

K2 POWER USER MANUAL

Warning

Congratulations on purchasing a product from the range, K2 Power. We are happy you share our passion, for the "the Spirit of Sound". Designed using the latest technology, these speakers continue Focals perfectionist beliefs, developing products with high power handling, and unrivalled sound quality. To obtain the best results from this product, we recommend that you follow carefully all the information contained in this user's manual. If not followed correctly any fault observed, may not be covered by the guarantee.

Continued listening at high volume levels above 110dB, are damage your hearing durably
Listening above 130dB can damage your hearing permently.

The Focal-JMLab guarantee only applies if the enclosed guarantee card is returned to us within 10 days of purchase.

Features

Membrane K2 Power:

New CMKV sandwich composite, including (Kevlar, foam, and structural glass fibre). Three individual materials, each with their own advantages, allow the cone to be extremely rigid, with continued low mass value, and increased damping characteristics, even when played loud. This ensures improved power handling, with detailed sound quality, low distortion even at high volume levels.

Chassis made from Zamak:

Inherently rigid and non magnetic.

Voice coil wound on Kapton former:

Light-weight and highly durable material ensures no deformation of voice coil.

Butyl moulded rubber surround suspension:

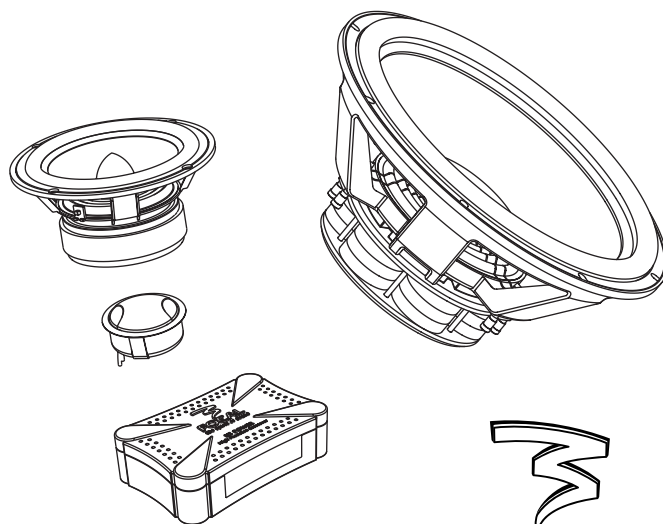
Long life characteristics, even in the most extreme climates.

TN 52 with inverted tweeter dome:

Inverted dome formed from titanium treated Tioxid 5 material. Producing detailed high frequencies, acoustically rich and dynamic. Controlled with twin radius wave guides, for totally controlled staging and directivity.

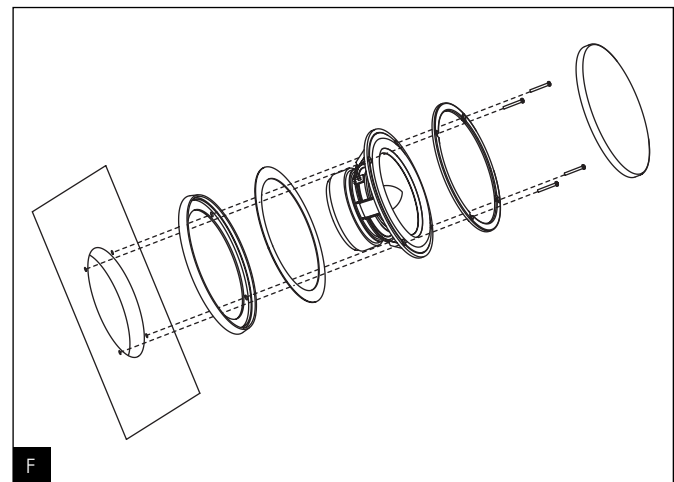
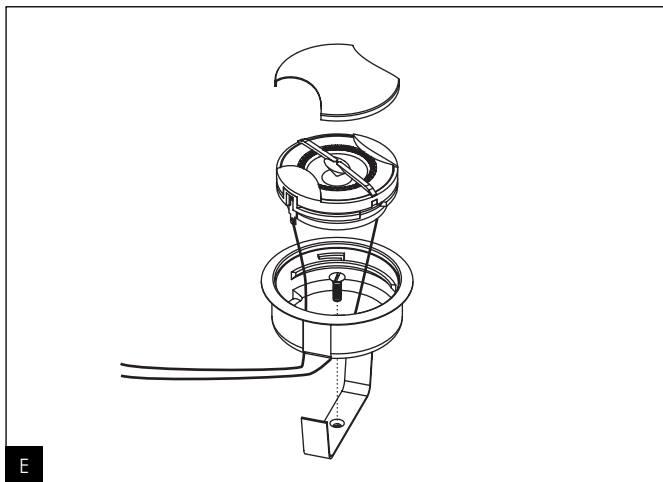
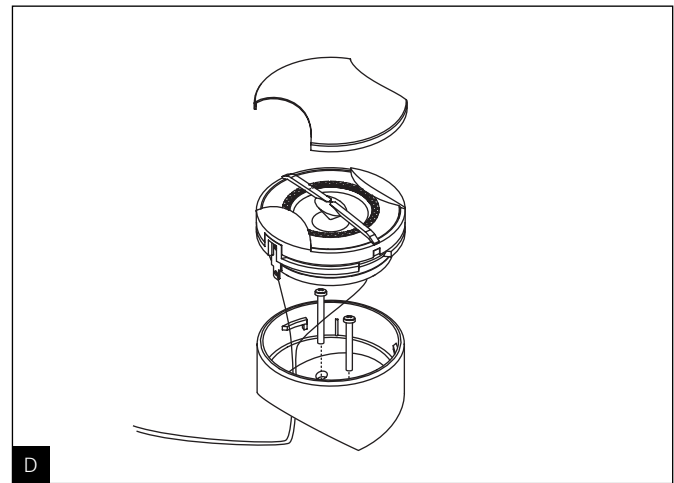
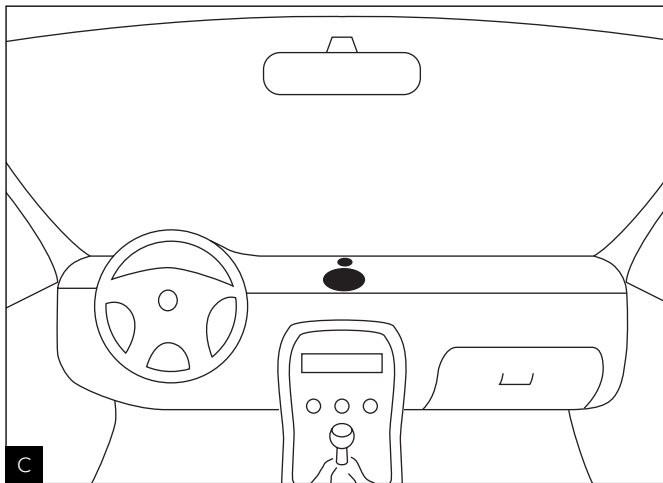
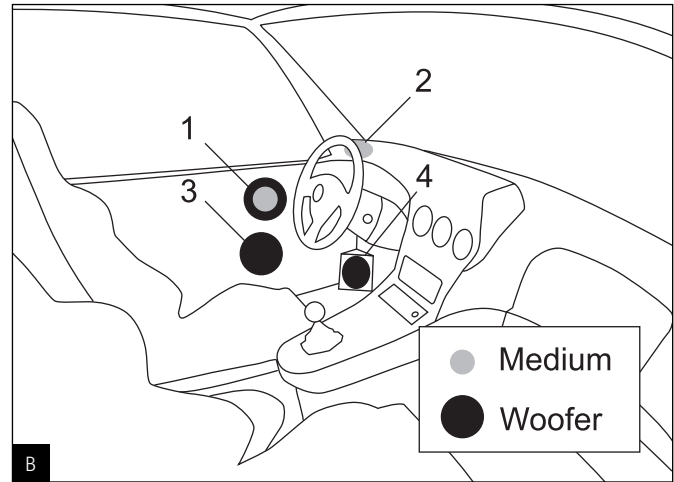
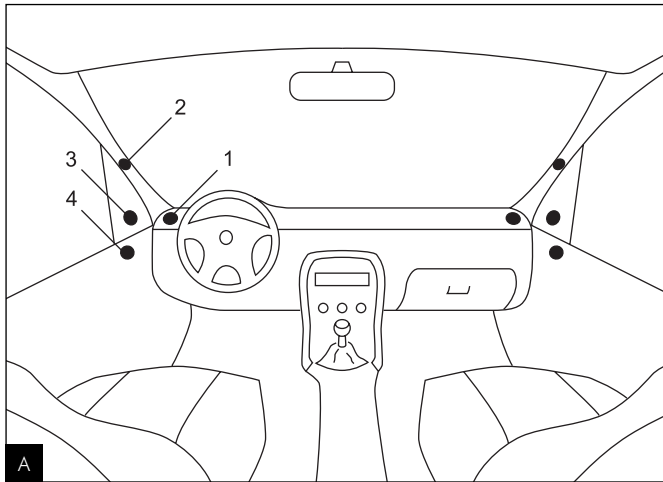
Crossover of high precision:

Precise level adjustment of tweeter and medium available. High quality audiophile components used throughout. Large wire gauge connections included.



FOCAL





INSTALLATION AND POSITIONING

Tweeter

The TN52 tweeter has been designed for flush mount or surface mount positioning, using the two fixing kits provided. The choice of install position is extremely important to deliver the best performance and maintain integration into the system. This is a major factor for high frequency SPL, and the the stability of the acoustics, stereophonic imaging, and overall staging. Please check the drawing to understand this further.

The standard recommendation for ideal stereo imaging, is to ensure the tweeters "left" and "right", are installed in the same positions. Also they are approximately at equal distance to the driver (vice-versa for the passenger). The various positions advised should be verified and comparatives made, for ideal positioning.

The tweeter should always be positioned ahead of the normal listening position. The main preferences are the outer positions of the dash board (**fig. A, 1**), close to the windshield (**fig. A, 2**). Normally easy for installation. The location close to the door mirror (**fig. A, 3**) is also regarded as a good position, and normally only requires a small amount of install work. Lastly a position high in the doors (**fig. A, 4**) is also acceptable even if it is not considered the best for optimised staging. It is imperative to verify before any installation is attempted, that enough space is available (especially for flush-mount applications). Also that there will be no interference with security devices air-bags, door latches etc.

Woofers-midrange

K2 Power woofer-midranges, positioned ideally high in the doors (**fig. B, 1**), produce optimal midrange frequencies, thus integrating better into the rest of the system. The 100 KP Slim thanks to its reduced depth feature allows easy installation into the outer positions of the dashboard (**fig. B, 2**). If the woofer-mids are positioned low in the doors (**fig. B, 3**), the loss of midrange can be compensated by adjusting the crossover (see section "adjustment" page 15).

The woofer-mids from the K2 Power range can also be placed low in the "kick-panels" (**fig. B, 4**) of the vehicle. This is to further optimise the stereophonic imaging.

Centre Channel

Ideally suited for an audio video installation using DVD multi channel inputs (Dolby Digital, DTS etc), the ultra compact midrange 100 KP Slim, has obvious advantages. With minimum depth dimension 39mm (1.58"), due to its efficient neodymium motor, the 100 KP is ideal for centre channel applications, in normally difficult locations such as the dash board (**fig. C**).

Tweeter installation

Surface-mount

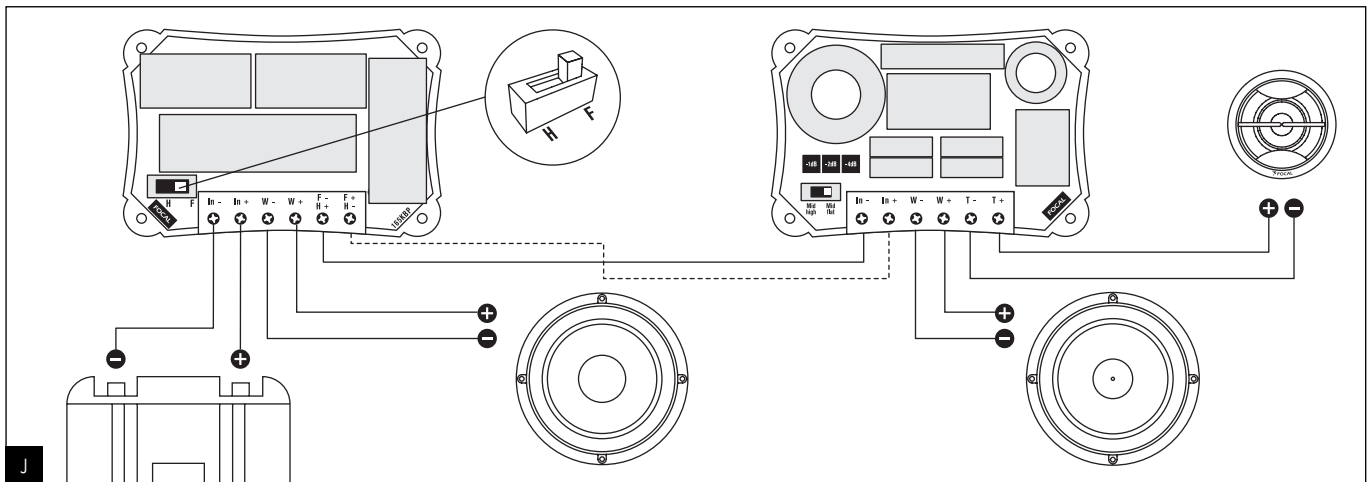
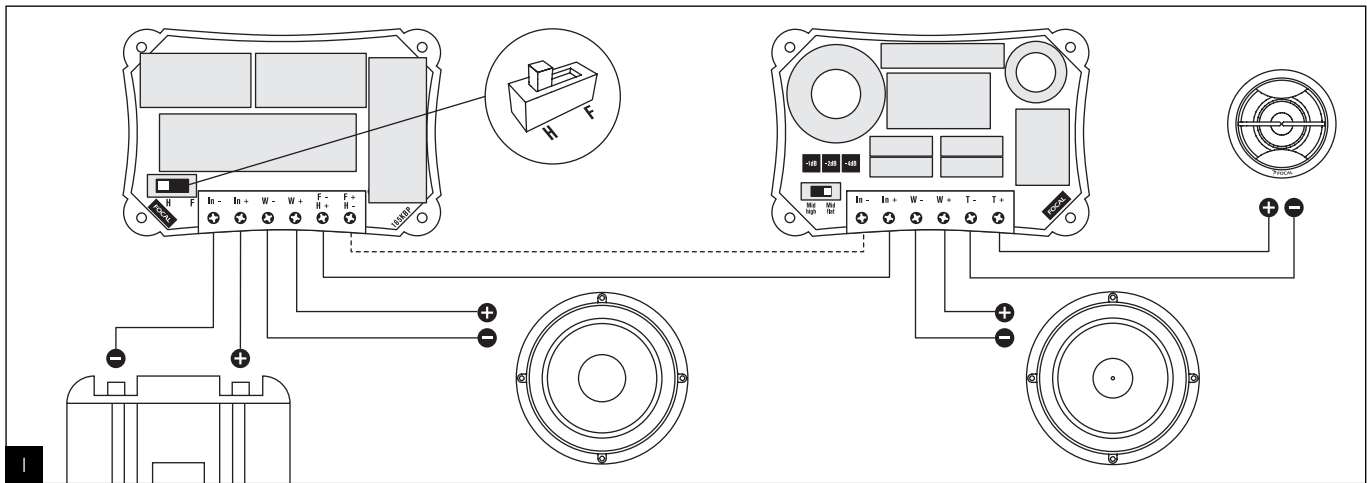
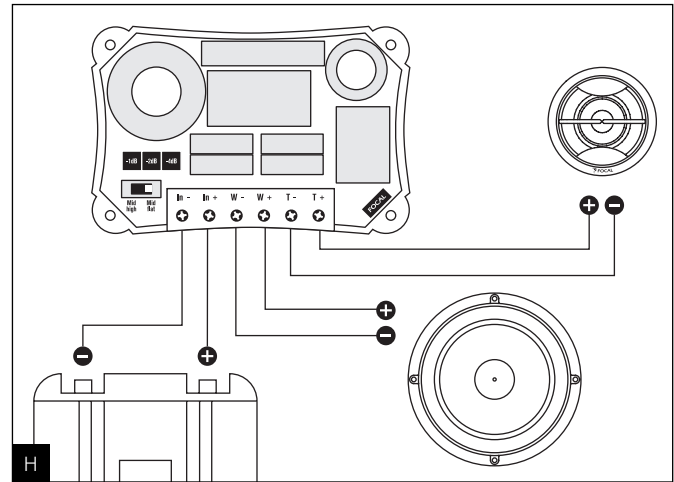
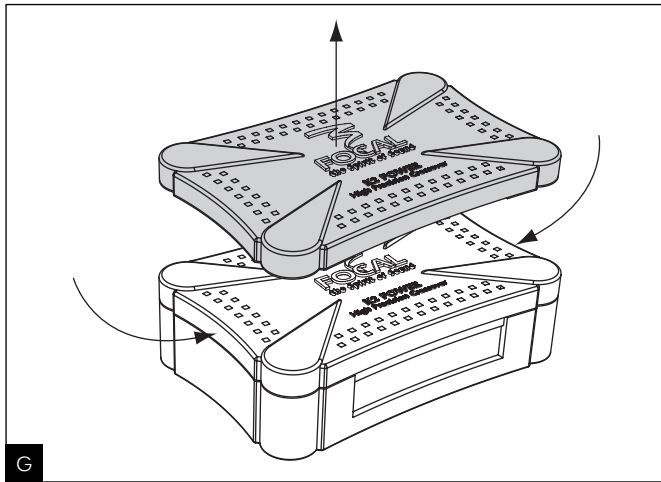
The flush-mounting fixing kit supplied offers two possibilities for installing the TN52 in an angle of 10°/30°. This allows more flexibility for the installation (**fig. D**).

Fix the assembly using the two screws provided. Thread the cable from the tweeter, through the back. Then decide the defined angle and lock in place on the support.

Flush-mount (highly recommended)

Cut a perfectly round hole of 45mm (1,77") Push in the support and ensure it remains flat on the surface. Ensure it is locked in place with the screws supplied. Thread the cable from the tweeter, through the back. Then decide the defined angle and lock in place the tweeter on the support (**fig. E**).

Attention : It is not necessary to twist lock the TN52 in place using a locking tool (as for TN47). To do so, carefully push and turn on the outer radius wave guides, turning the tweeter until it is locked in place.



INSTALLATION AND POSITIONING

Woofer and woofer-midrange recommendations

K2 Power woofers and woofer-midranges have been designed for a multitude of vehicles installations. It is worth understanding the basic requirements for installing such products. These woofers and woofer-midranges are capable of delivering enormous amounts of energy, during their positive/negative movement. Therefore it is imperative that they be fixed rigid to the desired location. The fixing location should also be strengthened where necessary. Panels should be strengthened to eliminate any unwanted vibrations. Such vibrations will drastically reduce the overall performance. These drive units should be fixed and sealed to the baffle or location panel. The use of the foam gasket is advisable for correct air sealing.

For added performance, and to better reduce such unwanted vibrations and other acoustical losses, we recommend the use of "plain chant". Easily positioned behind the woofer, on the metal-work of the vehicle, Plain Chant soaks-up vibrations as well as acoustic reflections.

Always ensure before that enough space is available for the magnet assembly, that it doesn't interfere with safety mechanisms or general working parts.

In the case of not using the grilles supplied, it is important to ensure the speakers will fit correctly. Ensuring there is enough depth behind the speaker has already been explained, but enough thought must also be given for the forward movement of the cone and surround assembly.

Woofer and woofer-midrange installation, simple steps (with grille)

Either cut the required hole or use the correct hole of choice. Note correct diameter (**fig. F**). Where necessary, carefully push in the four fixing clips to accept the fixing screws later.

Carefully place the fixing ring, ensuring it lines-up with the holes or fixing clip positions.

Fix the foam gasket to the back of the drive unit chassis. Add a small amount of glue where necessary, so it remains in the correct position (line-up holes).

Lower the drive unit above the fixing ring, so it remains in the correct position (line-up holes).

Don't forget to connect up the cable to the connectors.

Now lower the drive unit and screw in place, with the 4 screws provided.

Now add the grille and push in place. Ensure the logo is straight.

Crossover installation, simple steps

First before any work is started it is necessary to remove the clear plastic lid (**fig. G**).

Doing so enables access for adjustment, and fixing the unit in place.

Remove, by pushing gently on the two shortest sides of the clear plastic lid. Then pull off.

Never use a screwdriver to prise off the lid, otherwise damage will probably occur, not covered by the warranty.

Once removed, fix in place with the 4 screws supplied. Ensure the length of screw is suitable for the desired location. Always ensure the crossover is installed in a dry and vented area, without risk of humidity.

2-Way kits connecting up, simple steps

Connect the output from the amplifier into the input of the crossover "IN".

Connect the woofer to the output of the crossover "W".

Connect the tweeter to the output of the crossover "T" (**fig. H**).

Finally always ensure the tweeter and woofer are connected in phase correctly, thus polarities are respected "+" to "+", and "-" to "-". If not done correctly a "hole" or "peak", may result, due to a shift in phase. This will dramatically impair the overall performance.

3-Way kits connecting up (165 K3P)

The 165 K3P uses two crossovers, connected together. The exclusive 165 KBP low frequency cross-over, has two configurations for filtering. These being mode:

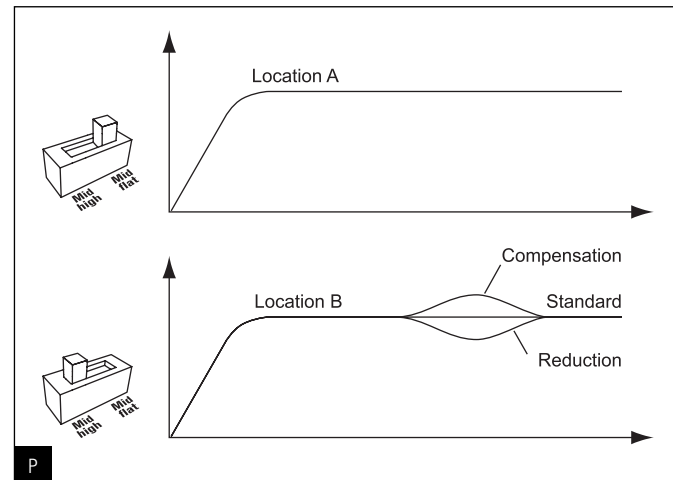
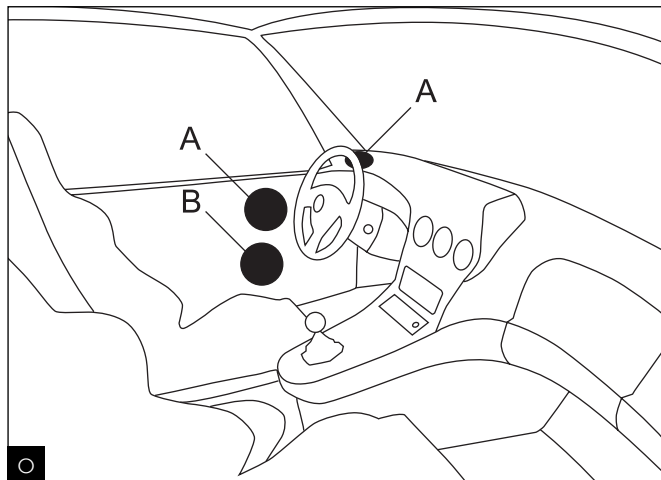
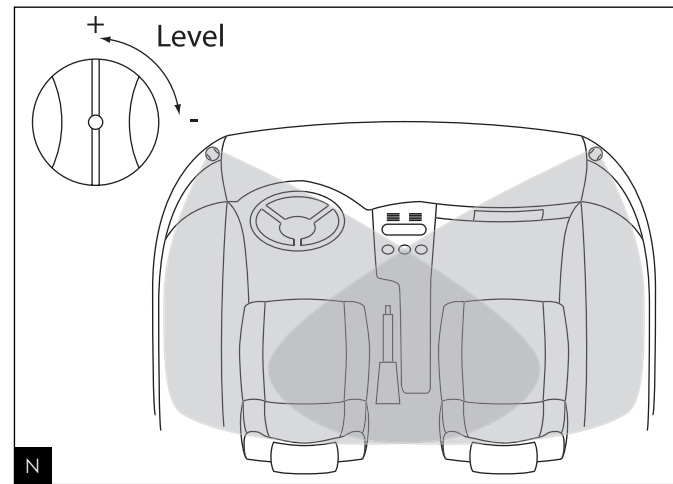
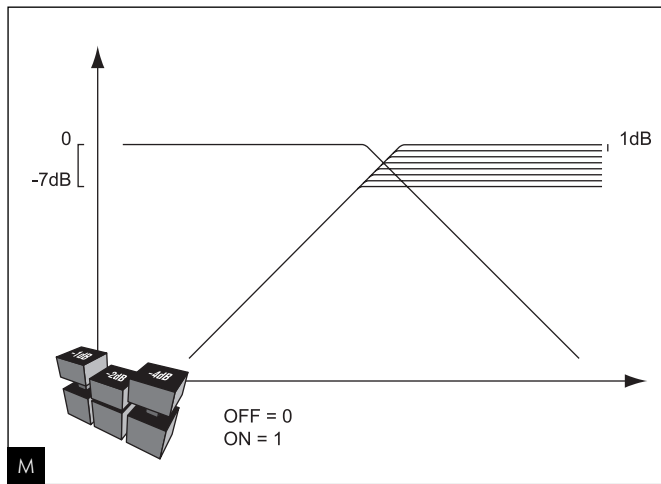
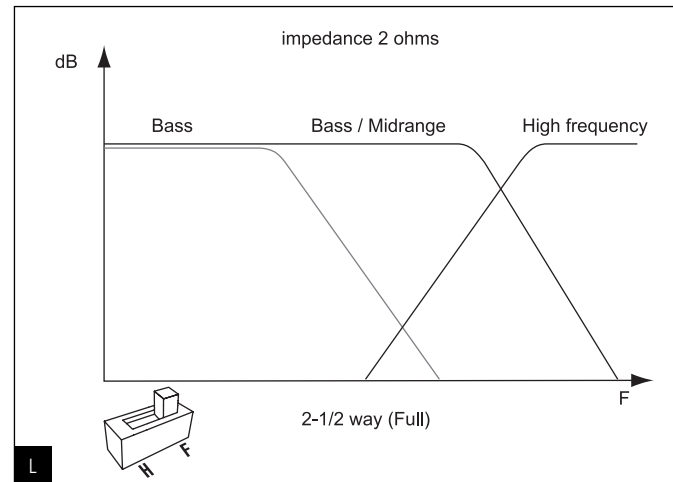
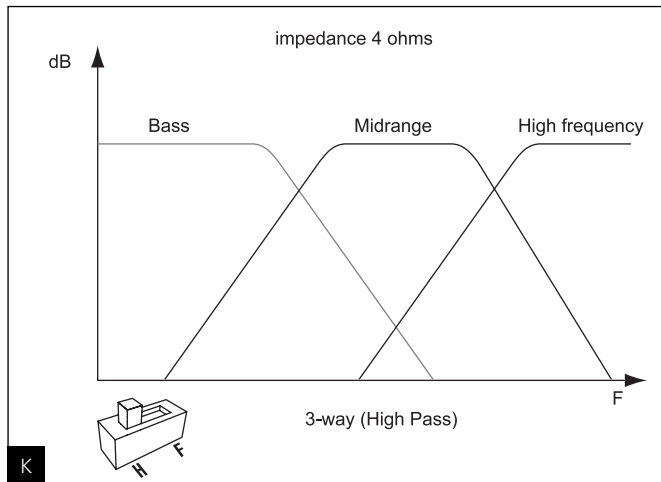
"High Pass" (**fig. I, and K**), for a true 3 way set-up, with separate bass mid and high frequencies.

"Full" (**fig. J, and L**), for a 2+1 way set-up, with 2x165mm in parallel, for more dynamic fast bass.

Important (165K3P)

Depending on the preferred set-up, the selector found in the 165KBK, must be switched accordingly.

The mode "Full" (F), requires inverting the connections, for input (**fig. I, and J**). Doing this will ensure the overall phase will remain correct. Because this mode has a low impedance value of approximately 2 ohms, verify if the low loading is compatible for your amplifier.



FINE TUNNING / SET-UP

Tweeter level adjustment

Adjustments to the tweeter level, can be made at precise increments, using the selector buttons found inside on the PCB board of the crossover.

These are indicated as -1dB, -2dB and -4dB. By pushing in one or several of these selector buttons, allows various reductions of level, from -7dB total by 1dB increments (**fig. M**).

Tweeter level adjustment table

-1dB	-2dB	-4dB	Total
0	0	0	0dB
1	0	0	-1dB
0	1	0	-2dB
1	1	0	-3dB
0	0	1	-4dB
1	0	1	-5dB
0	1	1	-6dB
1	1	1	-7dB

Midrange level adjustment

The crossover contains a specific level adjustment for the midrange frequencies.

Fitting the drive units high up in the vehicle requires the mode "Mid flat" to be used. Doing so will ensure the overall response curve of the system remains linear (**fig. O, A and fig. P**).

Fitting the drive units low in the vehicle, especially in the bottom of the door for example, requires the mode "Mid High" to be used. Doing so will ensure such normally directional frequencies are not "masked" or lost in the textiles of the vehicle (**fig. O, B and fig. P**).

Staging level adjustment

The radiused-profiled wave-guides on the exterior of the TN52 tweeter, can control the directivity of the high frequencies. Thereby, the acoustic energy available can be controlled by the orientation of this radiused profile. This characteristic essentially adds further benefit to the user, to control the staging of the system, or defining better the virtual acoustic imaging of the sound produced. By simply turning the tweeter and changing the position of the radiused profiles, will modify this staging aspect (**fig. N**).

Running-in period

K2 Power drive units use the very latest components. To ensure such complex mechanical elements work in harmony with each other, they must be allowed to function correctly in this environment. Such changes in temperature and humidity are regarded as very hostile. For K2 Power speakers to benefit, a running-in period must be used to ensure they are prepared for this. We recommend that once the system is ready for listening the drive units should be run-in with medium volume setting, with music that has the full bandwidth of frequencies (sub-bass through to treble). This running-in period should be used for a few weeks, to gain the full potential. After which the excellent performance of your K2 Power products can be fully appreciated.

Information of other K2 Power products

Focal-JMLab offer a range of subwoofers from the 13 KS (130mm /5") to the impressive 46 KX4 (460mm /18") Consult your dealer for further information.

Conditions of guarantee

All Focal loudspeakers are covered by guarantee drawn up by the official Focal distributor in your country.

Your distributor can provide all details concerning the conditions of guarantee. Guarantee cover extends at least to that granted by the legal guarantee in force in the country where the original purchase invoice was issued.

SPECIFICATIONS

Kit	100 KP	130 KP	165 KP	165 K2P	165 K3P	
Maximum power	100W	140W	160W	200W	400W	
Nominal power	50W	70W	80W	100W	200W	
Sensitivity	90dB	90dB	91dB	92.5dB	95.5dB	
Frequency response	120 to 22 000Hz	70 to 22 000Hz	60 to 22 000Hz	70 to 22 000Hz	60 to 22 000Hz	
Crossover	3.5kHz to 12dB/oct	3.5kHz to 12dB/oct	3.8kHz to 18dB/oct	3.8kHz to 18dB/oct	200Hz/3.8 kHz to 18dB/oct	
Nominal impedance	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms (H)/2 ohms (F)	
Tweeter	TN 52	TN 52	TN 52	TN 52	TN 52	
Cone	Inverted Tioxid 5	Inverted Tioxid 5	Inverted Tioxid 5	Inverted Tioxid 5	Inverted Tioxid 5	
Magnet	Neodymium	Neodymium	Neodymium	Neodymium	Neodymium	
Resonant frequency (Fs)	1955Hz	1955Hz	1955Hz	1955Hz	1955Hz	
DC resistance (Re)	5.8 ohms	5.8 ohms	5.8 ohms	5.8 ohms	5.8 ohms	
Woofers/midrange	4 K Slim	5 KP	6 KP	6 K2P	6 K2P	6 K3P
Cone	4" K2 sandwich 100mm	5" K2 sandwich 130mm	6" K2 sandwich 165mm	6" K2 sandwich 165mm	6" K2 sandwich 165mm (medium)	6" K2 sandwich 165mm (woofer)
Voice coil	1" - 25mm	1" - 25mm	1" - 25mm	1.6" - 40mm	1.6" - 40mm	1.6" - 40mm
Magnet	Neodymium	3.4" - 85mm	3.4" - 85mm	4" - 100mm	4" - 100mm	4" - 100mm
Surround	Butyl	Butyl	Butyl	Butyl	Butyl	Butyl
Resonant frequency (Fs)	140Hz	88.6Hz	73Hz	69Hz	69Hz	68Hz
DC resistance (Re)	3.2 ohms	3.2 ohms	3.0 ohms	2.9 ohms	2.9 ohms	2.9 ohms
Vas	0.039Ft - 1.13 litres	0.17Ft ³ - 4.93 litres	0.27Ft ³ - 7.71 litres	0.3Ft ³ - 8.64 litres	0.3Ft ³ - 8.64 litres	0.27Ft ³ - 7.7 litres
Qes	0.96	0.74	0.81	0.7	0.7	0.66
Qms	9.55	8.06	9.01	9.13	9.13	9.46
Qts	0.87	0.68	0.74	0.65	0.65	0.62
Sd	8.6in ² - 55.4cm ²	13.42in ² - 86.6cm ²	20.57in ² - 132.7cm ²	20.57in ² - 132.7cm ²	20.57in ² - 132.7cm ²	20.57in ² - 132.7cm ²
Bl	3.8N/A	5.09N/A	5.09N/A	5.26N/A	5.26N/A	5.8N/A
Xmax	0.1" - 2.5mm	0.1" - 2.5mm	0.2" - 5mm	0.18" - 4.5mm	0.18" - 4.5mm	0.18" - 4.5mm
Cut -out diameter	3.67" - 93mm	4.53" - 115mm	5.60" - 142mm	5.60" - 142mm	5.60" - 142mm	5.60" - 142mm
Mounting depth	1.54" - 39mm	2.41" - 61mm	2.80" - 71mm	3.03" - 77mm	3.03" - 77mm	3.03" - 77mm