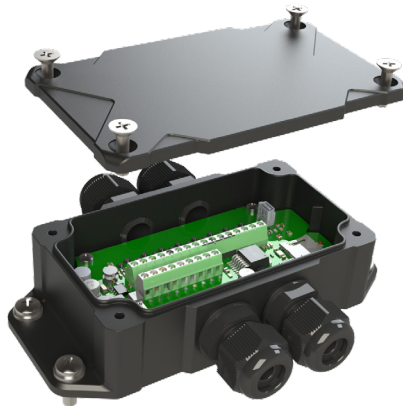




16 Channel Audio Alert System

HMMP3016



16 CHANNEL AUDIO ALERT SYSTEM

HUMMINGBIRD ELECTRONICS 16 CHANNEL AUDIO ALERT SYSTEM PROVIDES VEHICLE OPERATORS CLEAR AND PRECISE VERBAL ALERTS WHEN AN INPUT TRIGGER HAS BEEN DETECTED.

WARNING & SAFETY INSTRUCTIONS

THIS MANUAL CONTAINS IMPORTANT INSTRUCTIONS FOR THE 16 CHANNEL AUDIO ALERT SYSTEM.

DO NOT OPERATE THE AUDIO ALERT SYSTEM UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL AND THE DEVICE IS INSTALLED AS PER THE INSTALLATION INSTRUCTIONS

16 CHANNEL AUDIO ALERT SYSTEM

Powerful Performance

Hummingbird Electronics' 16 Channel Audio Alert System is designed to provide vehicle operators clear and precise verbal alerts when an input trigger has been detected. Allowing truck and machinery operators higher levels of safety, some examples of these customised verbal alerts could include: Low Coolant Level, Low Oil Pressure, High Engine Temperature, Door Open, Tailgate Open, Over Speed Detected, Please Apply Seatbelt, Low Battery Voltage, Head Lights On, Trailer Detected, Please Apply Handbrake, Roll-Over Warning or "Have You Completed Your Vehicle Safety Checks?"

Those who have operated trucks and machinery would agree that their dashboards can be confusing as there is often a high amount of warnings, lights and symbols. When one of these lights or alarms is activated it can often be a daunting process working out what it is trying to indicate.

The 16 Channel Audio Alert System prioritises input channels on installation and allows critical alarms to override lower priority messages. On each channel, the saved audio filename provides customised configuration, some of which include: positive or negative input triggers, the number of times the recorded message is repeated, message volume and a timed delay before triggering if required.

It features a wide 10 - 30 Volt input range enabling it to be used in both 12V and 24V vehicles. Hummingbird Electronics can also offer customised versions which can accept inputs from CAN bus, J1939 or RS485 system triggers.

Features

- SD Card Slot for simple loading of audio files, the HMMP3016 is supplied with 16 pre-installed files.
- Plays MP3, WAV, OGG, MP2, WMA audio file formats.
- Built-in amplifier can directly drive an 8-ohm speaker.
- Line Out for connection to an external amplifier or PA system.
- Easy to configure programming through audio file naming.
- Configurable volume and delay for each input channel.
- Selectable long or short power-up delay.
- The enclosure is a rugged sealed aluminium housing offering moisture and dust protection.
- 4 cable glands allow entry for power, trigger inputs and speaker outputs.

2 SPECIFICATIONS

TECHNICAL SPECIFICATIONS & ORDERING INFORMATION

PART NUMBER	HMMP3016
INPUT VOLTAGE	10-30V
SUPPLY CURRENT	STANDBY: 35mA @ 12V DC PLAYBACK: UP TO 2A DEPENDING ON SPEAKER AND AUDIO FILE A 5 AMP FUSE MUST BE INSTALLED ON POSITIVE SUPPLY
INPUTS	12 INDIVIDUALLY CONFIGURABLE POSITIVE OR NEGATIVE DIGITAL INPUTS. 4 CONFIGURABLE NEGATIVE DIGITAL INPUTS
VOLTAGE ON INPUTS	MINIMUM - 1V, MAXIMUM 30V. MUST NOT EXCEED SUPPLY VOLTAGE
DIMENSIONS	74MM WIDTH X 147MM LENGTH X 42MM HEIGHT EXCLUDING GLANDS
CABLE GLANDS	FOUR M16 X 1.5 GLANDS INCLUDED, TO FIT DIAMETER 4-8MM
SPEAKER OUTPUTS	2 TERMINALS FOR DIRECT CONNECTION TO A SINGLE 8 OHM SPEAKER DELIVERS UP TO 10W OUTPUT POWER
LINE OUT	3 TERMINALS FOR LEFT, RIGHT AND COMMON LINE OUT
IP RATING	IP65 EQUIVALENT WHEN ASSEMBLED CORRECTLY
OPERATING TEMPERATURE	-10 DEGREES CELSIUS TO 70 DEGREES CELSIUS 5% TO 95% RELATIVE HUMIDITY

3 INSTALLATION

Enclosure Assembly

The Audio Alert System has 4 ports for cable wiring. To achieve the enclosure rating, all glands must be correctly tightened on a single, round profile cable of diameter between 4 - 8 mm. Any ports not fitted with a cable gland must have a blanking plug fitted.

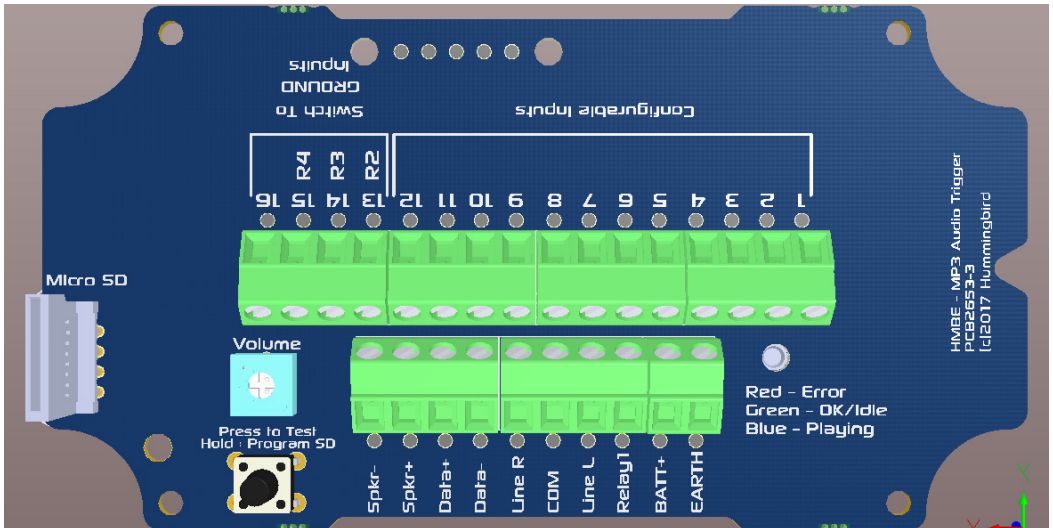
For each gland:

1. Place nut on the inside of the enclosure.
2. Tighten gland through port to a torque of 1.5 Nm ensuring proper mating with nut.
3. Thread cable through gland, and wire to terminals.
4. Tighten gland firmly around cable to a torque of 1 - 1.5 Nm.

For lid assembly:

1. Check that the lid contains a silicone seal before assembling unit.
2. The lid must be tightened down evenly on to the base enclosure. There are four screws which hold the lid in place. Tighten each screw to a torque of 0.9 Nm.

Internal Layout



3 INSTALLATION

Wiring

Power input should be 10 V to 30 V DC and connected to BATT+ and EARTH terminals.
An external 5A fuse must be fitted on the BATT+ input.

The speaker outputs (Spkr+ and Spkr-) are amplified and should be connected to each side of an 8 Ω speaker.

Do NOT connect any speaker outputs to ground.

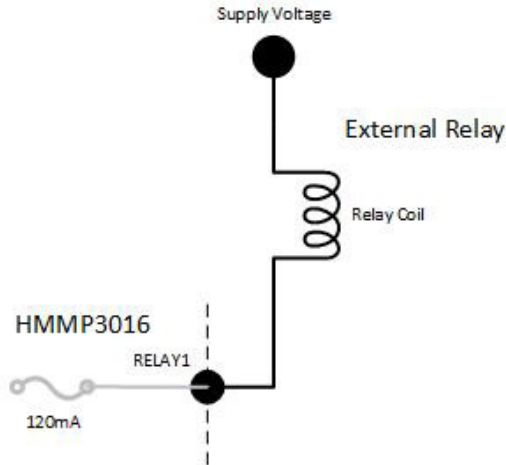
The line out terminals (Line L, COM, Line R) can be connected to an external amplifier or PA system.

Do NOT connect any of the line out terminals to ground.

There are 16 inputs available which can be used to trigger an audio file. Inputs 1 to 12 can be configured to trigger when the input is HIGH (battery positive) or LOW (ground / battery negative). Inputs 13, 14, 15, 16 can only be set to trigger when LOW. See File Name Configuration section.

An output marked **Relay1** can be used to drive the coil of a relay.

The **Relay1** output is connected to ground when an audio file is playing. This output is protected by an internal 120mA auto-reset fuse.



Please perform the “Quick Test” to validate that the unit is being powered correctly.

4 OPERATION

Creating Audio Files

Customised audio messages can be easily created using the free online tool:

<https://ttsmp3.com/>

The files should be renamed (see File Name Configuration) and saved to a microSD card. The microSD card should be formatted to the FAT32 filesystem if required.

Quick Test

To quickly test the board and speaker output, hold the 'Test' button on the circuit board for 1 second and then release. If a correctly named audio is found on the microSD card or internal memory, the LED will turn Blue and the file will play through the speaker.

If LED turns red instead, then no valid audio file has been found. Check file names are correct.

Subsequent presses of the 'Test' button will cycle through each valid audio file.

Master Volume

The blue dial marked 'Volume' on the circuit board sets the master volume of the audio files. The individual file volumes (as specified in the filename) also modify the resulting volume.

To change the master volume:

1. Ensure valid audio files are loaded in microSD card or internal memory. Ideally set the file volumes to 5 (middle volume setting).
2. Turn dial to desired setting using a small flathead screwdriver.
3. Press 'Test' button for one second then release.
4. An audio file will play at the master volume plus the file volume. Repeat steps 2 - 4 until a suitable master volume is found.

Please note the master volume is saved by the device, and can only be updated by pressing the Test button.

4 OPERATION

Status Light Colours

LED Colour Meaning

Flashing Green - Standby, not playing audio

Flashing Red - Error. Number of flashes may indicate an error code

Flashing Blue - Playing an audio file

Flashing Purple - Update of audio files in progress

Updating Audio Files

Audio files are stored in internal memory with 100 MB of space. To update the stored audio files:

1. Insert a microSD card containing files (see below for File Name Configuration).
2. Hold 'Test' push button on circuit board for 4 seconds. You will hear a voice saying 'Programming' over the speaker.
3. Release button.
4. The LED will flash purple while the update is in progress. The update duration depends on the file sizes and can typically take several minutes. For voice files it is recommended to use a low bitrate (64kbps), as there will be no quality difference and the file sizes will be much smaller.
5. Once update is completed, a voice will say 'Completed' and the LED will flash green as normal.
6. Remove the microSD card, and power the unit off and on again for file update to take effect. For normal operation, **do not leave the SD card in the unit** as vibration can cause unpredictable behaviour.
7. Press Test button to test updated files are working correctly.

4 OPERATION

File Name Configuration

Settings for each channel are configured through the audio filenames. Each channel (1 to 16) should be associated to one audio file on the root directory of the microSD card. Do not put files in directories/folders.

File names should follow the following naming format:

XX/T/V/R/DD.MP3

XX - is the two digit channel number, from 01 to 16 - double digit only

T - Trigger type, either '**H**' to trigger when signal is HIGH (positive voltage) or '**L**' to trigger when input is LOW (negative earth) - single digit only.

V - Volume from 1 to 9, where 9 is the loudest and 1 is the softest - single digit only.

R - Repeat the audio message from 1 to 9 times. When set to '0' the message will repeat for as long as the channel trigger is active - single digit only.

DD - Delay the audio output for 01 to 99 seconds. The input must remain active for the whole time to play the audio file - double digit only.

.MP3 - is the filename extension. This can also be .WAV, .OGG.

Note: Microsoft Windows will hide filename extensions by default.

For example, a file named: **05L5210.MP3** will play when input 5 is low(negative earth), volume is 5 (medium), and the file will play twice with a 10 second delay.

5 DISCLAIMER

USE OF PRODUCTS

1. You, (the "Purchaser"), acknowledge that you have the sole responsibility of satisfying yourself that the goods supplied by Redarc Electronics Pty Ltd (ACN 009 971 794) atf the Redarc Trust trading as Hummingbird Electronics ("Hummingbird Electronics") are suitable for the use of the Purchaser or any contemplated use of the Purchaser and that the Purchaser has conducted its own investigations and has not relied upon any information, statement, advice or representation by Hummingbird Electronics of or in relation to:

- 1.1 the operating and/or performance parameters of the goods;
- 1.2 the outcomes that the goods may achieve;
- 1.3 the suitability of the goods to any particular application, installation or physical environment; and
- 1.4 the appropriateness of the use of the goods outside Australia.

2 The Purchaser acknowledges and agrees that:

- 2.1 any representation as to the operating parameters of the goods provided by Hummingbird Electronics are representative of laboratory conditions;
- 2.2 the actual performance of the goods in situ might be affected by external factors (including without limitation environmental conditions) beyond Hummingbird Electronics' control;
- 2.3 incorrect and/or negligent installation, application or use of the goods may cause loss of life, injury and/or damage to property;
- 2.4 Hummingbird Electronics makes no representation, warranty or assurance as to any of the matters listed in clause 1 and that Hummingbird Electronics shall not be liable for any loss or cost arising from those matters to the maximum extent permitted by law.

3. Hummingbird Electronics gives the warranties specified in the Warranty as being given by Hummingbird Electronics, and subject to and to the maximum extent permitted by law, excludes all other warranties in relation to the goods, whether express or implied, including without limitation any warranty regarding merchantability or fitness for a particular purpose.

4. To the maximum extent permitted by law, Hummingbird Electronics excludes all liability in respect of the goods. To the extent that Hummingbird Electronics is not able to exclude liability under law, then to the maximum extent permitted by law Hummingbird Electronics' liability under the Warranty or otherwise in respect of the goods is limited as in accordance with the Warranty.

5 DISCLAIMER

5. Other than specifically stated in this document and to the maximum extent permitted by law, Hummingbird Electronics is not liable for and the Purchaser hereby releases Hummingbird Electronics from any consequential loss or damages of any type including without limitation incidental, special, indirect, punitive or otherwise, including loss of profit, whatever the claim (tort, breach of contract or warranty or otherwise) and whatever the forum, whether arising out of or in connection with the goods or any other cause whatsoever.

6. The Purchaser releases Hummingbird Electronics from all liability, in respect of personal injury or death or damage or loss of property of any person including the Purchaser or the Purchaser's employees agents or contractors, arising wholly or in part from the Purchaser's acts, omissions, negligence, breach of duty or breach of contract.

7. In any event and without limiting the generality of the foregoing, Hummingbird Electronics' liability for any breach of a term, condition or warranty not excluded in this document will be limited to the replacement of goods delivered or the payment of the cost of replacing the goods or acquiring equivalent goods from an alternate supplier and/or the resupply of any services rendered or the cost of having those services resupplied.

8. The Purchaser shall be responsible for and indemnify and hold harmless Hummingbird Electronics from and against all claims, damages, costs (including without limitation legal costs on a full indemnity basis), losses, liabilities and expenses caused by the Purchaser's acts, omissions, negligence, breach of duty or breach of contract.

6 WARRANTY

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Hummingbird Electronics offers a warranty in respect of its Products where the Products are purchased from an authorised distributor or reseller of Hummingbird Electronics by the Purchaser, on the terms and conditions, and for the duration, outlined below in this document ("Warranty"). The benefits of this Warranty are in addition to other rights and remedies available at law in respect of the Products and shall not derogate from any applicable mandatory statutory provisions or rights under the Australian Consumer Law.

9. In this Warranty, the term Products means:

9.1 all products manufactured or supplied by Hummingbird Electronics; and

9.2 any component of or accessory for any product in clause 9.2 manufactured or supplied by Hummingbird Electronics.

Offer and duration of product warranties

10. Hummingbird Electronics warrants that its Products will be free, under normal application, installation, use and service conditions, from defects in materials and workmanship affecting normal use, for 12 months from the date of purchase ("Warranty Period").

11. Where a Product malfunctions or becomes inoperative during the Warranty Period, due to a defect in materials or workmanship, as determined by Hummingbird Electronics, then subject to further rights conferred by the Australian Consumer Law on the Purchaser, Hummingbird Electronics will, in exercise of its sole discretion, either:

11.1 repair the defective Product;

11.2 replace the defective Product; or

11.3 provide a refund to the Purchaser for the purchase price paid for the defective Product, without charge to the Purchaser.

12. The warranty given by Hummingbird Electronics in clause 11 covers the reasonable costs of delivery and installation of any repaired or replaced Products or components of Products to the Purchaser's usual residential address notified to Hummingbird Electronics, together with the reasonable costs of removal and return of any Products determined by Hummingbird Electronics to be defective.

6 WARRANTY

13. If the Purchaser incurs expenses of the nature referred to in clause 12 in the context of making a claim pursuant to this Warranty that is accepted by Hummingbird Electronics, the Purchaser will be entitled to claim for reimbursement of those expenses which Hummingbird Electronics determines, in exercise of its sole discretion, to be reasonably incurred, provided that the claim is notified to Hummingbird Electronics in writing at the postal address or email address specified in clause 29 and includes:

13.1 details of the relevant expenses incurred by the Purchaser; and

13.2 proof of the relevant expenses having been incurred by the Purchaser.

Exclusions and limitations

14. This Warranty will not apply to, or include any defect, damage, fault, failure or malfunction of a Product, which Hummingbird Electronics determines, in exercise of its sole discretion, to be due to:

14.1 normal wear and tear or exposure to weather conditions over time;

14.2 accident, misuse, abuse, negligence, vandalism, alteration or modification;

14.3 non-observance of any of the instructions supplied by Hummingbird Electronics, including instructions concerning installation, configuring, connecting, commissioning, use or application of the Product, including without limitation choice of location;

14.4 failure to ensure proper maintenance of the Product strictly in accordance with Hummingbird Electronics' instructions or failure to ensure proper maintenance of any associated equipment or machinery;

14.5 repairs to the Product that are not strictly in accordance with Hummingbird Electronics' instructions;

14.6 installation, repairs or maintenance of the Product by, or under the supervision of, a person who is not a qualified auto electrician or technician, or if non-genuine or non-approved parts have been fitted;

14.7 faulty power supply, power failure, electrical spikes or surges, lightning, flood, storm, hail, extreme heat, fire or other occurrence outside the control of Hummingbird Electronics;

14.8 use other than for any reasonable purpose for which the Product was manufactured;

14.9 any indirect or incidental damage of whatever nature outside the control of Hummingbird Electronics.

6 WARRANTY

15. Warranty claims in respect of a Product must be made in writing to Hummingbird Electronics at the postal address or email address specified in clause 29 within the Warranty Period. Such claims must include the following:

- 15.1 details of the alleged defect or fault and the circumstances surrounding the defect or fault;
- 15.2 evidence of the claim, including photographs of the Product (where the subject of the claim is capable of being photographed);
- 15.3 the serial number of the Product, specified on the label affixed to the Product; and
- 15.4 proof of purchase documentation for the Product from an authorised distributor or reseller of Hummingbird Electronics, which clearly shows the date and place of purchase.

The return of any Products without the prior written instructions of Hummingbird Electronics will not be accepted by Hummingbird Electronics.

16. Without limiting any other clause in this Warranty, Hummingbird Electronics has the right to reject any Warranty claim made by a Purchaser pursuant to this Warranty where:

- 16.1 the Purchaser does not notify Hummingbird Electronics in writing of a Warranty claim within the Warranty Period;
- 16.2 the Purchaser does not notify Hummingbird Electronics in writing of a Warranty claim within 1 month of becoming aware of the relevant circumstances giving rise to the claim, so that any further problems with the Product are minimised;
- 16.3 the serial number of the Product has been altered, removed or made illegible without the written authority of Hummingbird Electronics;
- 16.4 the Purchaser is unable to provide proof of purchase documentation in accordance with clause 15.4 or evidence that the Product was properly installed and removed (if relevant), and that proper maintenance has been performed on the Product, by, or under the supervision of, a qualified auto electrician or technician, in accordance with the instructions of Hummingbird Electronics.

17. If the Product is found to be working satisfactorily on return to Hummingbird Electronics or upon investigation by Hummingbird Electronics, the Purchaser must pay Hummingbird Electronics' reasonable costs of testing and investigating the Product in addition to shipping and transportation charges. Where Hummingbird Electronics is in possession of the Product, the Product will be returned to the Purchaser on receipt of the amount charged.

18. Any replaced Products or components of Products shall become the property of Hummingbird Electronics.

6 WARRANTY

19. Hummingbird Electronics may, in exercise of its sole discretion, deliver another type of Product or component of a Product (different in size, colour, shape, weight, brand and/or other specifications) in fulfilling its obligations under this Warranty, in the event that Hummingbird Electronics has discontinued manufacturing or supplying the relevant Product or component at the time of the Warranty claim, or where such Product or component is superior to that originally purchased by the Purchaser.

Other conditions of Warranty

20. If the Purchaser acquired a Product for the purpose of resupply, then this Warranty shall not apply to that Product.

21. In particular, the sale of a Product via an online auction, online store or other internet website by a party that is not an authorised distributor or reseller of the Product will be deemed to be a resupply within the meaning of the Australian Consumer Law and will render this Warranty void, as Hummingbird Electronics has no control over the storage, handling, quality or safety of Products sold by such persons.

22. A Purchaser shall only be entitled to the benefit of this Warranty after all amounts owing in respect of the Product have been paid.

23. While Hummingbird Electronics warrants that the Products will be free from defects in materials and workmanship in the circumstances set out in this Warranty, to the maximum extent permitted by law Hummingbird Electronics does not warrant that the operation of the Products will be uninterrupted or error-free.

24. To the maximum extent permitted by law, Hummingbird Electronics' determination of the existence of any defect and the cause of any defect will be conclusive.

25. Spare parts or materials for the Products are guaranteed to be available for a period of 12 months after purchase of the Products.

26. The agents, officers and employees of any distributor or reseller of the Products and of Hummingbird Electronics are not authorised to vary or extend the terms of this Warranty.

6 WARRANTY

27. Hummingbird Electronics shall not be responsible or liable to the Purchaser or any third party in connection with any non-performance or delay in performance of any terms and conditions of this Warranty, due to acts of God, war, riots, strikes, warlike conditions, plague or other epidemic, fire, flood, blizzard, hurricane, changes of public policies, terrorism and other events which are beyond the control of Hummingbird Electronics. In such circumstances, Hummingbird Electronics may suspend performance of this Warranty without liability for the period of the delay reasonably attributable to such causes.

28. If a clause or part of a clause in this Warranty can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause in this Warranty is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this Warranty, but the rest of this Warranty is not affected.

Hummingbird Electronics' contact details

29. Hummingbird Electronics' contact details for the sending of Warranty claims under this Warranty are:

29.1 Redarc Electronics Pty Ltd

23 Brodie Road (North), Lonsdale SA 5160

Email: power@redarc.com.au Telephone: +61 8 8322 4848

Free technical assistance!

please contact

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