High-performance active subwoofers

SCS70 Pro | SCS70iW Pro | SCS70iW(100) Pro
SCS120 Pro | SCS120iW Pro | SCS120iW(110) Pro
SCS140iW Pro
SCS240iW Pro

MANUAL

PRO SERIES

ACOUSTIC ENGINEERS

ATC®

SAFETY WARNINGS

1 Read instructions – all the safety and operating instructions should be read before the appliance is operated.

2 Retain these instructions – the safety and operating instructions should be retained for future reference.

3 Heed warnings – all warnings on the appliance and in the operating instructions should be adhered to.

4 Follow instructions – all operating and other instructions should be followed.

5 Water and moisture – the appliance should not be used near water, for example near a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement or near a swimming pool etc.

6 Ventilation – the appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, or similar surface that may block the ventilation openings. Similarly, the appliance should not be built into an installation, such as a bookcase or cabinet, that may impede the flow of air through the ventilation openings.

7 Heat – the appliance should be situated away from heat sources such as radiators, stoves or other appliances that produce heat.

8 Power sources – the appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

9 Power cord protection – power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles and the point where they exit the appliance.

10 Cleaning – the appliance should be cleaned only as recommended by the manufacturer.

11 Unattended periods – the power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

12 Object and liquid entry – care should be taken so that objects and liquids do not fall into the appliance.

13 Damage requiring service – the appliance should be serviced by qualified service personnel when:

i the power supply cord or the plug has been damaged

ii objects have fallen or liquid has been spilled into the appliance

iii the appliance has been exposed to rain or other serious liquid exposure

iv the appliance does not appear to operate normally or exhibits a marked change in performance

v the appliance has been dropped or the cabinet damaged.

14 Servicing – the user should not attempt to service the appliance beyond those measures described in the operating instructions. All other servicing should be referred to qualified service personnel. Please contact your local ATC dealer or distributor.

Opérations de maintenance: toutes les opérations de maintenance au-delà des opérations décrites dans le manuel d'utilisateur doivent impérativement être confiées à un technicien qualifié. Veuillez contacter votre revendeur ou distributeur ATC.

15 Grounding or polarisation – precautions should be taken so that grounding or polarisation means for the appliance are not defeated.

CONTENTS

1.0 Introduction

Welcome. In selecting ATC you have chosen an example of the finest audio engineering available. ATC was founded on a principle of engineering excellence, and that principle still defines our products today. Given the right opportunities, ATC products will deliver exceptional audio performance, but the opportunities will only arise from careful and thoughtful installation and use. Please read the following manual fully. It will help you understand the product and to realise its full potential. We are happy to answer questions and offer advice on any issues that arise through installation or use of ATC products. Contact details can be found at the back of this manual.

ATC was founded in London in 1974 by Australian emigre Billy Woodman. An enthusiastic pianist and engineer he was naturally drawn to loudspeaker design and after a period working at Goodmans, where many of the names that went on to found British loudspeaker companies began their careers, he struck out on his own. The premise on which ATC began is a simple one, and one that in many respects is still true today: hi-fi loudspeakers tend to be detailed and accurate but of limited dynamic range, while professional monitor speakers tend to express the opposite character. ATC products were designed from the outset to offer the best of both. It's an easy concept to describe, but surprisingly difficult to engineer.

The difficulty inherent in designing such loudspeakers is one of scale. Hi-fi levels of accuracy and detail call for lightweight moving parts and delicate engineering. Professional monitor levels of performance however demand far more robust components engineered to survive the rigours of high-level use for extended periods. The only way to combine the two is through precision engineering of a class and scale more often associated with aerospace or motor sport. But the results are worth the effort and the cost. ATC loudspeakers, with their unique in-house designed drivers, combine the best of hi-fi and professional to devastating effect.

ATC has become synonymous with active systems. Choosing to offer active loudspeakers (where the passive crossover network is replaced by active filters and multiple power amplifiers) is simply a result of the uncompromising attitude to loudspeaker design. While passive systems still have their place, and ATC engineering skills can still bring remarkable results from them, "active" is a fundamentally better solution to the problems posed by accurate, high level music reproduction. The ATC instinct is always for the better solution. Not cheaper, not quicker, but better.

It was the development of active loudspeakers that first brought ATC into electronics design and engineering. Active speakers demand multiple power amplifiers so ATC from the mid-1980s became not just a loudspeaker manufacturing company but an electronics manufacturer too. The further step from electronics for active speakers to a range of stand-alone amplifier products was natural and now means that ATC engineering is available from the recording desk or CD player output to the ears.

From modest beginnings ATC has grown to become one of the very few manufacturers successful across both domestic and professional audio. By selecting ATC you join a group of music lovers, professional audio engineers, studios and musicians across the World that understand and value the engineering that goes into an ATC product – and the sound that comes out.

2.0 Product Description

The ATC Studio Control Subwoofer (SCS) series are high-performance active subwoofers designed to partner ATC's Professional monitors. They are suited for stereo, multi-channel surround, and immersive audio systems.

The SCS range of subwoofers use meticulously optimised sub-bass drivers engineered to reproduce the lowest three octaves of the audio band, featuring a short voice coil operating within an exceptionally long magnetic gap to deliver high sound pressure levels with very low distortion.

Each subwoofer includes a front-mounted panel with status LEDs indicating power/limiting and mute conditions. The subwoofer output can be muted via a latching footswitch connected to a ¼" (6.35 mm) jack socket, with the ability to mute multiple daisy-chained subwoofers via a mute 'Thru' connection.

A 300W Class AB convection-cooled amplifier is integrated (or remote-mounted in the case of in-wall models), offering two balanced inputs, buffered unfiltered outputs, 21dB gain range, three low-pass frequency settings, polarity switch, and continuously variable 0-180° phase control. The low-pass filter can be bypassed by setting it to 'Off' (320 Hz) for external processing. Fault monitoring for panel temperature and DC offset is included, with a red LED indicating faults.

SCS70 PRO, SCS70iW Pro & SCS70iW Pro (100)

A 70-litre sealed cabinet equipped with the ATC SS75-314SC 12" (314 mm) sub-bass driver. These subwoofers are best suited to small/mid-sized studios.

The SCS70 Pro is a free-standing subwoofer with a rear-mounted amplifier integrated into the cabinet.

The SCS70iW Pro is designed for flush-mounted or in-wall installations, features a shallower cabinet and a remotely mounted R1-300 amplifier housed in a 7U, 19" rack-mount chassis. Audio connections are made via Neutrik NL4 speaker cables, with LED status connected by a 4-core 5-pin XLR control cable. The cabinet requires no rear ventilation and should be installed with the front baffle flush to the wall.

The SCS70iW Pro (100) is a variant of the SCS70iW Pro designed with a cabinet width to match the ATC SCM100AiW Pro.

SCS120 PRO, SCS120iW Pro & SCS120iW Pro (110)

A 120-litre sealed cabinet design equipped with the ATC SS75-375SC 15" (375 mm) sub-bass driver for higher SPL and greater bass extension, making these subwoofers best suited to mid/larger studio installations.

The SCS120 Pro is a free-standing subwoofer with a rear-mounted amplifier integrated into the cabinet.

The SCS120iW Pro is designed for flush-mounted or in-wall installations, features a shallower cabinet and a remotely mounted R1-300 amplifier housed in a 7U, 19" rack-mount chassis. Audio connections are made via Neutrik NL4 speaker cables, with LED status connected by a 4-core 5-pin XLR control cable. The cabinet requires no rear ventilation and should be installed with the front baffle flush to the wall.

The SCS120iW Pro (110) is a variant of the SCS120iW Pro designed with a cabinet width to match the ATC SCM110AiW Pro.

SCS140iW Pro

A 140-litre sealed cabinet design equipped with 2 x ATC SS75-314SC 12" (314 mm) sub-bass drivers for higher SPL, lower distortion and greater bass extension, making these subwoofers best suited to mid/larger studio installations.

The SCS140iW Pro is designed for flush-mounted or in-wall installations, featuring 2 x remotely mounted R1-300 amplifiers, each separately housed in 7U, 19" rack-mount chassis'. Audio connections are made via Neutrik NL4 speaker cables, with LED status connected by a 4-core 5-pin XLR control cables. The cabinet requires no rear ventilation and should be installed with the front baffle flush to the wall.

SCS240iW Pro

A 240-litre sealed cabinet design equipped with 2 x ATC SS75-375SC 15" (375 mm) sub-bass drivers for higher SPL, lower distortion and greater bass extension, making these subwoofers best suited to mid/larger studio installations.

The SCS240iW Pro is designed for flush-mounted or in-wall installations, featuring 2 x remotely mounted R1-300 amplifiers, each separately housed in 7U, 19" rack-mount chassis. Audio connections are made via Neutrik NL4 speaker cables, with LED status connected by a 4-core 5-pin XLR control cables. The cabinet requires no rear ventilation and should be installed with the front baffle flush to the wall.

3.1 Room Interaction

The room in which a loudspeaker is placed can be thought of as a filter, altering the acoustic response at the listening position from that of the loudspeaker. The position of the loudspeaker in a room will influence how it interacts with the space and therefore is often critical to achieving the best performance at the listening position.

Positioning is particularly relevant to subwoofers because at low frequencies the room will have a strong influence due to room modes/resonances. Room modes manifest themselves in an uneven distribution of acoustic energy within the room, which can lead to either too much or too little bass at the listening position. A room with a well-controlled low frequency response (reverb time) will have a far smaller influence on the performance of the subwoofer and will be less sensitive to subwoofer positioning. Typically, a combination of resonant membrane traps and porous absorbers are needed to control the low frequency. The resonant membrane traps are effective at treating the low bass, typically below 80Hz and the porous absorbers frequencies above this. Porous absorbers such as those made from foams, fibreglass or rockwool are not effective at absorbing low bass energy without a very large air space between them and the wall behind. For this reason, they are a poor choice of absorber for the subwoofer bandwidth.

To minimise problems a free-standing subwoofer should be kept away from corners where possible. Avoid placing the subwoofer mid-way between any two parallel walls. Where the subwoofer is to be installed directly into a hard wall, as would be the case with the iW sub variants, an increase in LF efficiency and LF extension should be expected. In-wall loudspeakers are in the optimum position for exiting room modes between the mounting wall and the opposite wall. The requirement for adequate bass trapping in the rear wall in this instance can be even more critical.

3.2 Subwoofer Placement

Start with the subwoofer positioned next to one of the stereo monitors and at the same distance from the listening position. When installing two subwoofers, start with one by each of the stereo monitors. In most cases these guidelines will give the best results, however all rooms vary, and it is a good idea to experiment with both listening and speaker positions until a good compromise is reached. When working on optimising the positioning, only change one variable at a time.

Positioning the subwoofer in the centre of the room, equidistant from the two side walls and between the left and right stereo pair must be avoided. In the majority of cases, this position will result in large irregularities in the frequency response.

Multiple subs will excite the room from multiple locations and will often give a more even in-room response. Also, a pair of subs can be placed with the same physical relationship to the pair of main speakers and the listener.

Please see sections 5 and 6 for recommendations on how to set the amplifier filters and level.

For professional installations the requirements are often very specific. Please consult with an experienced professional acoustician if necessary.

3.3 iW Variant Remote Amplifier (R1-300) Installation

The iW variant subwoofers feature a rear-mounted, recessed input panel containing an NL4 high-level audio input socket and a 5-pin XLR socket for connection to the front-panel LEDs. These sockets should be wired back to the R1-300 rack-mount amplifier using cables supplied by ATC (not included with the subwoofer).

The iW variant subwoofers do not require ventilation behind the cabinet and can be installed directly into a wall. The front face of the baffle should sit flush with the surface of the wall.

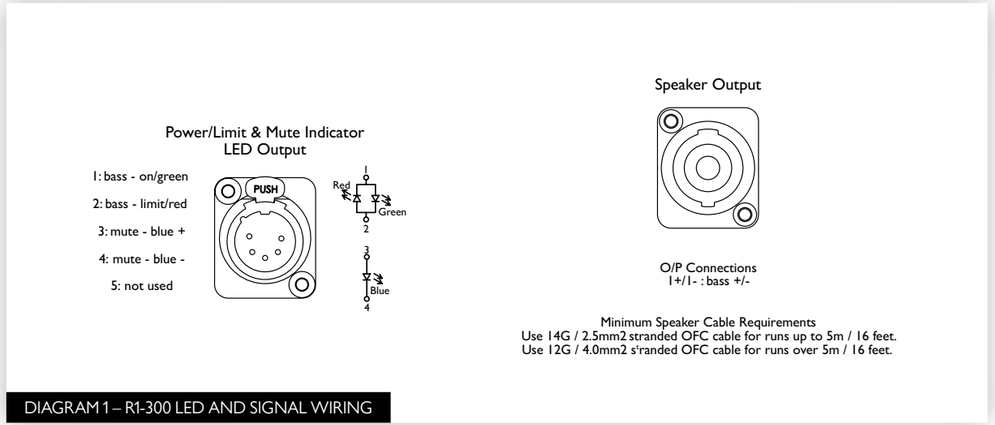


DIAGRAM 1 – R1-300 LED AND SIGNAL WIRING

4.1 Connection

Either two or three cable connections are required for each subwoofer: one for mains power and one or two for the audio signal. The mains cable is specifically supplied to comply with local statutory safety approvals and alternatives should not be substituted. If you intend to use your subwoofer in an alternative territory, please contact ATC for advice. The mains connection must always be earthed.

The signal cable(s) and plug(s) should be of a good quality and XLR terminated. Poor cable and plug quality will compromise the performance of your subwoofer. The signal input pin configuration is illustrated in Diagram 2. If two signal connections are made to the subwoofer (i.e. a stereo pair) the left and right signals will be summed by the amplifier, increasing the effective input level to the amplifier stage by 6dB.

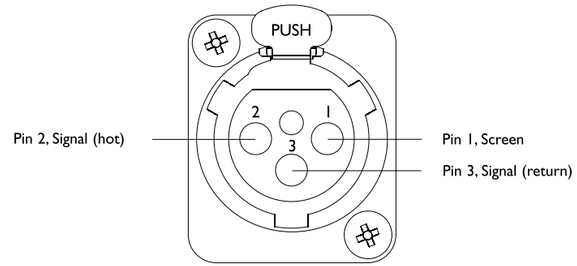


DIAGRAM 2

4.2 Signal Cable Options

Balanced cable configuration is the preferred option, however unbalanced connection is possible. Diagrams 3 and 4 illustrate the signal cable connections required for each option. Balanced (XLR to XLR) connection offers lower noise and better immunity to "hum" pick-up. Unbalanced (XLR to Phono or Two Pole Jack) connection carries risk of hum caused by multiple signal earths.

Hum problems resulting from unbalanced connection may be reduced by making one of the following modifications to the signal cable connections: If the driving preamplifier (or desk) is "double insulated" (i.e. has no mains earth), disconnect the signal cable screen at the RCA Phono plug end. Alternatively, disconnect the signal cable screen at the XLR end. This second option will make the source the reference signal earth.

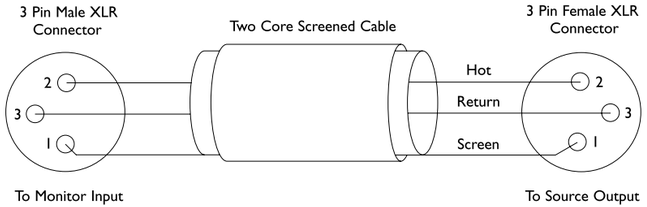


DIAGRAM 3

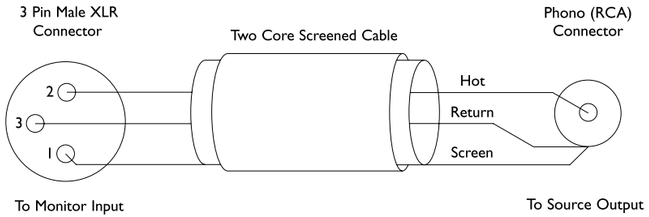


DIAGRAM 4

4.3 SCS140iW Pro and SCS240iW Pro amplifier connections

The SCS140iW Pro and SCS240iW Pro subwoofers feature two rack-mount amplifiers, with one amplifier connected to each subwoofer driver. To drive the entire system from a single input (recommended), the amplifiers must be wired as shown in Diagram 5.

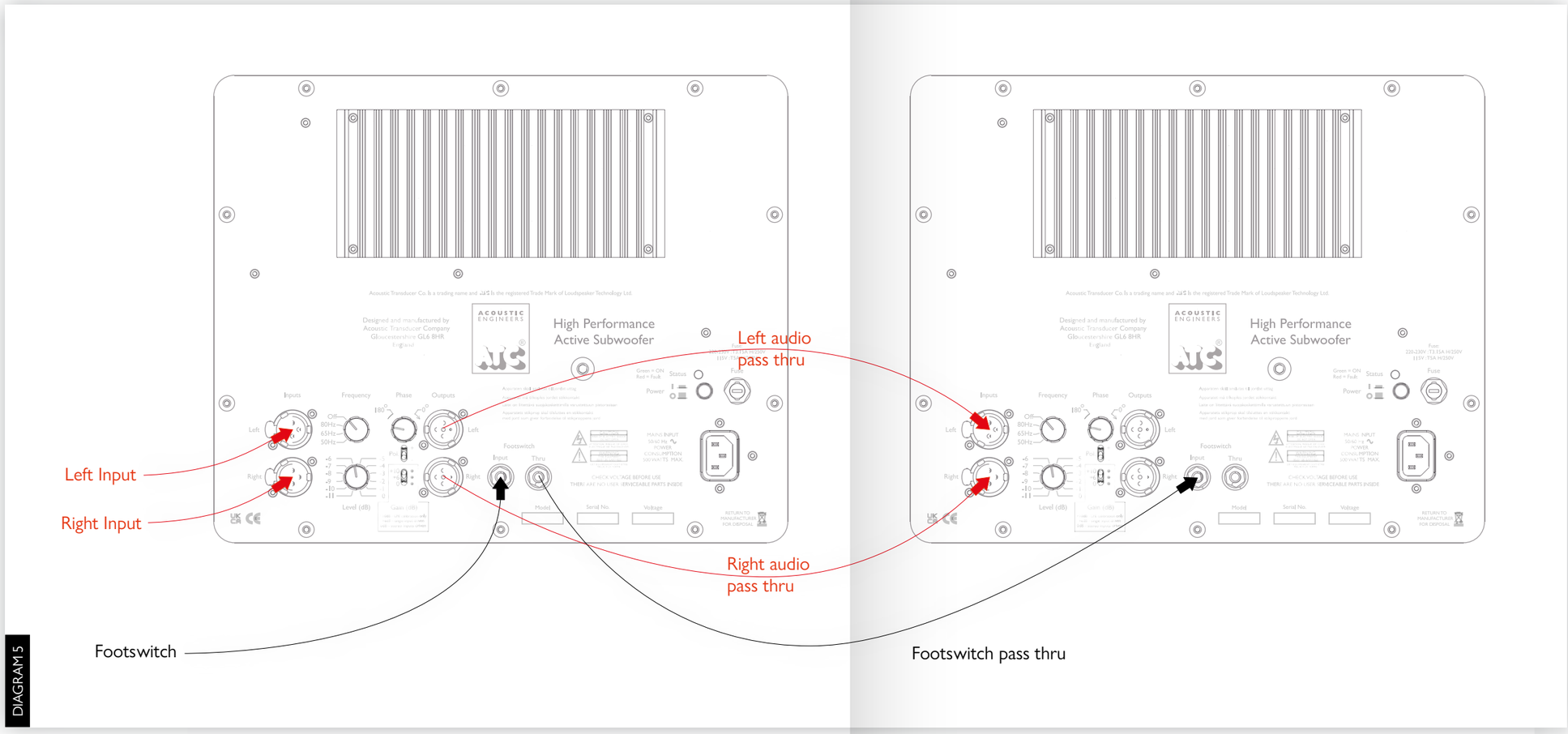


DIAGRAM 5

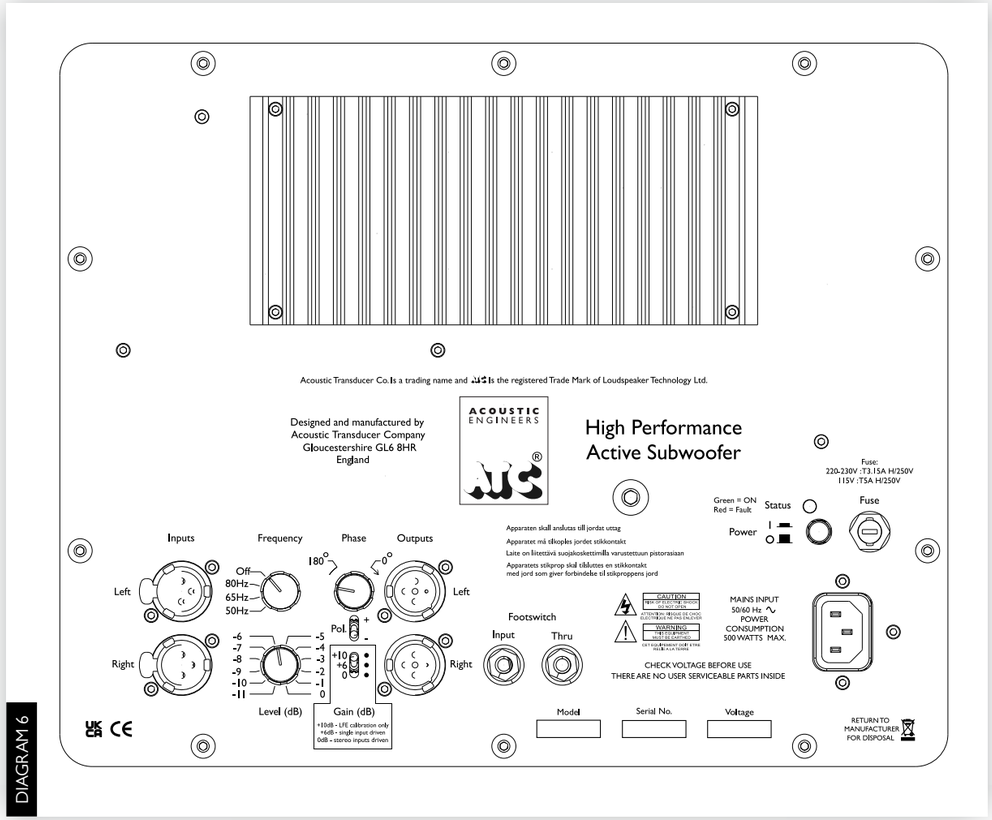


DIAGRAM 6

The subwoofer amplifier control and connection panel, shown in Diagram 5, provides a range of functions to assist with system integration. These are explained opposite.

5.1 Power on/off

Powers the subwoofer on or off. When the button is in the inward position, the loudspeaker is powered on. When button is in the outward position, the subwoofer is powered off.

5.2 Status

This bicolour LED indicates the current state of the amplifier. A green LED shows the amplifier is powered on and fault free. A red LED indicates the amplifier is turned on, but a temporary or permanent fault has been detected. The LED will illuminate red if there is a DC fault on the amplifier or if the thermal limit of the heatsink is reached. In the rare case that the LED illuminates red, the subwoofer should be switched off. Ensure the subwoofer heatsink has adequate ventilation and after 45 minutes switch it back on.* If the LED remains illuminated red the amplifier is registering a fault which should be investigated by an approved technician. Please contact your ATC dealer or distributor, details can be found at www.atc.audio. If the Fault LED is no longer illuminated, the amplifier had shut down safely due to reaching high temperatures. Please reduce the system listening level, subwoofer Level or improve amplifier ventilation and continue to use the subwoofer.

*Please note that quickly switching the power button between on and off can result in the LED illuminating red with the power switch in the On position. This is due to a short delay in the resetting of the protection circuitry and does not indicate a fault. If you suspect this is the cause of the LED illuminating red, simply turn the unit off for a few seconds and then turn it back on.

5.3 Level and Gain

Sets the overall sensitivity of the subwoofer. The Level knob can be used for fine 1dB adjustments and the Gain switch for 0, +6dB and +10dB steps. Combined, the total available range is 21dB.

The +10dB Gain setting can be used when working with surround/immersive audio formats that require the LFE channel calibrated at a 10dB higher SPL than the LCR channels.

Please refer to Section 9 – Product Specifications for information on system sensitivity.

5.4 Polarity and Phase

Sets the overall polarity of the subwoofer and offers an adjustment of the input/output phase. When set to + and 0° the subwoofer will radiate a positive acoustic pressure for a positive electrical signal at the input. When set to – and 0° the subwoofer will radiate in the opposite polarity to the input. The Phase control allows for fine adjustment of the phase relationship between subwoofer and satellite speakers. This can be thought of as a delay, allowing for time alignment with other system elements and is useful when physical adjustment of loudspeaker/sub position is limited.

5.5 Frequency

Varies the low pass crossover frequency as indicated on the control panel. This is the fundamental parameter that defines the integration of the subwoofer with the satellites. The Frequency control should be set at, or slightly above the specified low frequency cut-off of the satellite speakers.

The "open" setting applies a low pass filter at 320Hz. Select this setting if you will apply the sub low pass crossover filter via an external processor. When integrating the subwoofer with larger loudspeakers, the subwoofer LP filter setting may be higher than the specified LF rollout of the main/satellite speakers. In this case it is possible for the subwoofer to augment/reinforce the LF response of the main/satellite speakers, effectively extending their response.

All filters are of the type 4th order Linkwitz Riley.

5.6 Outputs

Provides separately buffered and fully balanced outputs with a signal identical to that at the corresponding input terminals. The output is unfiltered and unaltered in any way, and therefore it is possible to drive a stereo pair of active loudspeakers from these outputs. Likewise, it is also possible to drive a second Studio Control Subwoofer from these outputs. This function allows for an unlimited number of Studio Control Subwoofers to be "Daisy Chained" together, each driving the next.

5.7 Footswitch – Input and Thru

Facilitates remote muting of the subwoofer with the addition of a standard latching footswitch (not supplied, see specification). The Mute light on the front of the subwoofer will illuminate blue when the Mute function is enabled. If the system includes more than one Studio Control Subwoofer, a second subwoofer can be controlled from the Thru output socket. This allows for all subwoofers in a system to be controlled simultaneously from one footswitch. The signal at the Output sockets is not affected.

5.8 Front Panel Display

The LED marked POWER/LIMIT to the left is a Bi-Colour Green/Red LED. When Green the subwoofer is powered ON, when Red, the subwoofer amplifier is limiting, please reduce the listening level. Persistent and/or continuously illumination of the Red LED can result in damage to the amplifier or driver.

The LED marked MUTE to the right is not lit when the subwoofer is operational and will illuminate Blue when the subwoofer is Muted via an external footswitch, see Section 5.6.

DIAGRAM 7

6.0 Typical System Configurations and Recommendations

It is likely that a subwoofer will be used in one of two different scenarios: either as Bass Reinforcement/Extension in a Stereo System or as a discrete channel in a Multichannel Surround/Immersive Audio system.

6.1 Bass Reinforcement/Bass Extension of a Stereo System

Typically, a full-range stereo signal is driven into both Left and Right subwoofer Inputs. The subwoofer Outputs connect to and drive the main monitors. Alternatively, the Studio Control Subwoofer and main monitors can be driven independently from a suitable monitor controller. Example systems are shown in Diagrams 8, 9 and 10. All subwoofers can be controlled using the method described in section 5. All panel settings should be set independently for each subwoofer.

All ATC loudspeakers deliver significant low frequency output, more so with the larger monitors in the range, therefore there will always be some degree of acoustic overlap between the subwoofer and stereo loudspeaker in this configuration. Applying a high pass filter to the main monitors will introduce phase shift in the main monitors and should be avoided where possible. Good results can be achieved through experimentation with the subwoofer Level, Frequency and Phase adjustment.

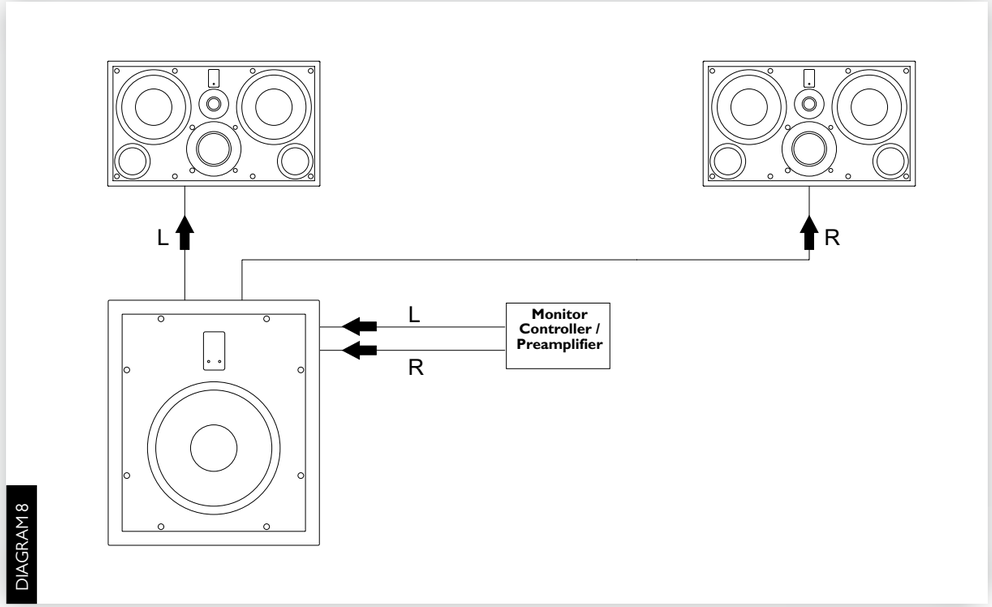


DIAGRAM 8

Diagram 8 – Typical Configuration – Stereo playback (Mono Sub). A monitor controller or preamplifier output is connected to the L and R Inputs of the subwoofer. The subwoofer L and R Outputs are connected to the Input of the L and R main monitors.

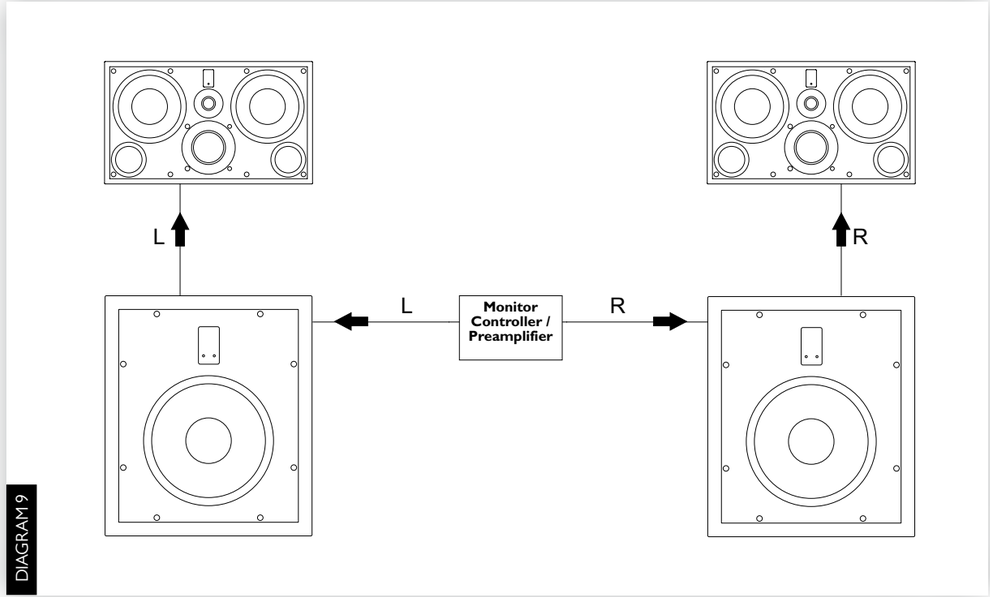


DIAGRAM 9

Diagram 9 – Typical Configuration – Stereo playback (Stereo Subs). A monitor controller or preamplifier output is connected to a single Input on each subwoofer. The corresponding Output of each subwoofer is connected to the Input of the main monitor on that channel. Note that it is also possible to connect the monitor controller output to both Left and Right channel Inputs on the subwoofer using a Y-Splitter cable. If connected in this way the "spare" output can be used to connect further subwoofers.

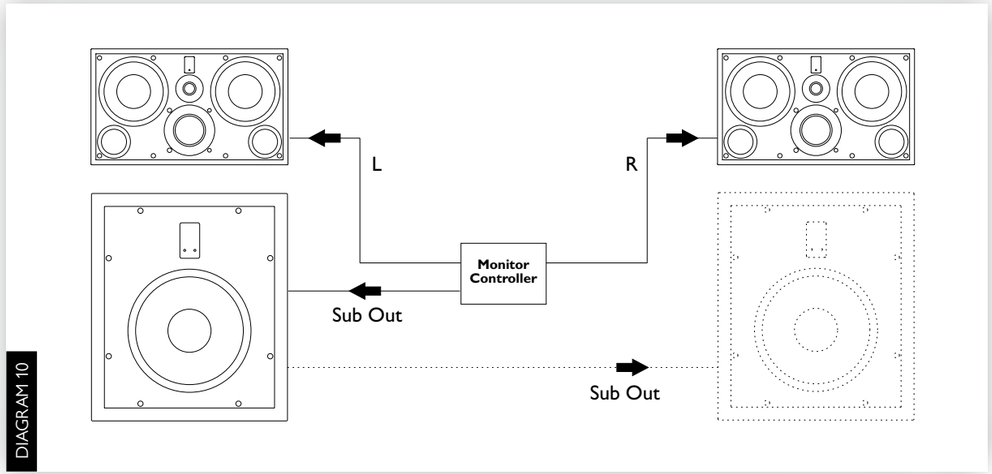


DIAGRAM 10

Diagram 10 – 2.1 Configuration – The subwoofer is driven by a monitor controller with a dedicated subwoofer output. Additional subwoofers may be daisy chained where more than one is required.

The recommended number of subwoofers required in each system is shown below.
For detailed recommendations, please contact your dealer/distributor or ATC.

	Stereo loudspeakers									
	SCM12 PRO	SCM20ASL PRO	SCM25A PRO	SCM45 PRO	SCM50 ASL PRO	SCM100 ASL PRO	SCM110 ASL PRO	SCM150 ASL PRO	SCM200 ASL PRO	SCM300 ASL PRO
SCS70 Pro	**1**	**1**	**1**	**1-2**	**1-2**	**2**	–	–	–	–
SCS120 Pro	–	–	–	**1**	**1**	**1-2**	**1-2**	**2**	**2-4**	**4**
SCS140iW Pro	–	–	–	–	–	–	–	**2**	**2**	**4**
SCS240iW Pro	–	–	–	–	–	–	–	–	**1-2**	**2**

The follwing four tables are to be used as a guide only. Due to the interaction between the subwoofer, main monitors and room, it is often necessary to experiment with the controls to achieve the best results. The recommended initial settings are shown below.

BASS REINFORCEMENT/EXTENSION OF STEREO SYSTEM LEVELS SHOWN FOR A SINGLE SUB, BOTH INPUTS DRIVEN FOR EACH DOUBLING OF SUBS REDUCE THE LEVEL SHOWN BY 3dB		SCS70 Pro – recommended initial settings				
		FREQUENCY	LEVEL POT – ADJUST FOR BEST BALANCE	GAIN SWITCH (SINGLE SUB/ DUAL SUBS)	PHASE – ADJUST TO FINE TUNE	POLARITY
Loudspeaker model (pair)	SCM12 PRO + P1 POWER AMPLIFIER	**65Hz**	**-6dB***	**6dB/0dB***	**0°**	**+**
	SCM20ASL PRO	**65Hz**	**-6dB**	**6dB/0dB**	**0°**	**+**
	SCM25A PRO	**50Hz**	**-6dB**	**6dB/0dB**	**0°**	**-**
	SCM45A PRO	**50Hz**	**-3dB**	**6dB/0dB**	**0°**	**-**
	SCM50ASL PRO	**50Hz**	**-3dB**	**6dB/0dB**	**0°**	**-**

* Driving the SCM12's with a different amplifier may require a different gain setting.

BASS REINFORCEMENT/EXTENSION OF STEREO SYSTEM LEVELS SHOWN FOR A SINGLE SUB (UNLESS OTHERWISE STATED), BOTH INPUTS DRIVEN FOR EACH DOUBLING OF SUBS REDUCE THE LEVEL SHOWN BY 3dB		SCS120 Pro – recommended initial settings				
		FREQUENCY	LEVEL POT – ADJUST FOR BEST BALANCE	GAIN SWITCH (SINGLE SUB/ DUAL SUBS)	PHASE – ADJUST TO FINE TUNE	POLARITY
Loudspeaker model (pair)	SCM45A PRO	**50Hz**	**-6dB**	**6dB/0dB**	**0°**	**-**
	SCM50ASL PRO	**50Hz**	**-6dB**	**6dB/0dB**	**0°**	**-**
	SCM100ASL PRO	**50Hz**	**-3dB**	**6dB/0dB**	**0°**	**-**
	SCM110ASL PRO	**50Hz**	**-3dB**	**6dB/0dB**	**0°**	**-**
	SCM150ASL PRO	**50Hz**	**-5dB***	**6dB/0dB**	**0°**	**-**
	SCM200ASL PRO	**50Hz**	**-11dB***	**6dB/0dB**	**0°**	**-**
	SCM300ASL PRO	**50Hz**	**-11dB****	**6dB/0dB**	**0°**	**-**

* Level shown for 2 subs (minimum recommended) ** Level shown for 4 subs (minimum recommended)

BASS REINFORCEMENT/EXTENSION OF STEREO SYSTEM LEVELS SHOWN FOR A SINGLE SUB, BOTH INPUTS DRIVEN FOR EACH DOUBLING OF SUBS REDUCE THE LEVEL SHOWN BY 3dB		SCS140iW Pro – recommended initial settings				
		FREQUENCY	LEVEL POT – ADJUST FOR BEST BALANCE	GAIN SWITCH (SINGLE SUB/ DUAL SUBS)	PHASE – ADJUST TO FINE TUNE	POLARITY
Loudspeaker model (pair)	SCM110ASL PRO	**50Hz**	**-3dB**	**6dB/0dB**	**0°**	**-**
	SCM150ASL PRO	**50Hz**	**-5dB***	**6dB/0dB**	**0°**	**-**
	SCM200ASL PRO	**50Hz**	**-11dB***	**6dB/0dB**	**0°**	**-**
	SCM300 ASL PRO	**50Hz**	**-11dB****	**6dB/0dB**	**0°**	**-**

* Level shown for 2 subs (minimum recommended) ** Level shown for 4 subs (minimum recommended)

BASS REINFORCEMENT/EXTENSION OF STEREO SYSTEM LEVELS SHOWN FOR A SINGLE SUB (UNLESS OTHERWISE STATED), BOTH INPUTS DRIVEN FOR EACH DOUBLING OF SUBS REDUCE THE LEVEL SHOWN BY 3dB		SCS240iW Pro – recommended initial settings				
		FREQUENCY	LEVEL POT – ADJUST FOR BEST BALANCE	GAIN SWITCH (SINGLE SUB/ DUAL SUBS)	PHASE – ADJUST TO FINE TUNE	POLARITY
Loudspeaker model (pair)	SCM110ASL PRO	**50Hz**	**-6dB**	**6dB/0dB**	**0°**	**-**
	SCM150ASL PRO	**50Hz**	**-5dB**	**6dB/0dB**	**0°**	**-**
	SCM200ASL PRO	**50Hz**	**-11dB**	**6dB/0dB**	**0°**	**-**
	SCM300 ASL PRO	**50Hz**	**-11dB***	**6dB/0dB**	**0°**	**-**

* Level shown for 2 subs (minimum recommended)

6.2 Multichannel Surround/Immersive Audio

Dolby Atmos has specific requirements for subwoofer dynamic range – Please refer to the format developer guidelines when specifying hardware for Immersive Audio and Surround systems.

A single subwoofer is driven from the 0.1/LFE channel output of a multichannel processor/monitor controller. For increased dynamic range and headroom, multiple subwoofers can be connected in series as described in Section 5.6 and 5.7. All panel settings must be set independently for each subwoofer.

The choice of loudspeaker model and the number of subwoofers required in any system is dependent on room size, mix format and target calibration level at the listening position. The diagram on the following page can be used as a guide to determine suitable partnering system elements from the ATC Professional product range.

		Left/centre/right loudspeakers									
		SCM12 PRO	SCM20 ASL PRO	SCM25A PRO	SCM45A PRO	SCM50A SL PRO	SCM100 ASL PRO	SCM110 ASL PRO	SCM150 ASL PRO	SCM200 ASL PRO	SCM300 ASL PRO
Surround loudspeakers/subs	SCM12 PRO	●	○	○	○	○					
	SCM20ASL PRO		●	●	●	○					
	SCM25A PRO		●	●	●	●	○				
	SCM45A PRO				●	●	○	○			
	SCM50ASL PRO					●	●	●	●	○	
	SCM100ASL PRO						●	●	●	●	○
	SCM110ASL PRO							●	●	●	●
	SCM150ASL PRO								●	●	●
	SCM200ASL PRO									●	●
	SCM300ASL PRO										●
	SCS70 PRO	**1**	**1**	**1**	**1-2**	**2**	**2**				
	SCS120 PRO				**1**	**1**	**1-2**	**2**	**2-4**	**2-4**	**4**
	SCS140iW PRO					**1**	**1-2**	**2**	**2-4**	**2-4**	**4**
	SCS240iW PRO						**1**	**1**	**1-2**	**2-4**	**2-4**

● = Recommended. ○ = Acceptable.

DIAGRAM 11

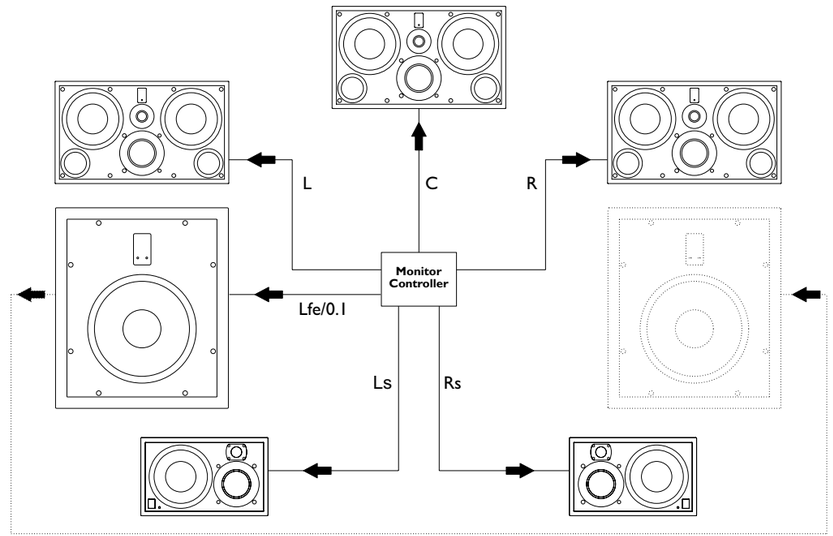


Diagram 11 – Typical Multichannel System wiring. Depending on the Monitor Controller output level and number of subwoofers, the Gain switches may need to be set to 6dB. Further subwoofers can be added to the system using the same "Daisy Chain" method shown. The system shown is an example and other configurations are available.

Recommended initial settings for the Studio Control Subwoofer when used in a multichannel system are shown below.

	Studio Control Sub – recommended initial settings when used in a multichannel system				
	FREQUENCY	LEVEL – ADJUST FOR BEST BALANCE	GAIN	PHASE – ADJUST TO FINE TUNE INTEGRATION	POLARITY
	80Hz	**-6dB**	**0dB**	**0°**	**+**

SECTION SEVEN

7.0 Listening

The ear and brain tend to interpret distorted sound as loudness and thus underestimate the actual level of undistorted sound. ATC subwoofers, like all ATC products, demonstrate very much lower levels of distortion than conventional systems of a similar size and it is therefore advisable to begin listening at an artificially low level and carefully increase the volume. It is also possible for the ATC systems to produce sufficient sound pressure levels for your ears themselves to become a source of distortion and make the sound appear harsh. Any audible distortion indicates that either the system or your ears are being overloaded and that the volume level should be reduced.

When a subwoofer is successfully integrated into a system it should become impossible to discern from the main monitors. If the subwoofer is audible as a separate element, then it is likely the level is too high, the filter settings require adjustment, or the positioning can be improved. Please refer to Section 5 of this manual.

SECTION EIGHT

8.0 Care and Maintenance

Conditions of heavy use. Normally, a dry duster will be all that is required to keep the finishes clean.

The damping coating on the cone is a water-based polymer, which means it is sensitive to moisture. To clean the cone, use a dry, lint-free cloth to gently remove dust. Do not use water or any wet cleaning agents, as these may damage the coating. Heavy soiling of the cabinet and baffle can be cleaned using a cloth slightly moistened with a non-abrasive household cleaner.

There are no components within the speakers that can be considered expendable, or that would benefit from regular maintenance. There is no requirement for any kind of routine service work and there is no schedule for preventative maintenance. There are no user-replaceable parts within the speaker, and in the unfortunate event of any malfunction, repair should be referred to either the supplying dealer or consultant, the relevant importer, or ATC. ATC has every confidence in the quality of each product that it manufactures.

9.1 SCS70/SCS70iW/SCS70iW(100) Pro – Acoustic specification

Low Frequency Cut-off: 22Hz (-6dB, half space, low pass filter set at 80Hz).

Low Pass Filters: 50Hz, 65Hz, 80Hz, 320Hz. (-6dB, 4th order Linkwitz Riley).

MaxSPL: 110dB continuous, 116dB peak (IEC Weighted Pink Noise, measured at 1m, half space, low pass filter set at 80Hz).

Sensitivity: 85dBC, ref. -11dBu (single channel driven, Gain +6dB, Level 0dB, pink noise, low pass filter set at 80Hz.

9.2 SCS70/SCS70iW/SCS70iW(100) Pro – Electronic specification

Balanced Input: 2 x Rear Panel Mounted Female XLR, pin 2 hot.

Input Impedance: Approx. 20kΩ (differential).

Input CMRR: 90dB at 200Hz.

Input Sensitivity: 6dBu/1.55Vrms for full power (single channel driven, Gain 0dB, Level 0dB).

Gain Control: 0, +6dB, +10dB.

Level Control: 0dB -11dB in 1dB steps. Total range 21dB with use of Gain switch.

Phase Control: 0-180° ref. Input.

Polarity Control: In-phase/Out-of-phase ref. Input.

Low Pass Filters: 4th Order Linkwitz Riley.

Output Impedance: Approx. 100Ω (differential).

Amplifier type: Grounded Source MOSFET based Class A-B, convection cooled.

Output Power: 300W in to 8Ω.

THD+N: <0.003%/-90dB, at 100Hz, 300W into 8Ω over 90kHz bandwidth.

Frequency Response: <2Hz (-3dB) – 320Hz (-6dB, set by panel-controlled LP filter).

Limiter: ATC Active FET Momentary Gain Reduction, active limiter indicated on front panel.

Electronic Amp Protection: Amplifier D.C Offset and over-temperature (both indicated on rear panel)

Power Consumption: Idle 16W/60VA, 1/8th Power 170W/230VA, Full Power 500W/600VA.

Mains Input: 220-230V, 115V – Factory set. Please observe panel markings and labels.

Heat Output: Idle 47.8 BTU/hr, 1/8th Power 458.9 BTU/hr, Full Power 682.4 BTU/hr.

Additional: Mute via ¼"/6.35mm Jack socket, controlled via latching footswitch.

9.3 SCS120/SCS120iW/SCS120iW(110) Pro – Acoustic specification

Low Frequency Cut-off: 20Hz (-6dB, half space, low pass filter set at 80Hz).

Low Pass Filters: 50Hz, 65Hz, 80Hz, 320Hz. (-6dB, 4th order Linkwitz Riley).

MaxSPL: 113dB continuous, 119dB Peak (IEC Weighted Pink Noise, measured at 1m, half space, low pass filter set at 80Hz).

Sensitivity: 85dBC, ref. -17dBu (single channel driven, Gain +6dB, Level 0dB, pink noise, low pass filter set at 80Hz.

9.4 SCS120/SCS120iW/SCS120iW(110) Pro – Electronic specification

Balanced Input: 2 x Rear Panel Mounted Female XLR, pin 2 hot.

Input Impedance: Approx. 20kΩ (differential).

Input CMRR: 90dB at 200Hz.

Input Sensitivity: 3.2dBu/1.12Vrms for full power (single channel driven, Gain 0dB, Level 0dB).

Gain Control: 0, +6dB, +10dB.

Level Control: 0dB -11dB in 1dB steps. Total range 21dB with use of Gain switch.

Phase Control: 0-180° ref. Input.

Polarity Control: In-phase/Out-of-phase ref. Input.

Low Pass Filters: 4th Order Linkwitz Riley.

Output Impedance: Approx. 100Ω (differential).

Amplifier type: Grounded Source MOSFET based Class A-B, convection cooled.

Output Power: 300W in to 8Ω.

THD+N: <0.003%/-90dB, at 100Hz, 300W into 8Ω over 90kHz bandwidth.

Frequency Response: <2Hz (-3dB) – 320Hz (-6dB, set by panel-controlled LP filter).

Limiter: ATC Active FET Momentary Gain Reduction, active limiter indicated on front panel.

Electronic Amp Protection: Amplifier D.C Offset and over-temperature (both indicated on rear panel)

Power Consumption: Idle 16W/60VA, 1/8th Power 170W/230VA, Full Power 500W/600VA.

Mains Input: 220-230V, 115V – Factory set. Please observe panel markings and labels.

Heat Output: Idle 47.8 BTU/hr, 1/8th Power 458.9 BTU/hr, Full Power 682.4 BTU/hr.

Additional: Mute via ¼"/6.35mm Jack socket, controlled via latching footswitch.

9.5 SCS140iW Pro – Acoustic specification

Drive Unit – Bass: 2 x ATC SS75-314SC 8Ω.

Low Frequency Cut-off: 22Hz (-6dB, half space, low pass filter set at 80Hz).

Low Pass Filters: 50Hz, 65Hz, 80Hz, 320Hz. (-6dB, 4th order Linkwitz Riley).

MaxSPL: 116dB continuous, 121dB peak (IEC Weighted Pink Noise, measured at 1m, half space, low pass filter set at 80Hz).

Sensitivity: 85dBC, ref. -17dBu (single channel of both amplifiers driven, Gain +6dB, Level 0dB, pink noise, low pass filter set at 80Hz.

9.6 SCS140iW Pro – Electronic specification

Note – Each subwoofer comes with 2 x amplifiers.

Balanced Input: 2 x Rear Panel Mounted Female XLR, pin 2 hot.

Input Impedance: Approx. 20kΩ (differential).

Input CMRR: 90dB at 200Hz.

Input Sensitivity: 6dBu/1.55Vrms for full power (single channel driven, Gain 0dB, Level 0dB).

Gain Control: 0, +6dB, +10dB.

Level Control: 0dB -11dB in 1dB steps. Total range 21dB with use of Gain switch.

Phase Control: 0-180° ref. Input.

Polarity Control: In-phase/Out-of-phase ref. Input.

Low Pass Filters: 4th Order Linkwitz Riley.

Output Impedance: Approx. 100Ω (differential).

Amplifier type: Grounded Source MOSFET based Class A-B, convection cooled.

Output Power: 300W in to 8Ω.

THD+N: <0.003%/-90dB, at 100Hz, 300W into 8Ω over 90kHz bandwidth.

Frequency Response: <2Hz (-3dB) – 320Hz (-6dB, set by panel-controlled LP filter).

Limiter: ATC Active FET Momentary Gain Reduction, active limiter indicated on front panel.

Electronic Amp Protection: Amplifier D.C Offset and over-temperature (both indicated on rear panel)

Power Consumption: Idle 16W/60VA, 1/8th Power 170W/230VA, Full Power 500W/600VA.

Mains Input: 220-230V, 115V – Factory set. Please observe panel markings and labels.

Heat Output: Idle 47.8 BTU/hr, 1/8th Power 458.9 BTU/hr, Full Power 682.4 BTU/hr.

Additional: Mute via ¼"/6.35mm Jack socket, controlled via latching footswitch.

9.7 SCS240iW Pro – Acoustic specification

Drive Unit – Bass: 2 x ATC SS75-375SC 8Ω.

Low Frequency Cut-off: 20Hz (-6dB, half space, low pass filter set at 80Hz).

Low Pass Filters: 50Hz, 65Hz, 80Hz, 320Hz. (-6dB, 4th order Linkwitz Riley).

MaxSPL: 119dB continuous, 125dB Peak (IEC Weighted Pink Noise, measured at 1m, half space, low pass filter set at 80Hz).

Sensitivity: 85dBC, ref. -23dBu (single channel of both amplifiers driven, Gain +6dB, Level 0dB, pink noise, low pass filter set at 80Hz.

9.8 SCS240iW Pro – Electronic specification

Note – Each subwoofer comes with 2 x amplifiers.

Balanced Input: 2 x Rear Panel Mounted Female XLR, pin 2 hot.

Input Impedance: Approx. 20kΩ (differential).

Input CMRR: 90dB at 200Hz.

Input Sensitivity: 3.2dBu/1.12Vrms for full power (single channel driven, Gain 0dB, Level 0dB).

Gain Control: 0, +6dB, +10dB.

Level Control: 0dB -11dB in 1dB steps. Total range 21dB with use of Gain switch.

Phase Control: 0-180° ref. Input.

Polarity Control: In-phase/Out-of-phase ref. Input.

Low Pass Filters: 4th Order Linkwitz Riley.

Output Impedance: Approx. 100Ω (differential).

Amplifier type: Grounded Source MOSFET based Class A-B, convection cooled.

Output Power: 300W in to 8Ω.

THD+N: <0.003%/-90dB, at 100Hz, 300W into 8Ω over 90kHz bandwidth.

Frequency Response: <2Hz (-3dB) – 320Hz (-6dB, set by panel-controlled LP filter).

Limiter: ATC Active FET Momentary Gain Reduction, active limiter indicated on front panel.

Electronic Amp Protection: Amplifier D.C Offset and over-temperature (both indicated on rear panel)

Power Consumption: Idle 16W/60VA, 1/8th Power 170W/230VA, Full Power 500W/600VA.

Mains Input: 220-230V, 115V – Factory set. Please observe panel markings and labels.

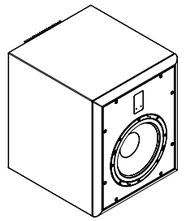
Heat Output: Idle 47.8 BTU/hr, 1/8th Power 458.9 BTU/hr, Full Power 682.4 BTU/hr.

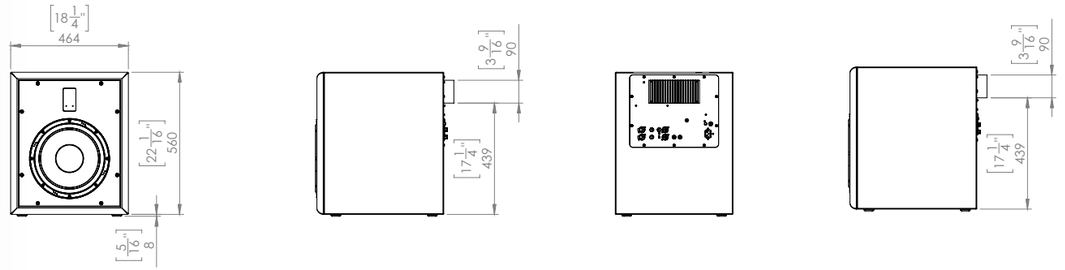
Additional: Mute via ¼"/6.35mm Jack socket, controlled via latching footswitch.

9.9 Physical specification

SCS70 PRO

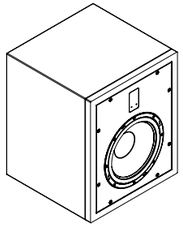
WEIGHT – 41.6KG | DIMENSIONS – SEE DIAGRAM

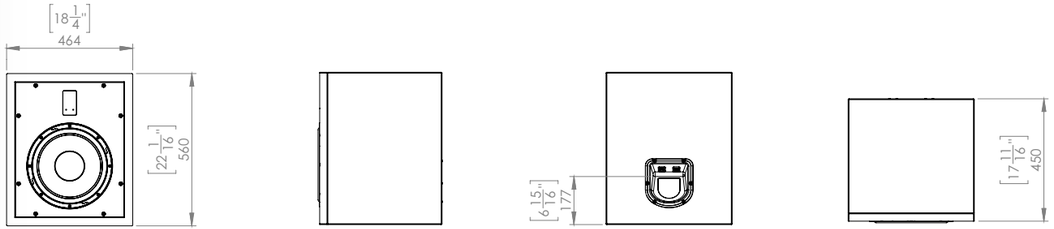




SCS70iVV PRO

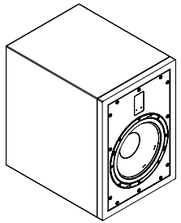
WEIGHT – 32.5KG | DIMENSIONS – SEE DIAGRAM

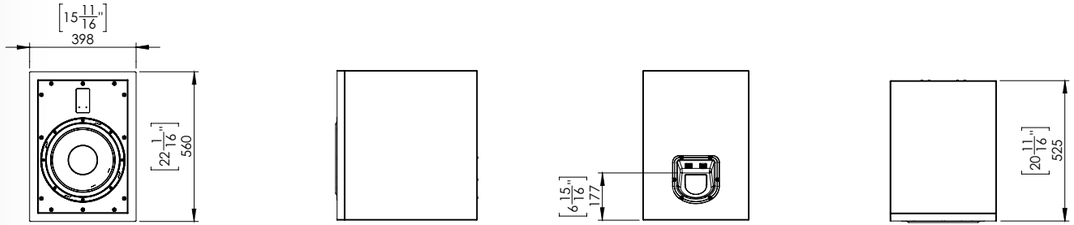




SCS70iVV(100) PRO

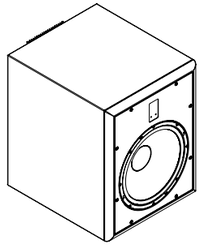
WEIGHT – 32.5KG | DIMENSIONS – SEE DIAGRAM

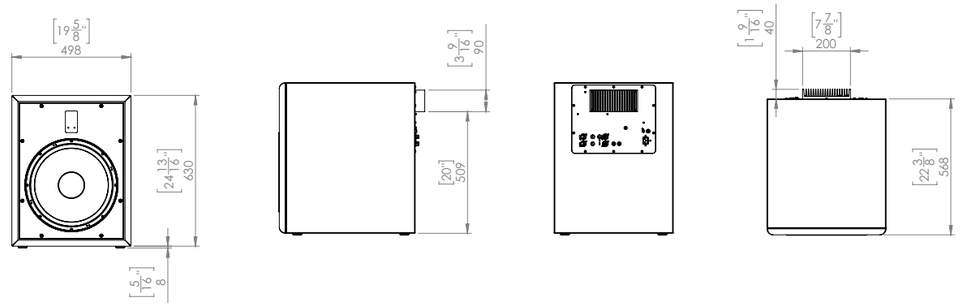




SCS120 PRO

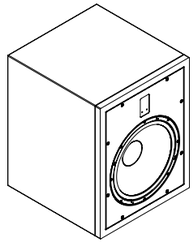
WEIGHT – 44.5KG | DIMENSIONS – SEE DIAGRAM

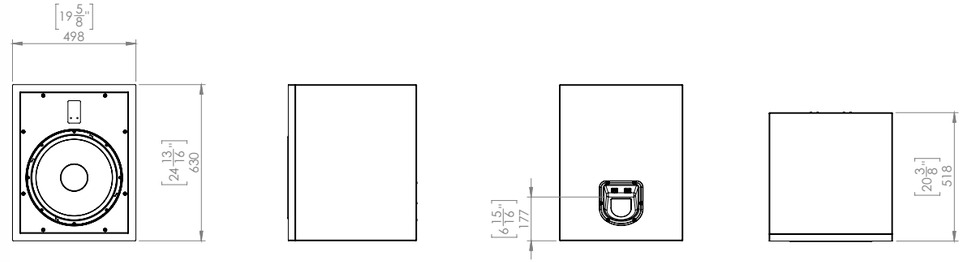




SCS120iW PRO

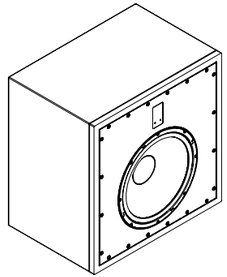
WEIGHT – 35.3KG | DIMENSIONS – SEE DIAGRAM

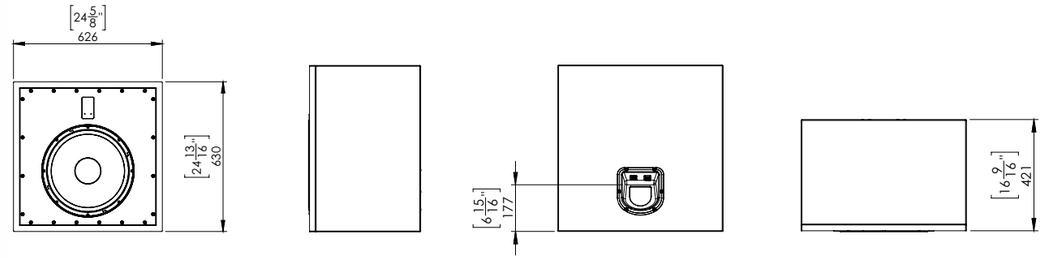




SCS120iW(110) PRO

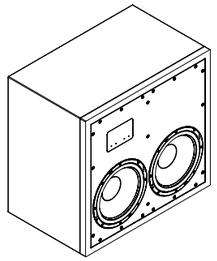
WEIGHT – 37KG | DIMENSIONS – SEE DIAGRAM

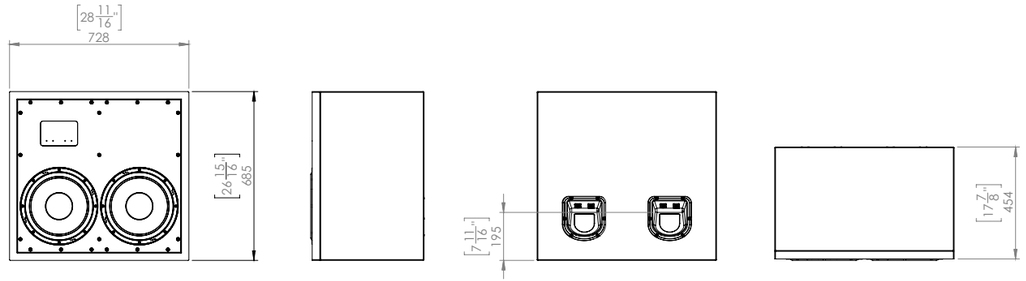




SCS140iW PRO

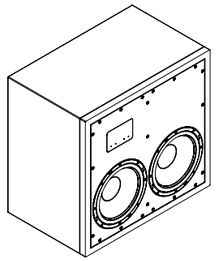
WEIGHT – 55.5KG | DIMENSIONS – SEE DIAGRAM

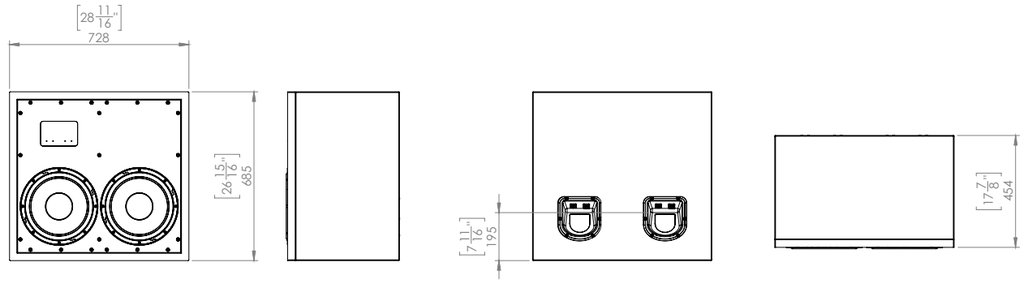




SCS240iW PRO

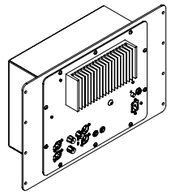
WEIGHT – 69.7KG | DIMENSIONS – SEE DIAGRAM

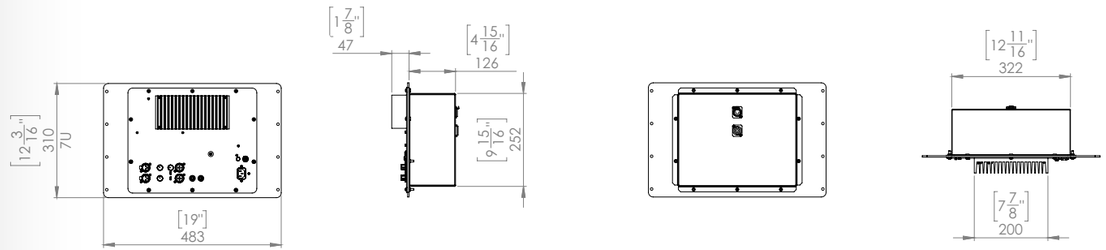




R1-300 REMOTE AMPLIFIER

WEIGHT – 12KG | DIMENSIONS – SEE DIAGRAM





10.1 Warranty

All ATC products are guaranteed against any defect in materials or workmanship for a period of two years from the date of purchase. Within this period, we will supply replacement parts free of charge provided that the failure was not caused by misuse, accident or negligence. Purchasers who complete the Product Registration process, either by returning a completed Warranty Card to ATC or by registering the product at www.atc.audio, will have their warranty period extended up to a period of six years from the date of purchase.

This guarantee does not limit statutory rights.

10.2 Contact

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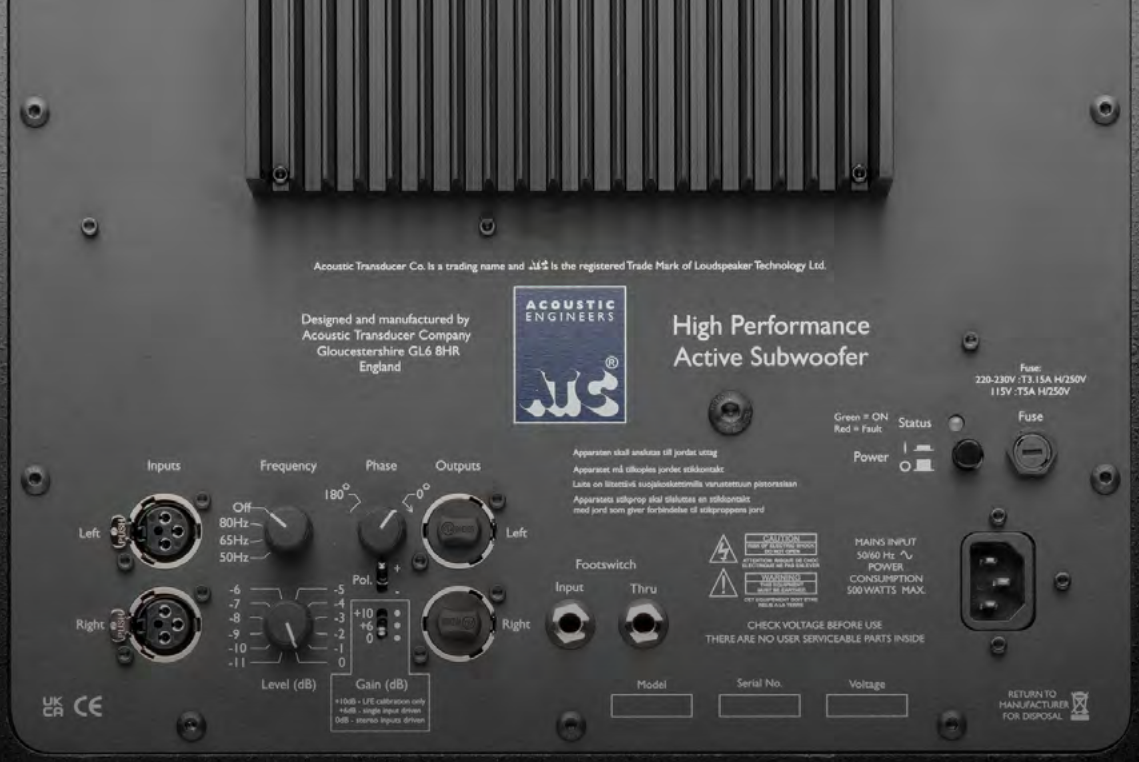
Gypsy Lane, Aston Down
Stroud, Gloucestershire
GL6 8HR
United Kingdom

Telephone +44 (0)1285 760561
Email: info@atc.audio
Website: www.atc.audio



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50 YEARS IN THE MAKING