperature of about 100˚F (38˚C). Here is the crazy thing, if you mount an MPDI-4 vertically, the average internal temperature drops as low as 80˚F(27˚C)!!! It turns out that the standard the world has chosen for orienting rack mount equipment (horizontally) SUCKS for thermal dissipation. If you have the option of mounting the MPDI-4 vertically it is unquestionably the best way to do it (this is also true for most all rack mounted gear).

At the end of the day, keeping the internal temperature of the MPDI-4 lower will most likely give it a longer life span. How much longer? Well, we are not really sure. We expect the MPDI-4 to function without any need for service for about 15 years. Will stacking these on top of each other in a rack shave off 1, 2 or 3 years from that expectation? We just won't know for sure for about 10-15 years from now. We recommend mounting the units in a way that will keep them as cool as possible, whenever possible.