

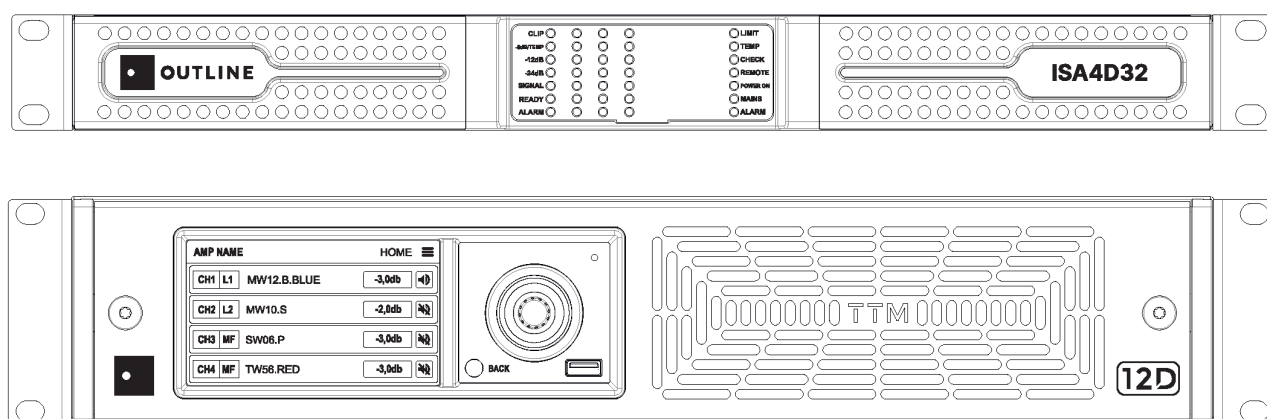


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OUTLINE TTM and ISA Series Multi Purpose Amplifier



USER GUIDE

TTM & ISA series

Introduction.

TTM and ISA series offer a speaker preset library available on ArmoniaPlus Marketplace. The speaker presets can be loaded connecting the amplifiers to a PC

running ArmoniaPlus through a fast ethernet connection. Even though on the TTM series it is also possible to load the speaker presets directly using the touch screen, we strongly recommend that you use ArmoniaPlus to select the perfect configuration of presets.

ArmoniaPlus is the default configuring interface that allows system setting and customization of TTM and ISA amplifiers. It is available for download for free from Armonia website, where a startup guide and in-depth tutorials are also provided:

<https://armonia.powersoft.it/>

Each loudspeaker model has one or more presets, and the aim of this guide is to provide help on how to use them, as well as to have an overview so you can choose the one that best suits your application needs.

The following data is given:

- N° of ways indicates the number of ways for the relative preset, as well as the number of required channels;
- Type of ways is a ways description that defines the section of the channel:
 - LF – low frequencies,
 - MF – mid frequencies,
 - HF – high frequencies,
 - MH – midhigh frequencies,
 - BS – bass frequencies,
 - PA – passive speaker,
 - SB – subwoofer,
 - RE – rear subwoofer for cardioid configuration.
- Application defines the preset contour or the use the preset is designed for:

FR – full range – maximum frequency extension of the loudspeaker,

HP – high pass – high pass version of the loudspeaker,

SUB – subwoofer – subwoofer application of the loudspeaker,

INFRA – infra application of the subwoofer,

Rear Cardio – rear subwoofer in cardioid configuration (the number 2+1 or similar

means how many subwoofers must be front oriented vs how many of them must be rear oriented)

BASS – bass application of the loudspeaker.

- Maximum number of linked speakers shows the maximum number of loudspeakers that it is possible to link for each amp and per each channel. Exceeding the maximum number of elements per channel or amp can result in damage to the amplifier and the speakers.
- Manufacturer EQ is a set of equalizations aimed at compensating known behaviors (like loudspeaker coupling, air loss etc.). This guide indicates whether the preset model has the MEQs and which are the available options. Please, refer to the relative section here below for more details.
- Acoustic HPF/LPF: This value represents the –6 dB ground-plane measurement for the speaker. With this value, you can get an idea of the best match between tops and subwoofers. It's important to keep in mind that phase-compliant presets can be successfully matched to achieve good summation, provided that the difference between the acoustic high-pass filter (HPF) and low-pass filter (LPF) is within one-third of an octave.

Preset Layout.

Here's a little explanation of the preset layout, with delay, gain and equalization configurations.

Please note that the multi-way speaker presets already

Delay.

Almost all the systems are pre-aligned and phase compliant: it means that from the largest system down to the smallest one, the majority of Outline products feature the same phase curve slope, except for all the discontinued products or those dedicated to special applications. In fact, positioning the enclosures with the front grilles one above the other, they will be perfectly aligned over time even using different applications (for example FR and HP). To align two enclosures, it is sufficient to measure the include all required output channels, which are linked together ensuring that the speaker is driven correctly.

difference in signal path between the sources to find the delay that must be added to obtain the perfect audio signal sum. So even if you do not have any sophisticated measurement system, you can actually achieve a good level of system tuning.

In any case, we strongly suggest that you use a measurement software so you can verify the predicted acoustic coverage and compensate any not simulated ambience behaviour.

Gain.

Furthermore, the preset structure is designed to use different loudspeaker models of different sizes together (again, from the largest system down to the smallest one), reaching their limiters at the same input level with default Gain settings.

Manufacturer EQ.

MEQ are a set of equalizations designed to compensate the frequency response of the loudspeakers depending on the mechanical configuration or a specific application. There are three categories (A, B, C) available:

- Category A: selectable amount of boxes that make up the whole array to compensate loudspeaker coupling, providing the right contour for the system. The Ai 41 and Ai 81 loudspeakers offer two options related to as a 'Single Speaker' or as a 'Stereo Set' use;
- Category B: selectable distance to be covered to compensate the air absorption. A-series offers two distinct options for different configurations, such as 'Wall Mounted' or 'Free Standing';
- Category C: special application of the loudspeakers.

Arena

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ				Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.	
Arena 215CX BiAmp	2	LF MH	Full Range	2 (4)	2 (4)	-	N		N		N	46 Hz	Y
Arena 215CX BiAmp	2	LF MH	High Pass	2 (4)	2 (4)	-	N		N		N	77 Hz	Y
Arena 215CX MonoAmp	1	PA	Full Range	1 (4)	1 (4)	-	N		N		N	46 Hz	Y
Arena 215CX MonoAmp	1	PA	High Pass	1 (4)	1 (4)	-	N		N		N	77Hz	Y

A-series

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
AS6	1	SB	Sub	4 (16)	4 (16)	3 (12)	N		Y*	free standing, wall mounted	N			143 Hz	Y
AS6	1	SB	Sub High	4 (16)	4 (16)	3 (12)	N		Y*	free standing, wall mounted	N			351 Hz	Y
Ai41	1	PA	High Pass	4 (16)	4 (16)	4 (16)	Y*	single speaker, stereo set	Y*	free standing, wall mounted	N		304 Hz		Y
Ai81	1	PA	High Pass	8 (32)	8 (32)	8 (32)	Y*	single speaker, stereo set	Y*	free standing, wall mounted	N		293 Hz		Y
Charlie 4	1	PA	Full Range	8 (32)	8 (32)	6 (24)	N		N		N		129 Hz		Y
Charlie 4	1	PA	High Pass	8 (32)	8 (32)	6 (24)	N		N		N		149 Hz		Y

Butterfly

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Butterfly	2	LF HF	High Pass	2 (4)	1 (2)	-	N		N		N		126 Hz		Y
Butterfly CDL 1815	2	SB RE	Sub	2 (4)	1 (2)	-	N		N		N			110 Hz (Electronic)	Y

Doppia 2

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Doppia 2 A 5040	3	LF MF HF	Full Range	2 (2)	2 (2)	1 (1)	N		N		N		40 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 A 5040	3	LF MF HF	High Pass	2 (2)	2 (2)	1 (1)	N		N		N		80 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 A 9075	3	LF MF HF	Full Range	2 (2)	2 (2)	1 (1)	N		N		N		40 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 A 9075	3	LF MF HF	High Pass	2 (2)	2 (2)	1 (1)	N		N		N		80 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 P 5040	2	LF MH	Full Range	2 (4)	2 (4)	1 (2)	N		N		N		40 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 P 5040	2	LF MH	High Pass	2 (4)	2 (4)	1 (2)	N		N		N		80 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 P 9075	2	LF MH	Full Range	2 (4)	2 (4)	1 (2)	N		N		N		40 Hz (Electronic)		Only with DOPPIA 2 series
Doppia 2 P 9075	2	LF MH	High Pass	2 (4)	2 (4)	1 (2)	N		N		N		80 Hz (Electronic)		Only with DOPPIA 2 series

DVS

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
DVS 12	1	PA	Full Range	2 (8)	2 (8)	1 (4)	N		N		N		40 Hz (Electronic)		Only with DVS series
DVS 12	1	PA	High Pass	2 (8)	2 (8)	1 (4)	N		N		N		90 Hz (Electronic)		Only with DVS series
DVS 15	1	PA	Full Range	2 (8)	2 (8)	1 (4)	N		N		N		40 Hz (Electronic)		Only with DVS series
DVS 15	1	PA	High Pass	2 (8)	2 (8)	1 (4)	N		N		N		80 Hz (Electronic)		Only with DVS series
DVS 8	1	PA	Full Range - GTA Series	4 (16)	4 (16)	1 (4)	N		N		N		45 Hz		Only with DVS series
DVS 8	1	PA	High Pass - GTA Series	4 (16)	4 (16)	1 (4)	N		N		N		80 Hz		Only with DVS series

Eidos

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Eidos 10	1	PA	Full Range	4 (16)	4 (16)	2 (8)	N		N		N		60 Hz (Electronic)		Only with EIDOS series
Eidos 10	1	PA	High Pass	4 (16)	4 (16)	2 (8)	N		N		N		100 Hz (Electronic)		Only with EIDOS series
Eidos 12	1	PA	Full Range	3 (12)	3 (12)	2 (6)	N		N		N		50 Hz (Electronic)		Only with EIDOS series
Eidos 12	1	PA	High Pass	3 (12)	3 (12)	2 (6)	N		N		N		100 Hz (Electronic)		Only with EIDOS series
Eidos 15	1	PA	Full Range	2 (8)	2 (8)	2 (5)	N		N		N		40 Hz (Electronic)		Only with EIDOS series
Eidos 15	1	PA	High Pass	2 (8)	2 (8)	2 (5)	N		N		N		100 Hz (Electronic)		Only with EIDOS series
Eidos 265	1	PA	Full Range	2 (8)	2 (8)	2 (4)	Y	02 to 04 boxes, 05 to 08 boxes, 09 to 12 boxes, single box	Y	05 to 10 m, 10 to 20 m, 20 to 30 m, 30 to 40 m, 40 m and more	N		61 Hz		Y

Eidos

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Eidos 265	1	PA	High Pass	2 (8)	2 (8)	2 (4)	Y	02 to 04 boxes, 05 to 08 boxes, 09 to 12 boxes, single box	Y	05 to 10 m, 10 to 20 m, 20 to 30 m, 30 to 40 m, 40 m and more	N		85 Hz		Y
Eidos 6.5	1	PA	Full Range	4 (16)	4 (16)	3 (8)	N		N		N		53 Hz (Electronic)		Only with EIDOS series
Eidos 6.5	1	PA	High Pass	4 (16)	4 (16)	3 (8)	N		N		N		100 Hz (Electronic)		Only with EIDOS series
Eidos X123W	1	PA	Full Range	2 (8)	2 (8)	2 (4)	N		N		N		40 Hz (Electronic)		Only with EIDOS series
Eidos X123W	1	PA	High Pass	2 (8)	2 (8)	2 (4)	N		N		N		100 Hz (Electronic)		Only with EIDOS series

GTO

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
C12	4	MF HF L1 L2	Full Range	2 (2)	-	-	Y	03 boxes, 06 boxes, 09 boxes, 12 boxes, 15 boxes, 18 boxes, 21 boxes, 24 boxes	Y	05 to 15 m, 15 to 30 m, 30 to 45 m, 45 to 60 m, 60 m and more	N		46 Hz		Y
C12	4	MF HF L1 L2	High Pass	2 (2)	-	-	Y	03 boxes, 06 boxes, 09 boxes, 12 boxes, 15 boxes, 18 boxes, 21 boxes, 24 boxes	Y	05 to 15 m, 15 to 30 m, 30 to 45 m, 45 to 60 m, 60 m and more	N		55 Hz		Y

GTO

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
GTO	4	MF HF L1 L2	Full Range	2 (2)	-	-	Y	03 boxes, 06 boxes, 09 boxes, 12 boxes, 15 boxes, 18 boxes, 21 boxes, 24 boxes	Y	05 to 15 m, 15 to 30 m, 30 to 45 m, 45 to 60 m, 60 m and more	N		45 Hz		Y
GTO	4	MF HF L1 L2	High Pass	2 (2)	-	-	Y	03 boxes, 06 boxes, 09 boxes, 12 boxes, 15 boxes, 18 boxes, 21 boxes, 24 boxes	Y	05 to 15 m, 15 to 30 m, 30 to 45 m, 45 to 60 m, 60 m and more	N		53 Hz		Y
GTO Low	2	L1 L2	Full Range	2 (4)	-	-	N		N		N		60 Hz (Electronic)	300 Hz (Electronic)	Y
GTO Low	2	L1 L2	High Pass	2 (4)	-	-	N		N		N		60 Hz (Electronic)	300 Hz (Electronic)	Y
GTO-DF	2	MF HF	Full Range	1 (2)	-	-	N		N		N		131 Hz		Y
GTO-DF	2	MF HF	High Pass	1 (2)	-	-	N		N		N		131 Hz		Y
LIPF 082	2	LF HF	Full Range	3 (6)	-	-	N		N		N		65 Hz		Y
LIPF 082	2	LF HF	High Pass	3 (6)	-	-	N		N		N		131 Hz		Y

Hard 212

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Hard 212	2	LF HF	Full Range	2 (4)	2 (4)	-	N		N		N		65 Hz (Electronic)		N
Hard 212	2	LF HF	High Pass	2 (4)	2 (4)	-	N		N		N		100 Hz (Electronic)		N

Ki

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Ki10	1	PA	Full Range	4 (16)	4 (16)	1 (4)	N		N		Y	standard, karaoke	54 Hz		Y
Ki10	1	PA	High Pass	4 (16)	4 (16)	1 (4)	N		N		Y	standard, karaoke	80 Hz		Y
Ki12	1	PA	Full Range	3 (12)	3 (12)	1 (4)	N		N		Y	standard, karaoke	53 Hz		Y
Ki12	1	PA	High Pass	3 (12)	3 (12)	1 (4)	N		N		Y	standard, karaoke	80 Hz		Y

Mantas

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Mantas	2	LF HF	High Pass	3 (6)	2 (4)	-	N		N		N		127 Hz		Y

Mantas 28

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Mantas 28	2	LF HF	Full Range	3 (6)	2 (4)	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 06 boxes, 08 boxes, 10 boxes, 12 boxes, 16 boxes, 20 boxes, 24 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more, front fill	N		76 Hz		Y

Mantas 28

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Mantas 28	2	LF HF	High Pass	3 (6)	2 (4)	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 06 boxes, 08 boxes, 10 boxes, 12 boxes, 16 boxes, 20 boxes, 24 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more, front fill	N		127 Hz		Y

Monaco

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Monaco 215CX BiAmp	2	LF MH	Full Range	2 (4)	2 (4)	-	N		N		N		46 Hz		Y
Monaco 215CX BiAmp	2	LF MH	High Pass	2 (4)	2 (4)	-	N		N		N		77 Hz		Y
Monaco 215CX MonoAmp	1	PA	Full Range	1 (4)	1 (4)	-	N		N		N		46 Hz		Y
Monaco 215CX MonoAmp	1	PA	High Pass	1 (4)	1 (4)	-	N		N		N		77Hz		Y

Movie

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
MV1CX	1	PA	Full Range	2 (8)	2 (8)	1 (3)	N		N		N		52 Hz (Electronic)		Only with MOVIE series
MV2CX	1	PA	Full Range	1 (4)	1 (4)	1 (2)	N		N		N		28 Hz (Electronic)		Only with MOVIE series
MVB215	1	BS	Bass	1 (4)	1 (4)	1 (2)	N		N		N			320 Hz (Electronic)	Only with MOVIE series
MVB215	2	BS BS	Bass 2 Ch.	3 (6)	2 (4)	2 (2)	N		N		N			320 Hz (Electronic)	Only with MOVIE series
MVFX101	1	PA	Full Range	4 (16)	4 (16)	2 (8)	N		N		N		45 Hz (Electronic)		Only with MOVIE series
MVH102	1	MH	Full Range	3 (12)	2 (8)	1 (4)	N		N		N		350 Hz (Electronic)		Only with MOVIE series
MVS118	1	SB	Sub	2 (8)	2 (8)	1 (4)	N		N		N			150 Hz (Electronic)	Only with MOVIE series
MVS218	1	SB	Sub	1 (4)	1 (4)	1 (2)	N		N		N			150 Hz (Electronic)	Only with MOVIE series
MVS218	2	SB SB	Sub 2 Ch.	3 (6)	2 (4)	2 (2)	N		N		N			150 Hz (Electronic)	Only with MOVIE series

P Series

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
P8	1	PA	Full Range	4 (16)	4 (16)	1 (4)	N		N		Y	standard, stage monitor	60 Hz		Y
P8	1	PA	High Pass	4 (16)	4 (16)	1 (4)	N		N		Y	standard, stage monitor	70 Hz		Y
P12 MonoAmp	1	PA	Full Range	3 (8)	2 (8)	1 (4)	N		N		Y	standard, stage monitor	47 Hz		Y
P12 MonoAmp	1	PA	High Pass	3 (8)	2 (8)	1 (4)	N		N		Y	standard, stage monitor	69 Hz		Y
P12 BiAmp	2	LF HF	Full Range	3 (6)	2 (4)	1 (2)	N		N		Y	standard, stage monitor	47 Hz		Y
P12 BiAmp	2	LF HF	High Pass	3 (6)	2 (4)	1 (2)	N		N		Y	standard, stage monitor	69 Hz		Y
P15 MonoAmp	1	PA	Full Range	3 (8)	2 (8)	1 (3)	N		N		Y	standard, stage monitor	47 Hz		Y
P15 MonoAmp	1	PA	High Pass	3 (8)	2 (8)	1 (3)	N		N		Y	standard, stage monitor	69 Hz		Y
P15 BiAmp	2	LF HF	Full Range	3 (6)	2 (4)	1 (2)	N		N		Y	standard, stage monitor	47 Hz		Y
P15 BiAmp	2	LF HF	High Pass	3 (6)	2 (4)	1 (2)	N		N		Y	standard, stage monitor	69 Hz		Y

Scala

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Scala 100-30	2	LF HF	Full Range	1 (2)	1 (2)	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 05 boxes, 06 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 40 m, 40 to 60 m	Y	standard, FIFA compliant	79 Hz		Y
Scala 100-30	2	LF HF	High Pass	1 (2)	1 (2)	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 05 boxes, 06 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 40 m, 40 to 60 m	Y	standard, FIFA compliant	100 Hz		Y
Scala 90	2	LF HF	Horizontal Array FR	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	N		N		48 Hz		Y
Scala 90	2	LF HF	Horizontal Array HP	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	N		N		58 Hz		Y
Scala 90	2	LF HF	Vertical Array FR	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	Y	05 to 20 m, 20 to 40 m, 40 to 60 m	N		48 Hz		Y
Scala 90	2	LF HF	Vertical Array HP	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	Y	05 to 20 m, 20 to 40 m, 40 to 60 m	N		58 Hz		Y

SM

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
SM 112	2	LF HF	Monitor	2 (4)	2 (4)	-	N		N		N		70 Hz (Electronic)		Only with SM series
SM 115	2	LF HF	Monitor	2 (4)	2 (4)	-	N		N		N		50 Hz (Electronic)		Only with SM series
SM 212	2	LF HF	Monitor	2 (4)	2 (4)	-	N		N		N		45 Hz (Electronic)		Only with SM series

Spectra 2

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Spectra 2 9075	2	MF HF	Full Range	2 (4)	2 (4)	-	N		N		N		40 Hz (Electronic)		N
Spectra 2 9075	2	MF HF	High Pass	2 (4)	2 (4)	-	N		N		N		80 Hz (Electronic)		N

Stadia

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Stadia 100-10	2	LF HF	High Pass	1 (2)	-	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 05 boxes, 06 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more	N		100 Hz		N
Stadia 100-20	2	LF HF	High Pass	1 (2)	-	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 05 boxes, 06 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more	N		100 Hz		N
Stadia 100-30	2	LF HF	High Pass	1 (2)	-	-	Y	01 box, 02 boxes, 03 boxes, 04 boxes, 05 boxes, 06 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more	N		100 Hz		N
Stadia 28	2	LF HF	Horizontal Array FR	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	N		N		48 Hz		Y
Stadia 28	2	LF HF	Horizontal Array HP	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	N		N		58 Hz		Y
Stadia 28	2	LF HF	Vertical Array FR	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	Y	05 to 20 m, 20 to 40 m, 40 to 60 m	N		48 Hz		Y
Stadia 28	2	LF HF	Vertical Array HP	3 (6)	2 (4)	-	Y	2 to 3 boxes, 4 to 6 boxes, single box	Y	05 to 20 m, 20 to 40 m, 40 to 60 m	N		58 Hz		Y

SUBS

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
DBS 18-2	1	SB	Sub	1 (2)	-	-	N		N		N			91 Hz	Y
DBS 18-2	1	RE	Rear Cardio 2+1	1 (2)	-	-	N		N		N			91 Hz	Y
DBS 18-2	1	RE	Rear Cardio 3+1	1 (2)	-	-	N		N		N			91 Hz	Y
DBS 18-2	2	SB SB	Sub 2 Ch.	2 (2)	-	-	N		N		N			91 Hz	Y
DBS 18-2	2	RE RE	Rear Cardio 2+1 2 Ch.	2 (2)	-	-	N		N		N			91 Hz	Y
DBS 18-2	2	RE RE	Rear Cardio 3+1 2 Ch.	2 (2)	-	-	N		N		N			91 Hz	Y
DBS 18-2	1	SB	Infra	1 (2)	-	-	N		N		N			88 Hz	Y
DBS 18-2	2	SB SB	Infra 2 Ch.	2 (2)	-	-	N		N		N			88 Hz	Y
DVS 115	1	SB	Sub	2 (4)	2 (4)	-	N		N		N		100 Hz (Electronic)	Only with DVS series	
DVS 115	1	SB	Infra	2 (4)	2 (4)	-	N		N		N		80 Hz (Electronic)	Only with DVS series	
DVS 118	1	SB	Sub	1 (4)	1 (4)	-	N		N		N		100 Hz (Electronic)	Only with DVS series	
DVS 118	1	SB	Infra	1 (4)	1 (4)	-	N		N		N		80 Hz (Electronic)	Only with DVS series	
Eidos 108S	1	SB	Sub	3 (12)	3 (12)	1 (4)	N		N		N		100 Hz (Electronic)	Only with EIDOS series	
Eidos 108S	1	SB	Sub High	3 (12)	3 (12)	1 (4)	N		N		N		160 Hz (Electronic)	Only with EIDOS series	
Eidos 215S	1	SB	Sub	1 (2)	-	-	N		N		N		100 Hz (Electronic)	Only with EIDOS series	
Eidos 215S	1	SB	Infra	1 (2)	-	-	N		N		N		60 Hz (Electronic)	Only with EIDOS series	
Eidos 218S	1	SB	Sub LR24	1 (2)	-	-	N		N		N		100 Hz (Electronic)	Only with EIDOS series	
Eidos 218S	1	SB	Sub LR36	1 (2)	-	-	N		N		N		100 Hz (Electronic)	Only with EIDOS series	
Flysub 15	1	SB	Sub	2 (8)	2 (8)	-	N		N		N		100 Hz (Electronic)	Y	

SUBS

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
GTO Sub	1	SB	Sub	1 (2)	-	-	N		N		N			91 Hz	Y
GTO Sub	1	RE	Rear Cardio 2+1	1 (2)	-	-	N		N		N			91 Hz	Y
GTO Sub	1	RE	Rear Cardio 3+1	1 (2)	-	-	N		N		N			91 Hz	Y
GTO Sub	2	SB SB	Sub 2 Ch.	2 (2)	-	-	N		N		N			91 Hz	Y
GTO Sub	2	RE RE	Rear Cardio 2+1 2 Ch.	2 (2)	-	-	N		N		N			91 Hz	Y
GTO Sub	2	RE RE	Rear Cardio 3+1 2 Ch.	2 (2)	-	-	N		N		N			91 Hz	Y
GTO Sub	1	SB	Infra	1 (2)	-	-	N		N		N			88 Hz	Y
GTO Sub	2	SB SB	Infra 2 Ch.	2 (2)	-	-	N		N		N			88 Hz	Y
ST Sub 215	1	SB	Sub	1 (4)	1 (4)	-	N		N		N			108 Hz	Y
ST Sub 215	1	RE	Rear Cardio 2+1	1 (4)	1 (4)	-	N		N		N			108 Hz	Y
ST Sub 215	2	SB SB	Sub 2 Ch.	2 (4)	2 (4)	-	N		N		N			108 Hz	Y
ST Sub 215	2	RE RE	Rear Cardio 2+1 2 Ch.	2 (4)	2 (4)	-	N		N		N			108 Hz	Y
ST Sub 215	1	SB	Infra	1 (4)	1 (4)	-	N		N		N			88 Hz	Y
ST Sub 215	2	SB SB	Infra 2 Ch.	2 (4)	2 (4)	-	N		N		N			88 Hz	Y
Sub 110	1	SB	Sub	3 (12)	3 (12)	1 (4)	N		N		N			137 Hz	Y
Sub 110	1	SB	Sub High	3 (12)	3 (12)	1 (4)	N		N		N			160 Hz	Y
Sub 118	1	SB	Sub	1 (4)	1 (4)	-	N		N		N			137 Hz	Y
Sub 118	1	RE	Rear Cardio 1+1	1 (4)	1 (4)	-	N		N		N			137 Hz	Y
Sub 118	1	RE	Rear Cardio 2+1	1 (4)	1 (4)	-	N		N		N			137 Hz	Y
Sub 118	1	SB	Infra	1 (4)	1 (4)	-	N		N		N			104 Hz	Y

SUBS

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Sub 215	1	SB	Sub	1 (2)	-	-	N		N		N			108 Hz	Y
Sub 215	1	RE	Rear Cardio 2+1	1 (2)	-	-	N		N		N			108 Hz	Y
Sub 215	2	SB SB	Sub 2 Ch.	1 (2)	1 (1)	-	N		N		N			108 Hz	Y
Sub 215	2	RE RE	Rear Cardio 2+1 2 Ch.	1 (2)	1 (1)	-	N		N		N			108 Hz	Y
Sub 215	1	SB	Infra	1 (2)	-	-	N		N		N			88 Hz	Y
Sub 215	2	SB SB	Infra 2 Ch.	1 (2)	1 (1)	-	N		N		N			88 Hz	Y
Sub 218	1	SB	Sub	1 (2)	-	-	N		N		N			105 Hz	Y
Sub 218	1	RE	Rear Cardio 2+1	1 (2)	-	-	N		N		N			105 Hz	Y
Sub 218	2	SB SB	Sub 2 Ch.	1 (2)	1 (1)	-	N		N		N			105 Hz	Y
Sub 218	2	RE RE	Rear Cardio 2+1 2 Ch.	1 (2)	1 (1)	-	N		N		N			105 Hz	Y
Sub 218	1	SB	Infra	1 (2)	-	-	N		N		N			86 Hz	Y
Sub 218	2	SB SB	Infra 2 Ch.	1 (2)	1 (1)	-	N		N		N			86 Hz	Y

Superfly

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Superfly	4	MF HF L1 L2	Full Range	3 (3)	-	-	Y	04 boxes, 06 boxes, 08 boxes, 10 boxes, 12 boxes, 16 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more	N		53 Hz		Y
Superfly	4	MF HF L1 L2	High Pass	3 (3)	-	-	Y	04 boxes, 06 boxes, 08 boxes, 10 boxes, 12 boxes, 16 boxes	Y	05 to 15 m, 15 to 25 m, 25 to 35 m, 35 to 45 m, 45 to 55 m, 55 m and more	N		102 Hz		Y

Tripla

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Tripla 2 5040	3	LF MF HF	Full Range	1 (1)	1 (1)	-	N		N		N		35 Hz (Electronic)		Only with TRIPLA series
Tripla 2 5040	3	LF MF HF	High Pass	1 (1)	1 (1)	-	N		N		N		80 Hz (Electronic)		Only with TRIPLA series
Tripla 2 9075	3	LF MF HF	Full Range	1 (1)	1 (1)	-	N		N		N		35 Hz (Electronic)		Only with TRIPLA series
Tripla 2 9075	3	LF MF HF	High Pass	1 (1)	1 (1)	-	N		N		N		80 Hz (Electronic)		Only with TRIPLA series

Vegas

Model	Ways		Application	Max number of linked speakers per channel (per amp)			Manufacturer EQ						Acoustic HPF (-6 dB)	Acoustic LPF (-6 dB)	Phase compliant
	N°	Type		TTM12K4	TTM8K4	ISA4D32	Cat. A	Desc.	Cat. B	Desc.	Cat. C	Desc.			
Vegas 10	1	PA	Full Range	4 (16)	4 (16)	1 (4)	N		N		N		55 Hz		Y
Vegas 10	1	PA	High Pass	4 (16)	4 (16)	1 (4)	N		N		N		77 Hz		Y
Vegas 12	1	PA	Full Range	3 (12)	3 (12)	1 (4)	N		N		N		55 Hz		Y
Vegas 12	1	PA	High Pass	3 (12)	3 (12)	1 (4)	N		N		N		80 Hz		Y
Vegas 12CX	1	PA	Full Range	2 (8)	2 (8)	1 (4)	N		N		Y	standard, stage monitor	48 Hz		Y
Vegas 12CX	1	PA	High Pass	2 (8)	2 (8)	1 (4)	N		N		Y	standard, stage monitor	74 Hz		Y
Vegas 15	1	PA	Full Range	2 (8)	2 (8)	1 (4)	N		N		N		47 Hz		Y
Vegas 15	1	PA	High Pass	2 (8)	2 (8)	1 (4)	N		N		N		77 Hz		Y
Vegas 15CX	1	PA	Full Range	2 (8)	2 (8)	1 (3)	N		N		Y	standard, stage monitor	54 Hz		Y
Vegas 15CX	1	PA	High Pass	2 (8)	2 (8)	1 (3)	N		N		Y	standard, stage monitor	85 Hz		Y
Vegas 24	1	PA	High Pass	6 (24)	6 (24)	2 (8)	N		N		N		134 Hz		Y
Vegas 4	1	PA	Full Range	8 (32)	8 (32)	6 (24)	N		N		N		129 Hz		Y
Vegas 4	1	PA	High Pass	8 (32)	8 (32)	6 (24)	N		N		N		149 Hz		Y
Vegas 6.5	1	PA	Full Range	4 (16)	4 (16)	2 (8)	N		N		N		55 Hz		Y
Vegas 6.5	1	PA	High Pass	4 (16)	4 (16)	2 (8)	N		N		N		78 Hz		Y
Vegas 8CX	1	PA	Full Range	4 (16)	4 (16)	1 (4)	N		N		Y	standard, stage monitor	57 Hz		Y
Vegas 8CX	1	PA	High Pass	4 (16)	4 (16)	1 (4)	N		N		Y	standard, stage monitor	77 Hz		Y



Specifications:

- Model: TTM & ISA series
- Configuration: 2-way system
- Filters: High-pass filter (HPF) and Low-pass filter (LPF)
within one-third of an octave

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FAQ:


Q: How do I know which preset to use for my setup?

A: Refer to the Preset Layout section in the manual, considering the configuration and filter specifications to choose the appropriate preset for your system.

Q: Do I need sophisticated measurement tools for delay configuration?

A: While measurement software is recommended for precise tuning, you can achieve a good level of system tuning by following the manual's guidelines on delay configuration.

Documents / Resources

	OUTLINE TTM and ISA Series Multi Purpose Amplifier [pdf] User Guide TTM12K4, TTM and ISA Series Multi Purpose Amplifier, TTM and ISA Series, Multi Purpose Amplifier, Purpose Amplifier, Amplifier
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References

- [User Manual](#)

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