

P100 Noisy Thing



The P100 is a sound generator module designed for use in many types of R/C models. The system can hold and replay up to 11 digitally-sampled and recorded sounds in total:

- An Engine Start Sound
- An Engine Run Sound
- An Engine Stop Sound
- Eight 'General' Sounds e.g Horn, Whistle, Seagulls, Guns, Klaxon etc

The engine running sound is modulated by the throttle control i.e. It increases the 'RPM' as the throttle is advanced. This works in both forward and reverse. As supplied, there is a set of sounds (or 'sound set') already programmed into the unit; this is selected at the time of purchase.

If you are happy with the sounds programmed onto your unit then you do not need a computer in order to operate your P100 successfully!

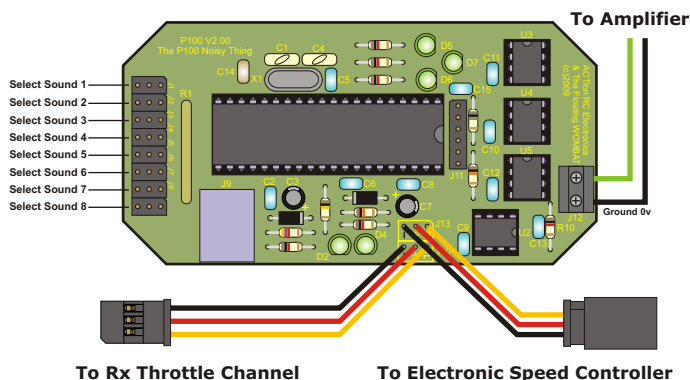
For those who *do* wish to expand their P100, a Windows-based utility program on CD-ROM is also available for the unit. This utility allows the user to select and program sounds for the system via a USB link to the computer. It also allows the playback speeds for all of the sounds to be set up or changed as required.

When the unit is controlled from a radio control channel it can be operated in one of two modes. The Mode is pre-selected when the unit is first programmed at the factory - again, as required by the purchaser - and can only be changed over from one mode to the other via the special software:

Throttle Mode: The P100 is plugged into the motor speed control channel and this controls the speed of the engine sound. The other sounds can be triggered by a suitable R/C switcher(s) working from another channel, or by another means of making a contact e.g. a push-button or micro-switch. When a "general" sound is played, the engine sound stops for the duration of that sound; it resumes once the sound has finished.

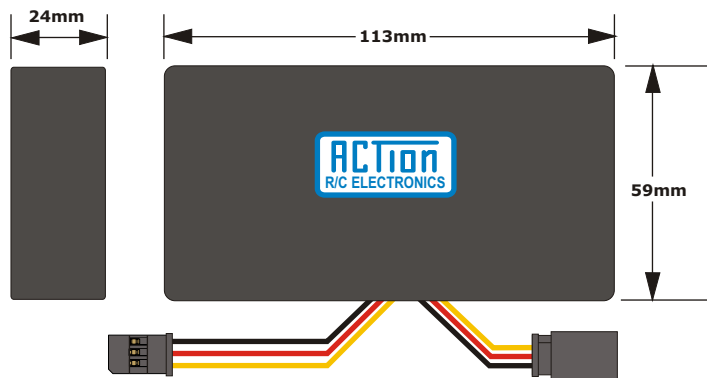
Switcher Mode: The P100 is plugged into a spare proportional channel on the receiver. The radio control input allows the user to select any of the eight general sounds and operate it via the transmitter stick by "blipping" it. The engine sounds are not available in Switcher mode.

The unit is designed to be an economic and reliable unit for the modeller who requires a general purpose unit. It has been optimised for simplicity, reliability and ease of installation.



Technical Specification (for clever people.....)

Sound Output:	1vpk, 700mVRMS
Output Terminals:	Screw terminals for up to 1mm ² wire
Short Circuit Time:	Infinite without damage
Amp, Impedance:	>10K preferred
Sample Rate:	8,000 Samples per second default. Variable up to 16,000. Playback above 16,000 samples per second achieved by skipping alternate samples
Sample Memory:	384K
Maximum Play Time:	49 Seconds at 8,000 SPS (plus indefinite looping-back option for all sounds)
Maximum Sound Size:	128K
Sound Play Size:	16.4 Seconds at 8,000 SPS
Supply Voltage:	4V to 6.2V
Power Source:	From PC via USB socket (when programming using optional User Utility) Receiver Power (in normal operation)
Maximum Current:	Typically 100mA



Physical specification (for the rest of us)

Size 2-part ABS case in satin black with screws for lid. 113mm x 59mm x 24mm overall.
 Weight 100gms
 R/C Connections Futaba-type 3-wire lead & plug to receiver + 3-wire flylead with Futaba socket to ESC.

What sound sets are available?

TurboCat Diesel

Engine Run
 Horn #1
 Horn #2
 Siren #1
 Siren #2
 Ships Bell
 Klaxon
 Echo Locator

Detroit Diesel

Engine Start
 Engine Run
 Engine Shut-down
 Horn #3
 Horn #4
 Hooter
 Airpump #1
 Airpump #2
 Klaxon
 Telephone

MAN Twin Diesels (Whitby Lifeboat)

Engine Start
 Engine Run
 Engine Shut-down
 (Rest as TurboCat)

Our Lass II (Modern trawler)

Turbo Diesel Run
 Horn #3
 Horn #5
 Chains on winch
 Airpump #1
 Airpump #2
 Gulls

EM Diesel Workboat

Engine Start
 Engine Run
 Engine Shut-Down
 Horn #3
 Horn #5
 Chains on winch
 Airpump #1
 Airpump #2
 Gulls

RTTL (Fast WW2 3-engines)

Engines Start
 Engines Run
 Klaxon
 4" gun
 Browning machine gun
 Horn
 20mm canon
 "Whoop Whoop"

River Steamer Triple Expansion

Engine run
 Horn
 Ships Bell
 Whistle #1
 Whistle #2
 Steam Organ

Puffer Single Cylinder Steam

Engine run
 Steam Horn
 Chains on winch
 Airpump
 Gulls

Modern Turbine Warship

Gas Turbine Engine run
 4" gun
 20mm canon
 Machine gun
 Torpedo launch
 Klaxon
 "Whoop Whoop"
 General Quarters
 Echo locator

V8 petrol Patrol/Speed boat

Engine Run
 Horn
 Gulls
 Machine gun
 Torpedo launch
 20mm canon

Merchant Ship

Large Diesel Engine Run
 Horn #3
 Horn #4
 Foghorn
 Chains on winch
 Gulls
 Ships Bell

Narrow boats (Start/Run/Stop)

Lister 2 cyl
 Gardner 3 cyl
 Bolinder
 Kelvin K3 (3-cylinder)
 Russell Newberry DM2 (2-cylinder)

Are there other sounds supplied?

Yes. The optional CD-ROM disk includes all of the sounds we currently have available for you to download. You can of course search and download any sound you like from the numerous Internet Sounds websites, or make your own digital recordings and use those in your P100. The accompanying Manual and software enables you to do this easily and effectively.

Do I need a Windows PC?

Only if you want to program the P100 yourself. You can buy it as a "Plug and Play" pre-programmed unit so you don't



Can I hear the sounds before I decide to buy a P100?

No.

If you come to see us at one of the shows which we attend then we'll have several units on demonstration. Please don't ring us up and ask to hear them over the phone, though!

Why do some sound-sets not include start-up and shut-down sequences for the engine?

Because we don't currently have any recordings of these. If you do find some and successfully convert them into useable sounds then you will be able to upload them onto the website for the benefit of other users. We hope this 'file-sharing' will become an important feature of the P100 website.

How does P100 differ from the present ACTION sounds?

The present sound units are only simulators. The sound is generated and modulated by the on-board components and really only gives the *impression* of real engines, horns etc although the pitch, rate and volume are generally adjustable. In contrast, P100 uses digital sampling technology to replay and modulate the sounds from real-life recordings.

Can I use P100 with my existing ACTION sound units?

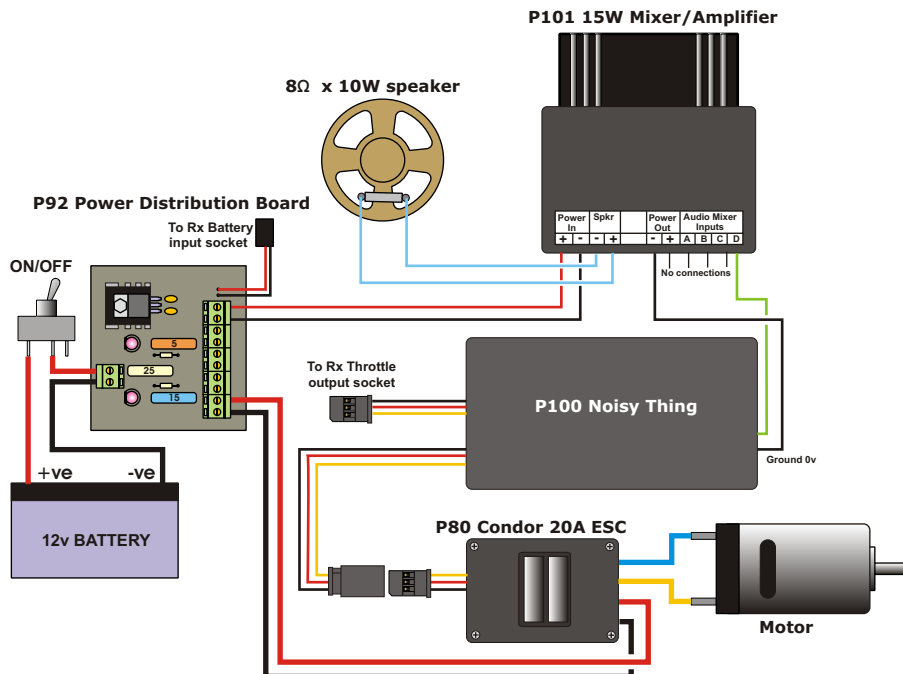
Yes. You will need either a P97 or P101 Audio Mixer/Amplifier installed. P100 then connects to one of the four audio input terminals in the same way as any of the other ACTION units do. Up to four separate units (including P100) can be connected to one mixer/amp.

Why do I need an amplifier?

The obvious answer is that you won't get any sound unless you have one! We designed P100 with more than just model use in mind, so it has the facility to feed into practically any standard audio amplifier e.g. a public address system. In practice, we would anticipate that most modellers will prefer to use either our P97 or P101 amplifiers, both of which are perfectly compatible with P100.

How do I "play" the other sounds on P100 when it's in Throttle Mode?

We have produced a special little switch, P104, which fits over the eight sets of pins on P100 and plugs into a spare receiver channel. Sound selection is then done by simply "blipping" the transmitter stick/switch the appropriate number of times. Full details are elsewhere on the website, under Products>Switches.



Will P100 work with a 6v motor supply?

P100 has an absolute working limit of 6.2v so you must not use either a 6v lead-acid battery or a 5-cell rechargeable pack to power the receiver *directly*. However connecting the receiver to a 6v battery via a regulated 5v 'BEC' such as fitted to our P92, P19 or P99 - or via a non-ACTION speed controller with BEC - will be fine.

As regards powering the amplifiers, P101 and P97 really are marginal for volume output if you connect them to a 6v power supply; we recommend at least 9v for these units. If your model uses a 6v battery for its motor(s) then you're best advised to fit a separate 9v-12v battery for the amplifier.

Can I use my 'XYZ' speed controller with Battery Eliminator Circuitry ('BEC')?

Yes. If your ESC has this facility then you can just connect it to the socket fly-lead of P100 and the power for the receiver will pass through the 3-wire leads and the receiver plug. You must not also connect a separate power supply into the receiver "Power/Batt" socket if your ESC uses BEC.

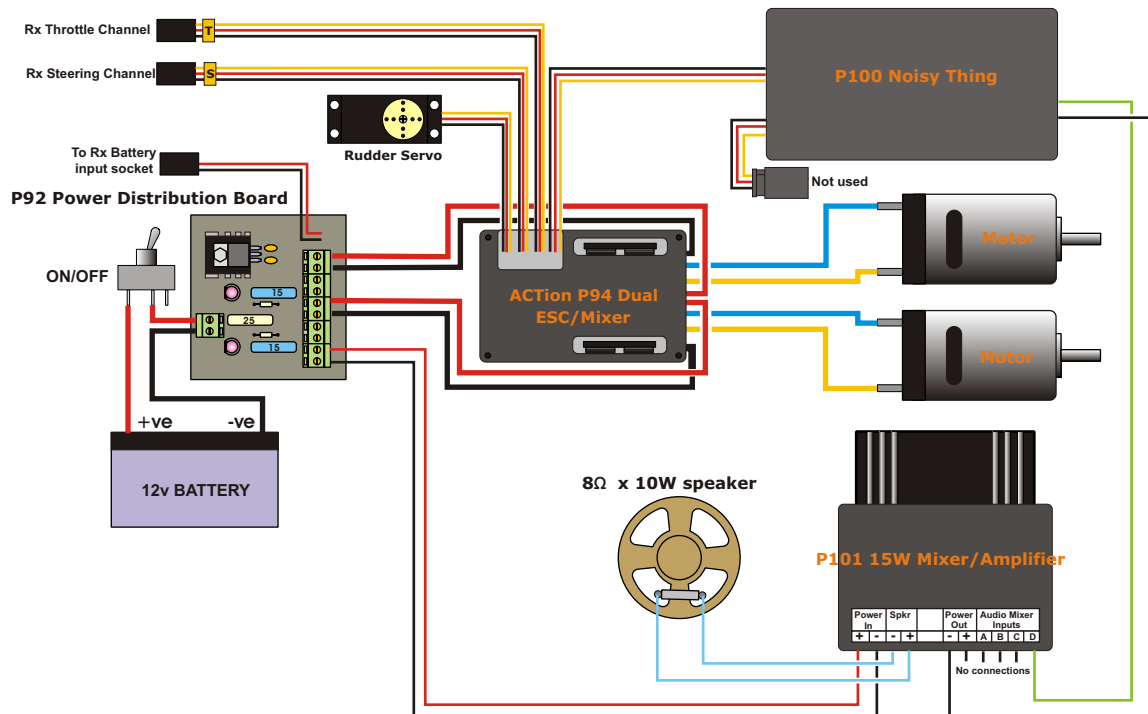


Can I use the same speaker as I used for my JJC/RCMW sound units?

It depends on the impedance. P97 and P101 are designed to be used with 8Ω speakers, but will be OK with 16Ω ones (albeit a fair bit quieter). You should NOT use 4Ω speakers, however. The other criteria to consider is the power-handling capability. If you are using 12v or less then a 10W speaker will perfectly adequate. If you wish to use the maximum voltage of 15v (18v P101) then you will need a bigger-capacity speaker. Mylar-coned speakers are not quite as responsive as paper-cones types but have the advantage of being splash-proof.

I'm using a P94. How do I connect P100 to it?

The diagram shows this. You should note that the engine revs will follow the movement of the throttle stick, irrespective of how much rudder 'mix' you apply. If you are using P94 in Tank-Steering mode the P100 sound will follow the commands of the Tx stick which controls the 'T' input of P94.



Will P100 reproduce the sound of twin motors?

Only if the recording is of twin motors e.g. our MAN Diesels sound-set. If you want independent control of two engine sounds then you'll need to install two P100 units. They will, however, work with a common P101 amplifier.

How much are these units?

P100 is £87.50. This comes pre-programmed in either Throttle or Switcher mode; with the sound-set of your choice, and includes a hard-copy Part 1 of the User Manual. The optional CD-ROM and USB cable pack for 'DIY' programming is £5. Part 2 of the Manual is included in PDF format on this CD-ROM, which also has the full selection of ACTION sound-sets and other sounds; the P100 User Utility and a copy of Audacity sound-editing software.

The P97 6Watt Audio Mixer/Amplifier is £25 while the 15Watt P101 is £30.

A 4" (100mm) x 10W x 8Ω mylar-cone speaker is £6.00.

All units are built and tested and the price includes UK VAT @ 20%. P&P is extra. P97 and P101 are also available as kits, but we can't supply P100 in kit form because the unit requires programming once assembled. EU customers will pay the same prices as UK customers while those outside the EU should request a quote from us for the shipped cost before ordering.

How do I order these items?

The best way is to ring us on 0843 2898528 (Mobile 0782 5511877) during business hours and we can take details of your order and credit or debit card over the phone. You can also contact us via the ACTION website www.action-electronics.co.uk, or use good old-fashioned snail-mail to ACTION R/C Electronics, 1 Llwyn Bleddyn, Llanllechid, Bangor LL57 3EF (United Kingdom).