



**IMPACT 50  
IMPACT 50T  
IMPACT 50S**

## **USER MANUAL**

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## **INTRODUCTION**

### **Thanks**

Thank you for choosing a TURBOSOUND IMPACT 50 series loudspeaker product for your application. Please spare a little time to digest the contents of this manual, so that you can obtain the best possible performance from this unit.

All TURBOSOUND products are carefully engineered for world class performance and reliability. If you would like further information about this or any other TURBOSOUND product, please contact us. Detailed product information is available on our web site at [www.turbosound.com](http://www.turbosound.com). We look forward to helping you in the near future.

The Impact 50 loudspeaker has been designed to give you the best in audio quality and many years of reliable, trouble free operation. It offers superior audio quality, décor-matching colour options, integral mounting hardware options, full technical documentation including EASE data, and a comprehensive warranty against manufacturing defects. Please read through this manual carefully before you attempt to operate the loudspeaker system. It contains valuable information enabling you to quickly and easily connect the loudspeakers to your amplifiers, important system and set-up checks together with positioning and mounting instructions.

### **Unpacking the Impact 50 loudspeaker**

After unpacking the unit please check carefully for damage. If damage is found, please notify the carrier concerned at once. You, the consignee, must instigate any claim. Please retain all packaging in case of future re-shipment.

### **FEATURES**

- ◆ The Impact 50 cabinet is manufactured in injection-moulded high density polyethylene for a tough, durable and stylish finish.
- ◆ A range of colour options includes TurboBlue™, black, grey or white to match any venue requirement.
- ◆ Magnetically shielded, weatherproof and constant voltage versions are available.
- ◆ Enclosures may be permanently installed using the supplied WB-50 wall bracket or optional Turbosound wall and ceiling brackets.
- ◆ Spring-loaded, colour-coded push terminals are provided on a recessed rear panel to allow for input and loop-through connections.

### **PRODUCT DESCRIPTION**

The Impact 50 is an ultra-compact passive sound reinforcement loudspeaker designed for applications wherever a very small enclosure is required to reproduce sound. The Impact 50 drive units are a 5" high efficiency low/mid transducer and a 14mm liquid cooled polymer dome tweeter. It includes an internal first order high pass filter network designed to give a very clean transition between the two drive units while ensuring that the tweeter is protected from harmful low frequency signals.

The Impact 50 is intended for fixed installations and as such is supplied as standard with the WB-50 adjustable wall mounting bracket, allowing horizontal and vertical adjustment.

The **Impact 50S** is a magnetically shielded version, and may be safely used for multi-media applications in close proximity to television screens and computer monitors.

The **constant voltage version (Impact 50T)** has been designed for use in 70 volt and 100 volt distributed systems where long cable runs, and a large number of loudspeaker units, make the use of a low impedance speaker impractical. The internal line transformer is a high quality type offering wide bandwidth and three power tapings.

A **weatherproof option** is available for use outdoors or under conditions of high humidity. It is supplied with a rust-proof grille and stainless steel fixings.

### **SYSTEM REQUIREMENTS**

The Impact 50 is a passive loudspeaker system. This means that it requires only one amplifier channel for correct operation, the frequency splitting between the low frequency driver and the high frequency driver being accomplished by the internal passive crossover network built into each enclosure.

Passive subwoofer enclosures may be used in conjunction with the Impact 50 in order to extend the frequency range from the system. The Impact 110.2, a dual-coil, two-channel band-pass subwoofer, is recommended for this purpose. When using the Impact 110.2, additional power amplifiers are not required since the subwoofer contains passive crossovers for both left and right channels, allowing Impact 50 speakers to be connected as satellite units.

If subwoofer enclosures are used in a bi-amplified system in conjunction with Impact 50 enclosures, additional amplifier channels and external electronic crossovers will be required. The Turbosound TMC-T1000 power amplifier and the LMS-A6 loudspeaker management system are recommended for this purpose.

### **AMPLIFIER CONSIDERATIONS**

Turbosound speaker enclosures should be driven by high quality power amplifiers designed for professional use. Such amplifiers will have balanced inputs, DC and RF fault protection, and well designed cooling systems for reliability.

The program power listed in the loudspeaker's technical specification is the best guide to the size of amplifier required for general purpose applications. The amplifier should therefore be capable of delivering long term broadband power equal to the loudspeaker's program power rating at the loudspeaker's stated nominal impedance. This approach allows sufficient headroom to generate good dynamic range.

#### **RECOMMENDED AMPLIFIER POWER RATINGS:**

*The amplifier's rated r.m.s. continuous power output (20Hz – 20kHz, per channel) should be equal to the program power handling of the loudspeaker at its nominal impedance.*

In general, the more powerful the amplifier the better it will sound, provided that it is not driven into sustained clipping. It should be understood that overdriving an insufficiently powered amplifier is more likely to cause loudspeaker damage – the total energy in a heavily clipped signal is far higher than in an unclipped signal - than operating a more powerful amplifier within its specified ratings.

### **LOUDSPEAKER CONNECTIONS**

The Impact 50 is provided with a recessed connector panel housing a pair of colour-coded, spring-loaded push terminals. These are used for input and loop-out connections to further Impact 50 enclosures. Note that looping out to additional enclosures has the effect of reducing the total load impedance on the amplifier. For example, two 16 ohm cabinets in parallel give a combined total impedance of 8 ohms. It is possible to connect four Impact 50 cabinets in parallel to one amplifier channel, providing that amplifier is capable of delivering long term power output into 4 ohms. Never connect loudspeakers to a power amplifier whose total combined impedance is lower than the amplifier's recommended minimum load impedance.

### TRANSFORMER TAP SETTINGS

The constant voltage Impact 50T is fitted with a 4-way input connector. Always connect the speaker cable corresponding to the negative terminal on the amplifier to the blue terminal. The cable corresponding to the positive terminal should be connected to one of the following terminals:

	70 volt line		100 volt line	
RED	30W	200 ohms	60W	200 ohms
YELLOW	15W	400 ohms	30W	400 ohms
GREEN	7.5W	800 ohms	15W	800 ohms
BLUE	Common terminal		Common terminal	

### CONNECTING CABLES

Good quality loudspeaker cable should always be used throughout the installation, with a minimum wire size of 12 gauge (1.5mm<sup>2</sup>), and preferably 10 gauge (2.5mm<sup>2</sup>) for longer runs, keeping the run as short as possible. This helps to avoid wasting amplifier power in the resistance of the cable. High cable resistance also lowers the *damping factor* of the amplifier that affects its ability to control loudspeaker cone movement.

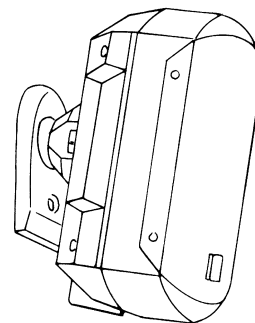
### POSITIONING

The Impact 50 has been designed with a rear facing port, which reinforces the low frequency response of the speaker. Increased low frequency performance can be achieved by placing the Impact 50 near to a wall. Even greater benefit is achieved if the unit is placed in a corner. The optimum distance from the rear of the enclosure to the wall is between 30 - 100 mm. Using the WB-50 adjustable mounting bracket will ensure the loudspeaker is located at an ideal distance from the wall.

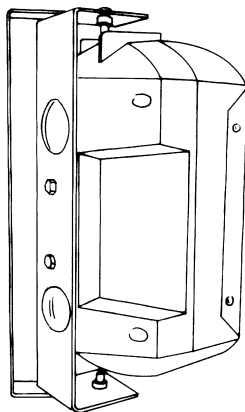
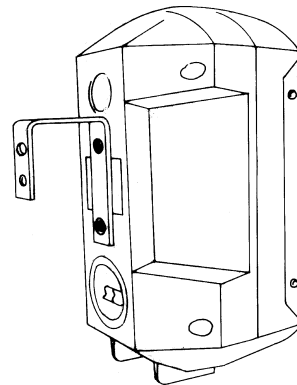
### INSTALLING THE IMPACT 50

The enclosure may be installed using a variety of different methods:

- ◆ Using the **WB-50** wall bracket supplied, which allows for horizontal and vertical adjustment. Dis-assemble the WB-50 bracket and attach the speaker plate to the Impact 50 using the M6 screws provided. Attach the wall plate at the desired position and then re-assemble the bracket, tightening the thumbwheel after positioning the speaker to give the desired coverage.

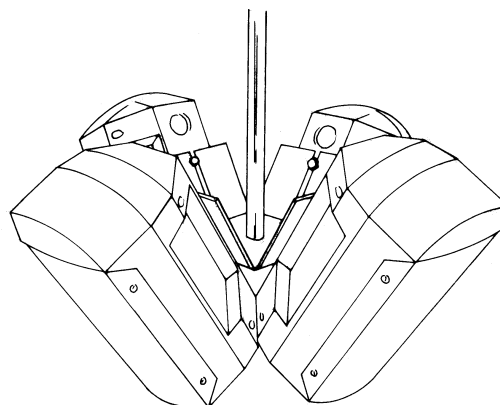


- ◆ Attaching to a scaffold bar or to a microphone stand by means of the **SM-50** single point mount bracket. For microphone stand use simply remove the microphone clip from the mic stand and locate the threaded end through the hole in the top of the SM-50 bracket. Tighten with the wing nut provided. For use with a scaffold bar, place the bracket over the bar and tighten with the supplied M6 screw until secure.



- ◆ Fixing to a wall or ceiling using the **SB-50** swivel bracket. When used vertically as shown attached to a wall, the enclosure is free to rotate in the horizontal plane over more than 180°. It can also be turned through 90° and mounted horizontally on to a wall in which case the enclosure can be tilted downwards to give the desired coverage. The SB-50 can also be fixed to a ceiling, again allowing for a wide range of adjustment of the enclosure.

The **CB-50** cluster bracket enables four Impact 50 enclosures to be ceiling mounted in a 360° cluster with fixed downward angle. It is designed for use with 15mm (1/2") conduit (not supplied), which carries the loudspeaker cable to the enclosures.



### **MAINTENANCE**

If either of the drive units in your IMPACT 50 cabinet should cease functioning and need a replacement, you are advised to remove the faulty unit from the cabinet and send it to a professional service centre authorised to recone and repair Turbosound loudspeakers.

#### **Removal of the low frequency driver**

1. The loudspeaker grille is held in place by four plastic push rivets. These are removed by placing a small flat blade screwdriver under the flange and carefully lifting upwards. Set the grille aside for later re-assembly. Spare rivets are supplied in the accessory pack with your product for re-fitting the loudspeaker grille.
2. Undo the four screws holding the driver in place and carefully lift it out and away from the cabinet. Make a note of the driver polarity for later reconnection. Disconnect the cables from the drive unit and completely remove the driver from the cabinet.
3. To reinstate the driver simply reverse the above procedure, making sure you observe the correct polarity when reconnecting the cables back into the terminals of the drive units.

#### **Removal of the high frequency tweeter**

1. Remove the loudspeaker grille as described above and set the grille aside for later re-fitting.
2. Undo the four screws holding the high frequency tweeter in place, and carefully lift it out and away from the cabinet. Make a note of the driver polarity for later reconnection. Disconnect the cables from the drive unit and completely remove the driver from the cabinet.
3. To reinstate the high frequency tweeter, simply reverse the above procedure making sure you observe the correct polarity when reconnecting the cables back into the terminals of the drive unit.



## **APPENDIX A**

### **Spares and Accessories**

LS-50	5" (127mm) low frequency driver
TW-50	0.5" (14mm) high frequency tweeter
PX-50	Passive crossover network
MG-50	Metal grille

### **Mounting Hardware**

WB-50	Adjustable wall bracket (supplied)
SM-50	Single point mount
SB-50	Swivel bracket
CB-50	Cluster bracket

**APPENDIX B**

**Technical Specifications**

	<b>IMPACT 50</b>	<b>IMPACT 50S</b>	<b>IMPACT 50T</b>
<b>Type</b>	2-way passive loudspeaker	2-way passive loudspeaker	2-way passive loudspeaker
<b>Components</b>	5" LF, 0.5" HF tweeter	5" LF, 0.5" HF tweeter	5" LF, 0.5" HF tweeter
<b>Enclosure type</b>	Optimally ported enclosure	Optimally ported enclosure	Optimally ported enclosure
<b>Frequency response</b>	100Hz – 20kHz ±4dB	100Hz – 20kHz ±4dB	100Hz – 20kHz ±4dB
<b>Constant voltage taps</b>	N/A	N/A	100V: 50w (300 ohms); 25w (400 ohms); 12.5w (800 ohms)
<b>Impedance</b>	16 ohms (nominal)	16 ohms (nominal)	N/A
<b>Sensitivity</b>	91dB @ 1 watt, 1 metre	91dB @ 1 watt, 1 metre	91dB @ 1 watt, 1 metre
<b>Maximum SPL</b>	114dB cont, 120dB peak	114dB cont, 120dB peak	114dB cont, 120dB peak
<b>Crossover type</b>	Fourth order high pass filter network using polypropylene capacitors and air spaced inductors	Fourth order high pass filter network using polypropylene capacitors and air spaced inductors	Fourth order high pass filter network using polypropylene capacitors and air spaced inductors
<b>Crossover frequency</b>	4 kHz	4 kHz	4 kHz
<b>Connectors</b>	Spring loaded push terminals	Spring loaded push terminals	Spring loaded push terminals
<b>Enclosure material</b>	Polypropylene mix with acoustically optimised filling material	Polypropylene mix with acoustically optimised filling material	Polypropylene mix with acoustically optimised filling material
<b>Finish</b>	Textured finish, available in blue, black, grey or white	Textured finish, available in blue, black, grey or white	Textured finish, available in blue, black, grey or white
<b>Size (H x W x D)</b>	288mm x 167mm x 148mm	288mm x 167mm x 148mm	288mm x 167mm x 148mm
<b>Net weight</b>	2.2kg (4.4lbs)	2.5kg (5.5lbs)	3.5kg (7.7lbs)

Due to continuing product improvement the above specifications are subject to change.

## **APPENDIX C**

### **Limited Warranty**

This Turbosound loudspeaker product is warranted to the original end-user purchaser and all subsequent owners for a period of two (2) years from the original date of purchase.

### **Warranty Coverage**

Warranty coverage includes defects in materials and workmanship. It does not include:

- ◆ damage caused by accident, misuse, abuse, neglect or modification by any other person other than an authorised Turbosound representative,
- ◆ damage caused by overdriving, use with unsuitable amplifiers or amplifier failure,
- ◆ damage caused by failure to operate the product in accordance with the instructions contained in the user's manual,
- ◆ damage occurring during shipment in transit,
- ◆ claims based upon any misrepresentations by the seller,
- ◆ products which do not have the original components as specified in the product engineering information,
- ◆ products on which the serial number has been removed or defaced.

### **Shipping**

Should any fault develop with a component of your Turbosound system, please return the product, freight pre-paid, in its original packing carton, along with proof of purchase such as the original bill of sale or receipted invoice, and a description of the suspected fault to Turbosound Ltd. (Att: Customer Service), Star Road, Partridge Green, West Sussex RH13 8RY, England, or your local authorised Turbosound representative. The product serial number must be quoted in all correspondence relating to the claim. Insurance is recommended, as Turbosound or its representatives are not liable for loss or damage in transit. Turbosound will pay for return freight costs should repairs be covered under warranty.

**Incidental and consequential damages**

Turbosound's liability is limited to the repair or replacement, at our option, of any defective product, and shall not be liable for any incidental and consequential damages including, without limitation, injury to persons or property or loss of use.

**Limitation of implied warranties**

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

This warranty is in addition to, and in no way detracts from, your statutory rights as a consumer. No other warranty is expressed or implied.

Please record your purchase information below for future reference:

Dealer Name .....

Dealer Address .....

.....

.....

Post / Zip Code .....

Dealer telephone / fax .....

Invoice number .....

Date of purchase .....

Unit serial number .....

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