

## TO WHOM IT MAY CONCERN

### Subject: M-Series - Considerations about input power consumption of audio power amplifier

The input power consumption of an audio amplifier depends on various factors i.e. load conditions, thermal condition and, of course, input signal amplitude.

The safety international standard IEC 60065: “Audio, video and similar electronic apparatus - Safety requirements”, defines both the normal operating conditions with which the audio amplifiers must be tested and all the relevant matters to ensuring electrical safety.

In particular, the main normal operating conditions are the following:

1. The apparatus must be powered with a supply voltage of 0.9 times or 1.1 times of any rated supply voltage for which the apparatus is designed.
2. The apparatus must be powered with any rated supply frequency marked on the apparatus.
3. The apparatus is operated in such a way as to deliver one-eighth of the total non-clipped output power to the rated load impedance.
4. The test signal must be a band limited pink noise or a sine wave of 1 kHz.

The normal operating conditions above are the reference conditions for the measure of the input power consumption. Based on these considerations, for M-Series audio amplifiers the following arise:

	SYMBOL	MODEL			
		M14D HDSP+ETH	M20D HDSP+ETH	M28Q HDSP+ETH	M50Q HDSP+ETH
<b>Nominal Voltage</b>	$V$	100 – 240 V~	100 – 240 V~	100 – 240 V~	100 – 240 V~
<b>Nominal Frequency</b>	$f$	50 Hz	50 Hz	50 Hz	50 Hz
<b>Rated Load Impedance</b>	$R$	4 $\Omega$	4 $\Omega$	4 $\Omega$	4 $\Omega$
<b>Total Non-Clipped Output Power</b>	$P_{OUT}$	530.0 W	636.0 W	981.0 W	1152.0 W
<b>One-Eighth Of The Total Non-Clipped Output Power</b>	$\frac{1}{8} P_{OUT}$	66.3 W	79.5 W	122.6 W	144.0 W
<b>Input Power @ One-Eighth Of The Total Non-Clipped Output Power</b>	$P_{IN} @ \frac{1}{8} P_{OUT}$	<b>92.1 W</b>	<b>116.3 W</b>	<b>172.7 W</b>	<b>218.2 W</b>

### Conclusion:

Based on safety international standard IEC 60065: “Audio, video and similar electronic apparatus - Safety requirements”, the input power consumption of M-Series audio amplifiers under normal operating conditions is less than 2000 W. Because the input power consumption of M-Series audio amplifiers under normal operating conditions is less than 2000 W than the equipment does not require BIS certification.

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