

User Manual: **SCM200ASL • SCM300ASL** **P4 POWER AMPLIFIER**

SCM200ASL
SCM300ASL
P4



ACOUSTIC ENGINEERS

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

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 Bill Woodman, who still heads the company today. 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 motorsport. 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.

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1. System Configuration

The SCM200/300ASL and P4 comprise active loudspeaker systems in which the P4 filter and amplifier unit can be located remotely from the monitors themselves. One P4 unit is needed for each monitor. The P4 incorporates the appropriate three-way active filters and four power amplifiers - 2 x Low Frequency, 1 x Mid Frequency, 1 x High Frequency. Only one custom connector eight-way speaker cable is required to connect each monitor to its P4 unit.

2. Unpacking and Handling

The SCM200 and 300 are large, heavy items and should be handled with respect. Take particular care when opening the packing crates not to damage the monitors. Always employ a second person to assist in moving them. Unpacking each monitor requires a large, open space, preferably near its final position.

3. P4 Installation

The P4 is designed to be free standing or rack mounted (using suitable rack shelving). Adequate ventilation must be provided. The amplifier is cooled by forced ventilation with air intake at the rear of the unit with an exhaust at the front. DO NOT obstruct either front or rear vents or enclose the unit. The cooling fans will run when the heatsink temperature reaches approximately 30°C. They will continue to run, even when the amplifier is in standby mode, until the heatsink temperature has dropped to approximately 20°C.

When a P4 is switched from standby to active operation a mild thump may be heard from the unit as the main power transformer energises. In order to avoid excessive in-rush current if multiple P4s are connected to a single power outlet it is recommended that they are switched to active mode sequentially. It is unwise in these circumstances to switch-on using the remote handset.

4. Monitor Placement

The subjective performance of any monitor loudspeaker will be fundamentally influenced by the acoustic character of the room in which it is used, and its position within the room. Most often monitors are installed in rooms which are comfortable to sit and talk in. A mixture of carpets, curtains and soft furnishings will help ensure that middle and high frequencies are reasonably well controlled. There may however be low frequency problems; either too much or too little bass. To minimise low frequency problems the monitors should be kept away from corners or walls. For professional installations positioning requirements are often very specific. Please consult with an experienced professional acoustician if necessary. SCM200 and 300 can be soffit mounted. In this case it is especially important to consult with a professional acoustician.

Monitors with an asymmetric driver array should be positioned such that the midrange driver and tweeter are inboard.

5. System Connections

Three cable connections are required for each P4 and monitor: one for mains power; one for the audio signal and one for the speaker cable.

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 monitors in an alternative territory please contact ATC for advice. The mains connection must always be earthed.

The signal cable and plug (not necessarily supplied) should be of a good quality and XLR terminated. Poor cable and plug quality will compromise the performance of your monitors. The signal input pin configuration is illustrated in Diagram 1.

Custom made 5 metre speaker cables and plugs are supplied as standard with the P4. Speaker cables of up to 10 metres are available. Runs up to 20 metres may be made up by splicing heavier gauge (4mm²) cable to 10 metre lengths. The splice point should be 0.5 metres before the connector. The 8-pin speaker connector scheme is illustrated in Diagram 2.

6. 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 1 - input connection pins

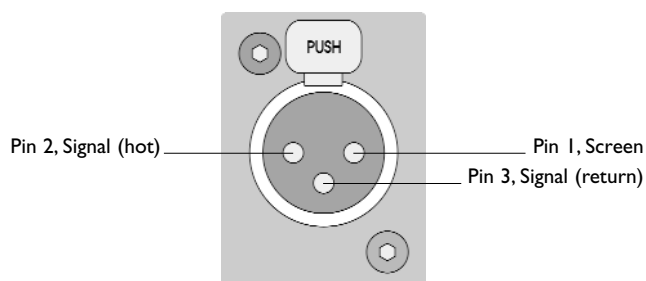


Diagram 2 - speaker plug

Pin	Connection
A	LF 1 Positive
B	LF 2 Positive
C	MF Positive
D	HF Positive
E	HF Negative
F	MF Negative
G	LF 1 Negative
H	LF 2 Negative

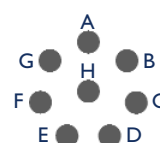


Diagram 3 - balanced cable

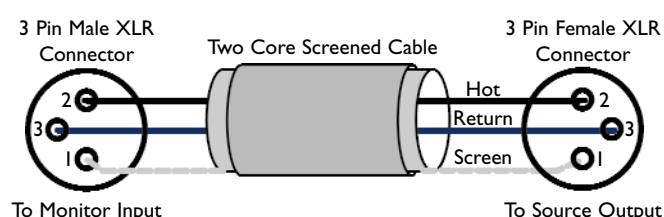
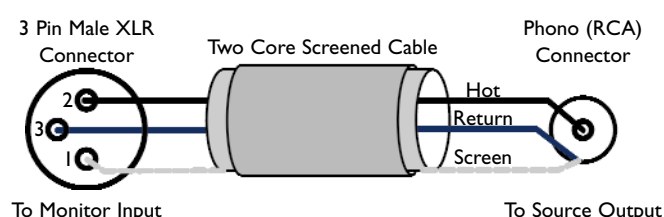


Diagram 4 - unbalanced cable



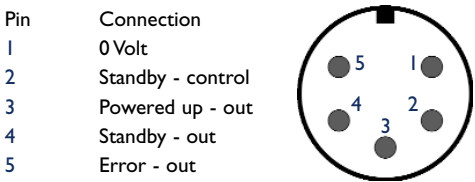
7. Connecting

The P4 rear panel carries the mains inlet and signal input socket, mains isolation switch, a remote control interface and fuse holder. Each feature is described below.

- 4.1 **Mains Inlet:** The supplied mains power lead (appropriate to the local territory) should be connected here. Ensure that the mains voltage specified on the panel corresponds with the local supply.
- 4.2 **Power Switch:** Connects the unit to mains power.
- 4.3 **Fuseholder:** Should a P4 fail to respond when the power-up sequence is initiated the fuse should be inspected. Lift out the fuseholder cover using a small flat-blade screwdriver, remove the fuse and inspect it for damage. A replacement fuse should be fitted if required. It should be stressed however that fuses most often fail only because of a serious electrical fault. If this is the case then simply replacing the fuse will only result in another fuse failure. The monitor should be returned to ATC if a second fuse fails.
- 4.4 **Input Socket:** The audio signal cable should be connected here. Balanced or unbalanced cables may be used (See Section 6).
- 4.5 **Remote Control Interface:** Active and standby status of the P4 can be controlled via the 5-pin interface socket. ATC does not manufacture a remote control product for the P4 however the electronic and logic characteristics of the interface are such that it may easily be integrated into typical studio automation schemes. The interface pin specification is as follows. The pins are identified in Diagram 5

- Pin 1. 0 Volts / logic ground.
 - Pin 2. Standby/active mode toggled by momentary grounding.
 - Pin 3. + 5 Volts when the P4 is in normal active condition.
 - Pin 4. + 5V when the P4 is in standby.
 - Pin 5. + 5 Volts on any error including drive limit.
- Note: Pins 3,4 and 5 have a series resistance of 240 Ohms and allow sensing or drive of LED's only.

Diagram 5 - remote interface



8. Start Up

Once the P4 and monitors are installed and all connections are made the system can be switched on. Switch-on should be carried out for each P4 separately. First, the mains isolation switch on the rear of each P4 should be switched to the ON position.

Then, to activate the P4 press the front panel standby button once. This begins a power-up sequence, the progress of which is revealed by colour and state changes in the two front panel indicators:

1. **STANDBY** button pressed
2. **GREEN** indicator turns to **ORANGE**.
3. **BLUE** indicator starts flashing (self checks in progress)
4. **ORANGE** indicator turns to **RED** (mute circuit released).
5. **RED** indicator extinguishes.
6. **BLUE** indicator switches to constant (normal operation).

Any failure in the power-up sequence will be indicated by a steady **ORANGE** indicator. If there is no obvious cause for a power-up failure (high heatsink temperature, or output wiring fault for example) the P4 should be returned to ATC for service. Any other fault condition will cause the amplifier to shutdown and the **ORANGE** indicator to light.

During normal operation the **BLUE** indicator will remain lit. If the amplifier is being driven hard an occasional **RED** indicator reveals operation of the gain reduction circuits.

If a fault has occurred causing the P4 to shutdown is may be possible to restart by pressing the standby button. If the shutdown was due to excessive temperature rise the unit will have to be left to cool before a restart.

The amplifier can be returned to standby by pressing the standby button, the blue LED will extinguish and only a green LED will be displayed.

8. Start Up cont'd

Due to the nature of the electronics in ATC amplifiers it is quite normal for a sound to be heard from the speaker when the power is applied or disconnected. The noise heard will not damage the speaker and is quite normal. Although ATC uses the highest-grade components, a different noise may be heard from each speaker due to slight tolerance variations in the amplifier components.

9. Listening

The ear and brain tend to interpret distorted sound as loudness and thus underestimate the actual level of undistorted sound. The SCM200 and 300, like all ATC monitors, demonstrates 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 SCM200 or 300 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.

10. Care and Maintenance

High technology material finishes are used in this product. The surfaces are durable and with a little care can be kept as good as new even under conditions of heavy use. Normally a dry duster will be all that is required to keep the finishes clean.

Heavy soiling can be cleaned using a cloth slightly moistened with a non-abrasive household cleaner.

There are no components within the speaker 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.

11. Warranty and Contact

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 and return the Warranty Card 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.

ATC can be contacted at:

Loudspeaker Technology Ltd, Gypsy Lane, Aston Down, Stroud, Gloucestershire GL6 8HR, UK.

Telephone: 01285 760561

Fax: 01285 760683

Email: info@atc.gb.net

Website: www.atc.gb.net

Specifications

SCM200/300ASL/P4

	SCM200ASL	SCM300ASL
Drivers:		
HF	25mm (1")	25mm (1")
MF	75mm (3")	75mm (3")
LF	2 x 314mm (12")	2 x 375mm (15")
Amplitude Linearity ±2dB	60Hz - 12kHz	50Hz - 12kHz
Cut-off Frequencies (-6dB free standing)	32Hz & 20kHz	25Hz & 20kHz
Cut-off Frequencies (-6dB soffit mounted)	25Hz & 20kHz	20Hz & 20kHz
Dispersion:		
Horizontal	±80° Coherent	±80° Coherent
Vertical	±10° Coherent	±10° Coherent
Max Continuous SPL	118dB SPL @ 1 metre	121dB SPL @ 1 metre
Cabinet Dimensions (HxWxD)	830 x 730 x 440mm	884 x 925 x 460mm
Overall Weight	116kg (255.2lb)	140kg (308lb)
Cabinet Finishes	Standard real wood veneers are available in Black Ash, Mahogany, Cherry and Natural Oak. Other veneers and finishes can be supplied to special order.	
	P4	
Amplifier Output:		
LF1	275 Watts RMS into 8 Ohms	
LF2	275 Watts RMS into 8 Ohms	
MF	200 Watts RMS into 16 Ohms	
HF	100 Watts RMS into 6 Ohms	
Input Connector	Male XLR	
Input Sensitivity	1.0V Balanced	
Input Impedance	>10k Ohms	
Amplitude response	5Hz - 20kHz ±0.1dB	
Signal/Noise Ratio	Better than 105dB	
Crosstalk	Better than 90dB	
Crossover Frequency	380Hz and 3.5kHz	
Filters	Even order critically damped	
Overload Protection	Active FET Momentary Gain Reduction on all amplifiers	
Power Requirements:		
Voltage	100, 115, 230V (factory set)	
Frequency	50/60Hz	
Power Consumption	150VA (standby minimum) 1200VA (maximum)	
Dimensions	19 inch rack mountable (5U high)	
Overall depth	545mm	
Front panel & handles	75mm	
Rear handles	40mm	
Amplifier body	430mm	
Overall Weight	40kg (88.2lb)	

Specifications comply with the following standards: Australian Standard Specification No 1127 "Sound System Loudspeakers" Part 5, IEF Specification Standard No 219-1975

ATC reserves the right to vary products and specifications without prior notice.

Acoustic Transducer Co. is a trading name and ATC is the registered trade mark of Loudspeaker Technology Ltd.



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

Telephone 01285 760561 Fax 01285 760683

Email: info@atc.gb.net Website: www.atc.gb.net