

i6 AW ICT & i6T AW ICT USER MANUAL

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1. Introduction

Designed for a wide variety of sound reinforcement applications the Tannoy i6 AW ICT (All Weather) is an ultra compact loudspeaker system capable of delivering high sound pressure levels with extremely low distortion, resulting in outstanding clarity, definition and detail. A truly universal solution, the i6 AW ICT offers outstanding durability and resistance to scuffs and knocks. Able to deliver consistent performance under a wide range of adverse conditions the i6 AW ICT is suited to applications indoors or out, whether it be a theme bar or theme park. Available in black or white the i6 AW ICT will effectively blend into most backgrounds. Utilisation of the point source ICT Drive unit allows the i6 AW ICT to be mounted on a wall or ceiling in either horizontal or vertical orientations without affecting its performance. A range of hardware options ensures simple and effective installation. Also available with built in line transformer (i6T AW ICT).

This versatile design has addressed the two most common component failures experienced in background music and sound reinforcement system installations, namely the tweeter and the crossover. Due to the revolutionary design of the ICT™ drive unit, neither of these failures can occur, assuring you years of trouble free use. ICT™ or Inductive Coupling Technology utilises a wireless electromagnetic tweeter that does not require a crossover and cannot be burned out from heavy or abusive use. The 1" aluminium high frequency dome has a deep drawn skirt, which sits on the inside of the low frequency voice coil in the same magnetic gap. The skirt is like a single shorted turn, which is induced with high frequency information generated by the low frequency voice coil, which is fed a full bandwidth signal. The ICT™ dome is at the heart of our 6.5" transducer which utilises a moulded plastic cone and nitril rubber surround to further enhance it's durability and long term reliability.

For applications requiring extended low frequency enhancement, a range of Tannoy sub-bass systems are available and can be used in conjunction with the i6 AW ICT.

2. Unpacking

Every Tannoy i6 AW ICT product is carefully inspected before packing. After unpacking your loudspeakers, please inspect for any exterior physical damage, and save the carton and any relevant packaging materials in case the loudspeaker again requires packing and shipping. In the event that damage has been sustained in transit notify your dealer immediately.

3. Connectors/Cabling

The i6AW ICT is fitted with two 4mm binding posts and a 4-pole Neutrik Speakon' for connection to the amplifier. These are paralleled within the enclosure. The two binding post terminals are capable of accepting cables with a conductor of up to 6mm.

Red is Positive
Black is Negative

Speakon has the following advantages over EP and XLR type connectors: All terminations are solderless; this makes life easier at the time of installation or when field servicing is required. Contacts will accept 6 sq. mm wire with an outside diameter of upto 15mm and a current rating of 30 Amps. The pins of the 2 Speakon sockets identified input/output on the rear of the input panel are paralleled within the enclosure. Tannoy have adopted the conventional wiring standard for the i6AW ICT product:

Pin 1+ is Positive
Pin 1- is Negative

For a worldwide list of Neutrik distributors see <http://www.neutrik.com/>

Connectors should be wired with a minimum of 2.5 sq. mm (12 gauge) cable. This will be perfectly satisfactory under normal conditions. In the case of very long cable runs the wire size should exceed this, refer to the following table for guidance:-

CABLE RUN (m)	C.S.A. OF EACH CONDUCTOR (mm)	CABLE RESISTANCE Ω	% POWER LOSS INTO 8 Ω LOAD	% POWER LOSS INTO 4 Ω LOAD
10	2.5	0.14	1.7	3.5
	4.0	0.09	1.1	2.2
	6.0	0.06	0.73	1.5
25	2.5	0.35	4.3	8.6
	4.0	0.22	2.7	5.4
	6.0	0.14	1.8	3.6
50	2.5	0.69	8.6	17.0
	4.0	0.43	5.4	11.0
	6.0	0.29	3.6	7.2
100	2.5	1.38	17.0	35.0
	4.0	0.86	11.0	22.0
	6.0	0.58	7.2	14.0

4. Polarity Checking

It is most important to check the polarity of the wiring. A simple method of doing this without a pulse based polarity checker for LF units is as follows: Connect two wires to the +ve and -ve terminals of a PP3 battery. Apply the wire which is connected to the +ve terminal of the battery to the speaker cable leg which you believe to be connected to the red speaker terminal and likewise the -ve leg of the battery to the black speaker terminal

If you have wired it correctly the LF drive unit will move forward, indicating the wiring is correct. All that remains now is to connect the +ve speaker lead to the +ve terminal on the amplifier and the -ve lead to the -ve terminal on the amplifier. If however the LF driver moves backwards, the input connections need to be inverted.

If problems are encountered, inspect the cable wiring in the first instance. It should also be noted that different amplifier manufacturers utilise different pin configurations and polarity conventions, if you are using amplifiers from more than one manufacturer, check the polarity at the amplifiers as well as the loudspeakers.

5. Amplification & Power Handling

As with all professional loudspeaker systems, the power handling is a function of voice coil thermal capacity. Care should be taken to avoid running the amplifier into clip (clipping is the end result of overdriving any amplifier). Damage to the loudspeaker will be sustained if the amplifier is driven into clip for any extended period of time. Headroom of at least 3dB should be allowed. When evaluating an amplifier, it is important to take into account its behaviour under low impedance load conditions. A loudspeaker system is highly reactive and with transient signals it can require more current than the nominal impedance would indicate.

Generally a higher power amplifier running free of distortion will do less damage to the loudspeaker than a lower power amplifier continually clipping. It is also worth remembering that a high powered amplifier running at less than 90% of output power generally sounds a lot better than a lower power amplifier running at 100%. An amplifier with insufficient drive capability will not allow the full performance of the loudspeaker to be realised.

It is important when using different manufacturers amplifiers in a single installation that they have very closely matched gains, the variation should be less than +/- 0.5dB. This precaution is important to the overall system balance when only a single compressor/limiter or active crossover is being used with multiple cabinets; it is therefore recommended that the same amplifiers be used throughout.

6. Power Selection (i6T AW ICT)

Determine the maximum power in watts needed at each speaker location. The i6 AW ICT transformer can be tapped at 60w, 30w, 15w, with an extra 7.5W tapping for 70.7V line systems via the rotary switch located on the metal plate at rear of the

loudspeaker. When the relevant tapings have been selected add the individual wattages required at all speakers and select an amplifier with a rating equal to or exceeding the total wattage required. All of the transformer primaries should be connected in parallel to the output of this amplifier. If for example, you select the 30-watt transformer tap, it means that at full rated amplifier output the speaker will receive the full 30 watts. If the amplifier gain is reduced each speaker will receive a proportional amount of power, maintaining the overall system balance.

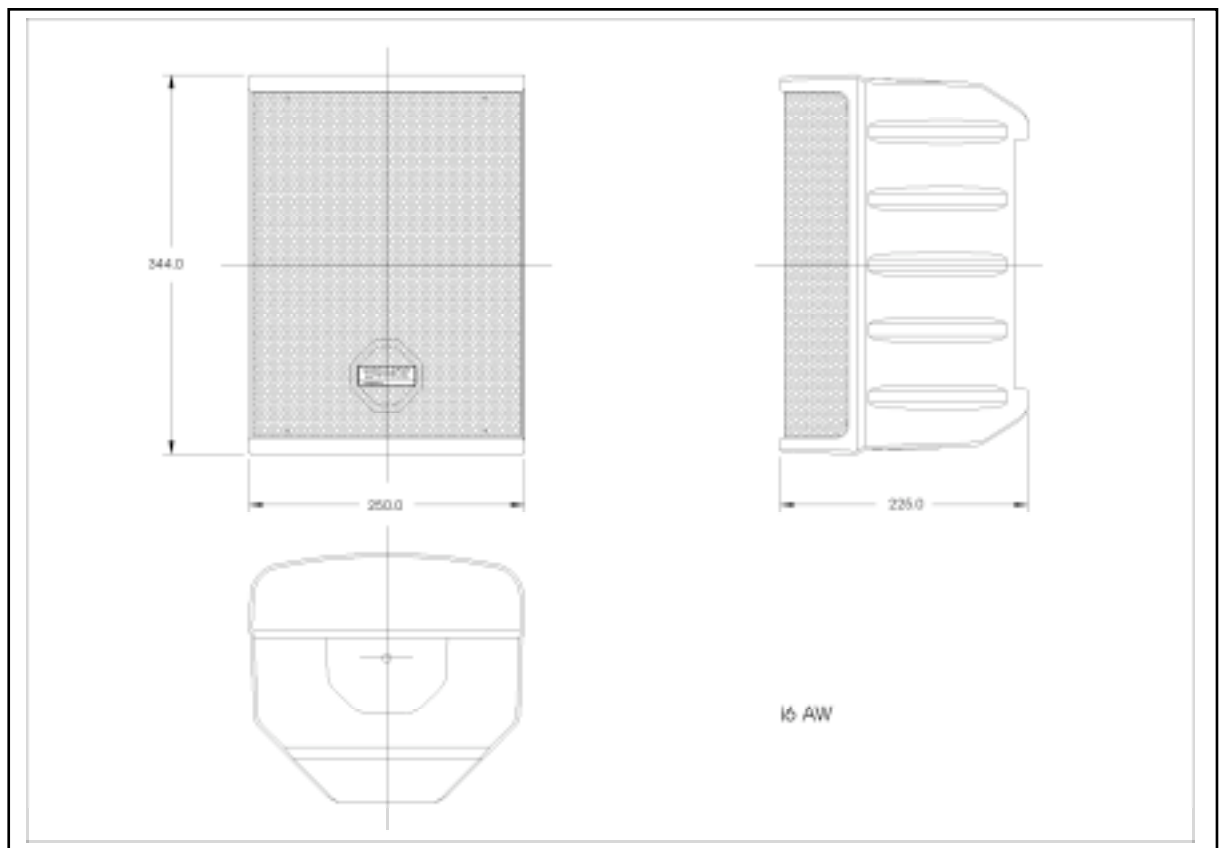
When calculating amplifier wattage requirements for a system, it is recommended that a generous wattage safety margin (3dB of headroom) be left so that the system does not have to operate continuously at its full rated output

7. Equalisation

The i6AW ICT loudspeaker is designed to need no equalisation or correction to overcome system limitations. As a result, it will only need equalisation to compensate for difficult acoustic environments.

Excess equalisation can reduce system headroom, and introduce phase distortion resulting in greater problems than it cures. If equalisation is required then it should be applied gently and smoothly. Violent equalisation will be detrimental to the overall sound quality. If the loudspeakers were being used consistently at high levels it would be beneficial to introduce a high-pass filter at 50Hz to protect the loudspeaker from any unnecessary subsonic frequencies.

8. Dimensions



9. Hardware

The i6AW ICT can be wall or ceiling mounted using the **MB6** (optional) bracket (*fig 1.*) which is designed to offer the maximum flexibility in selecting the desired angles.

The MB6 is supplied with M8 bolts for fixing to the loudspeaker (*fig1.& 2*). After fixing the bracket to the wall or ceiling remove the plastic plugs from the top and bottom of the loudspeaker. Position the cabinet at the required angle as shown and tighten the M8 Bolts to fix the loudspeaker in position.

The loudspeaker can be mounted either horizontally or vertically using the MB6 bracket (*fig1.& 2.*). This product has four M6 threaded holes in the rear of the cabinet for other bracketry.

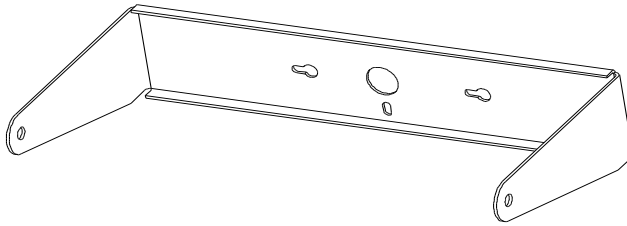


fig 1.

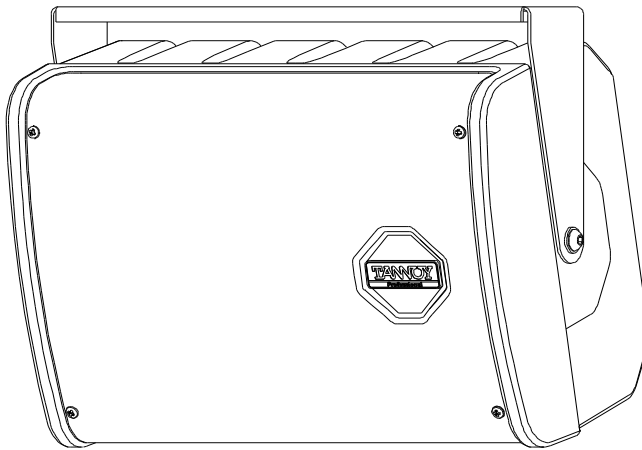
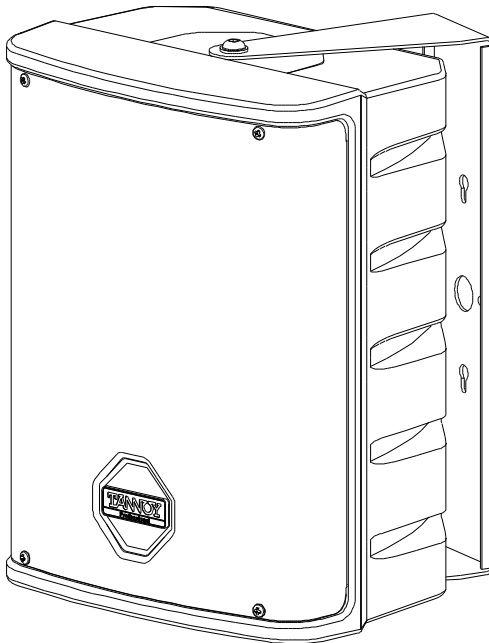


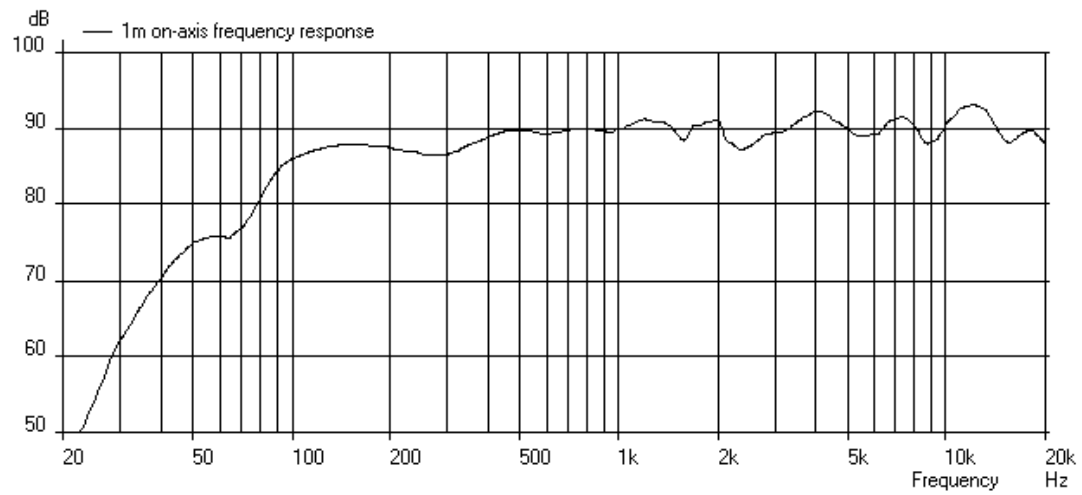
fig 2.



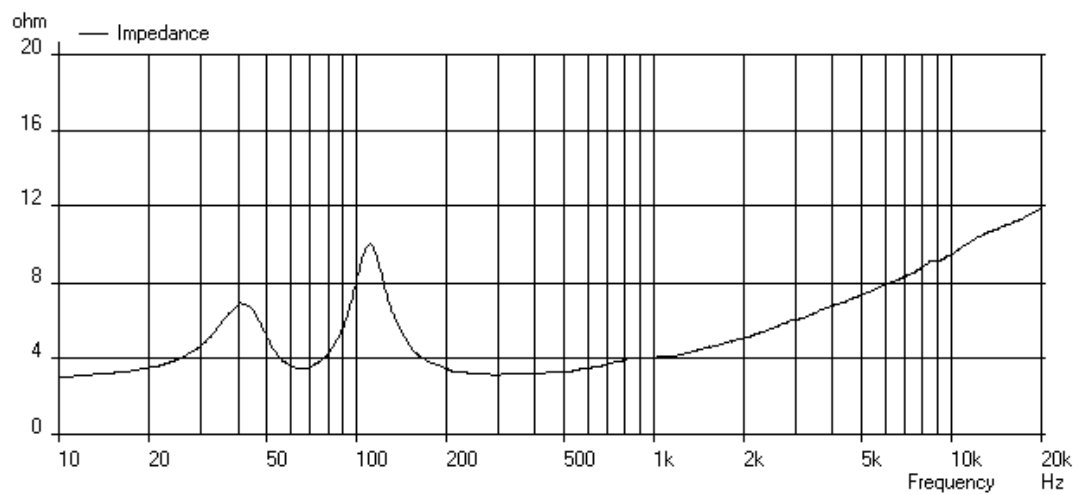
NOTE: The installation of this product must be carried out in conformity with local building codes and standards. If necessary consult your local safety standards officer before installing any product. Alternatively, check any laws or bylaws. Tannoy will not be held responsible for any damages caused by the improper installation of any bracket or loudspeaker.

10. Performance Data

Anechoic Frequency Response, 1watt @ 1m



Impedance



11. Technical Specifications

Frequency response (1) +/- 3dB	60Hz - 20kHz
Recommended Amplifier Power	up to 120 watt / 4 ohm
Power Handling	Average(2) Programme Peak (10ms) 60 watt 120 watt 240 watt
Sensitivity (1) 2.83 volt @ 1m	89dB 92dB (half space)
Maximum SPL (3) @ 1m	Average Peak 107dB 113dB
Transformer (i6T AW ICT)	Max. Insertion loss 0.9 dB 35Hz – 21kHz +/- 2dB Primary Taps 60,30,15, 7.5* watt Voltage Taps 70.7V & 100V
Impedance	Nominal 8 ohm
Driver Complement	6.5" (165mm) full range ICT™ Point Source
Crossover Point	7 kHz inductively coupled
Enclosure	11 litre, vented polyethylene
Finish	Black/Grey or White
Protective Grille	Perforated Aluminium
Connectors	2 x 4mm 5way binding posts 1 x NL4 speakon
Fittings	2 x M8 inserts for Yolk Bracket 4 x M6 inserts on rear of cabinet
Dimensions	344mm (H) x 250mm (W) x 225mm (D) 13.54" (H) x 9.84" (W) x 8.86" (D)
Weight	3.7 Kg (8.1 lbs)
Shipping Dimensions	400mm (H) x 500mm (W) x 300mm (D) 15.75" (H) x 19.69" (W) x 11.8" (D)

NOTES:

- (1) Average over stated bandwidth. Measured at 1m on axis, in an anechoic chamber.
- (2) Long term power handling capacity as defined in EIA standard RS - 426A.
- (3) Unweighted pink noise input, measured at 1m

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications which Tannoy reserve the right to alter without prior notice.
Please verify the latest specifications when dealing with critical applications.

12. Troubleshooting Guide

Symptom	Possible Cause	Action
No Output From Speakers	Broken Speaker Cables(s) Amplifier	<p>Check the electrical continuity of the loudspeaker cables, and replace if necessary.</p> <p>Check the gain controls on the amplifier are turned up.</p> <p>Be sure the amplifier is receiving an input signal (check the "signal" indicators on the amp).</p> <p>Connect the loudspeaker cable which has no output to another amplifier channel you know is working, make sure signal is fed to the new amplifier channel. If output is obtained from the loudspeakers(s) then the problem is with the amplifier channel or input signal leads. If this is not the case then the fault may lie in the cabling or the loudspeaker.</p>
Intermittent Output	Poor Connection	<p>Check the loudspeaker cabling has a good electrical connection with amplifier outputs and loudspeaker inputs. A bad connection can increase resistance which will substantially reduce the output, or make "cracking" noises which are unrelated to signal content</p> <p>If using multi-strand loudspeaker cable, be sure no strands of cable are causing short circuits between the positive and negative terminals of the amplifier outputs and/or loudspeaker inputs.</p>
Poor Low Frequency Output	"Out of phase" connection	<p>When two speakers are connected "out of phase", the low frequencies will virtually be cancelled out. Check the connections at the amplifier/speaker paying attention to polarity. (see section 4).</p>
Irregular sounds such as buzzing and humming emanating from the loudspeaker	Poor system grounding Faulty electronic device in the signal chain	<p>Check and correct system grounding.</p> <p>The speaker cannot generate these sounds on its own. It is most likely there is a fault with a piece of electronic equipment in the signal path.</p>

13. i6 AW ICT Service Parts & Accessories

Part Number	Description
7900 0593	Driver Kit – 6.5" ICT

14. Warranty

No maintenance of the i6 AW ICT loudspeaker is necessary.

All Tannoy professional loudspeaker products are covered by a 5 year warranty from the date of manufacture subject to the absence of misuse, overload or accidental damage. Claims will not be considered if the serial number has been altered or removed. Work under warranty should only be carried out by a Tannoy Professional dealer or service agent. This warranty in no way affects your statutory rights. For further information please contact your dealer or distributor in your country. If you cannot locate your distributor please contact Customer Services, Tannoy Ltd at the address given below.

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DO NOT SHIP ANY PRODUCT TO TANNOY WITHOUT PREVIOUS AUTHORISATION

Our policy commits us to incorporating improvements to our products through continuous research and development. Please confirm current specifications for critical applications with your supplier.

EASE™ Data for Tannoy Professional products available on request.

Declaration of Conformity



The following apparatus is/are manufactured in the United Kingdom by Tannoy Ltd of Rosehall Industrial estate, Coatbridge, Scotland, ML5 4TF and conform(s) to the protection requirements of the European Electromagnetic Compatibility Standards and Directives relevant to Domestic Electrical Equipment. The apparatus is designed and constructed such that electromagnetic disturbances generated do not exceed levels allowing radio and telecommunications equipment and other apparatus to operate as intended, and, the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable operation as specified and intended.

Details of the Apparatus:

Tannoy Contractor Loudspeaker
Model Number: i6AW iCT

Associated Technical File:

EMCi6AWICT

Applicable Standards:

EN 55103-1 Emission
EN 55103-2 Immunity

EN60065 Electrical Safety

Signed:

A handwritten signature in black ink, appearing to read 'G. Hawley', with a long horizontal line extending from the end of the signature.

Position:

Engineering Director
Tannoy Commercial

Date:

5th Oct 2004

For Tannoy Ltd

**Tannoy Loudspeakers are manufactured
in Great Britain by :**

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