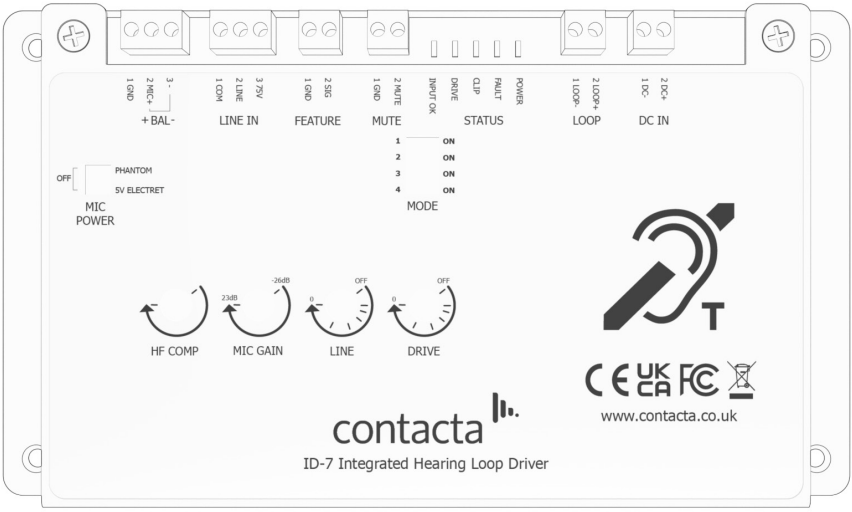
contacta

ID-7

Hearing Loop Driver



Installation & User Guide

December 2024

Contents

Product Overview

The ID-7 is a compact, cost-effective hearing loop driver designed to enhance accessibility in smaller venues. As the successor to the popular HLD5, the ID-7 offers significant enhancements to performance and flexibility.

Designed for smaller facilities such as meeting rooms, classrooms, and similar-sized venues, the ID-7 incorporates a 75V line input for connection to public address systems.

Two units can be connected to create a phased array system.

Features

- Discreet and compact design
- Wide operating power supply range (12V-24V DC only)
- High output voltage (7Vrms – 15V)*, allowing large hearing loops to be driven
- High output current, up to 5Arms
- High efficiency and cool operation
- Flexible mounting options

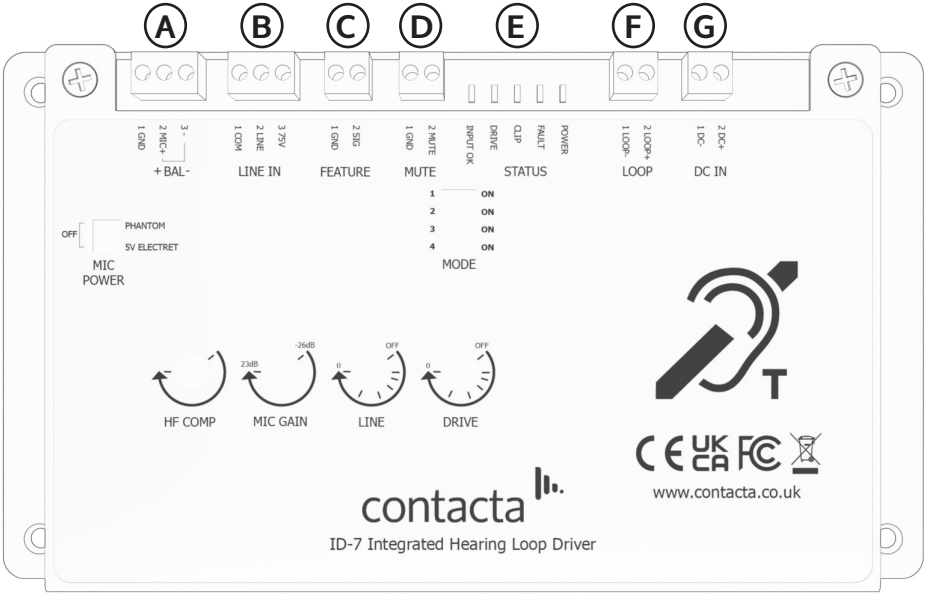
* Supply voltage dependent

Components

1. ID-7 Hearing Loop Driver
2. Signage [IL-SN01 / IL-SN02]
3. 4 x Universal Wall Plugs
4. 4 x Fixing Screws

Cable & Equipment: A length of loop cable determined by the loop design is also required. Hearing loop drivers also require ancillary equipment for audio feeds, such as a microphone or sound system.

Connections



Connections and Status Indicators

All connections are made via screw down 3.81mm Euro-block terminals; these can accept cables up-to 16AWG/1.3mm².

Audio Inputs

A) Microphone input

This input can be used with balanced microphone and single ended electret microphones.

Electret Microphones (Single-Ended) should be connected as follows:

- Mic return is connected to pin 1 (GND).
- Mic signal to pin 2 (MIC+).

The phantom power should be set to 5V.

Balanced microphones should be connected as follows:

- Mic + (Hot) to pin 2 (+)
- Mic – (Cold) to pin 3 (-)

The cable screen should be connected to pin 1 (GND).

B) Line/75V Line Input

This input can be used with single ended or balanced sources.

It is transformer isolated for maximum freedom from ground loops.

- **Line Level Sources** should be connected between pin 1 (COM) and pin 2 (LINE).
- **75V/100V Line Level Sources** should be connected between pin 1 (COM) and pin 3 (75V).

C) Audio Feature (Input/Output)

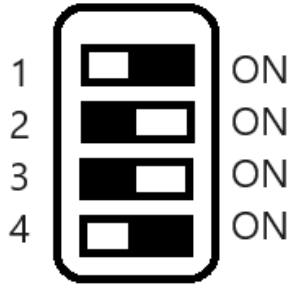
This connection allows two ID-7's to be connected to create a phased array system.

ID-7's should be connected as follows:

- Signal Return (Cold) to pin 1 (GND)
- Signal (Hot) to pin 2 (SIG)

To take advantage of the phased array features the DIP switches must be set as follows:

Primary Driver



Secondary Driver

When operating in this mode the signal source should be connected to the Primary Driver.

Control Inputs

D) Mute

Mute signal for fast disable/enable of outputs:

- HIGH (Greater than 6V) = outputs OFF (high-Z)
- LOW = outputs ON

The ID-7 is unmuted if this input is not used (unconnected).

E) Status Indications

INPUT OK: This LED indicates sufficient input signal to drive the ID-7. If the ID-7 is operating on higher supply voltages with some loops it may be possible to increase the input gain on the LINE IN input beyond this point.

DRIVE: This LED indicates 0.6A of loop current.

INPUT OK: When lit this LED indicates that the input signal and the adjustment is at a level for correct operation of the Active Gain Control (AGC) circuit.

CLIP: This LED indicates output voltage clipping. Maximum output varies with supply voltage (see appendix).

FAULT: This LED indicates a fault condition (e.g., overheating, short circuit). If this occurs repeatedly, the ID-7 should be taken out of use and diagnosed.

POWER: This LED indicates adequate input power (DC input voltage > 10.5V)

F) Loop Output

This output is for connection to the hearing loop (aerial).

Warning: This output is bridge tied. Do not connect either output to ground.

DC Power

G) DC IN

The ID-7 can operate from direct current (DC) power supply voltages from 12V to 24V (18V to 24V for battery backup).

Warning: Before applying power be sure to check the polarity.

Suitable Cable Lengths

The tables in this section show the approximate maximum cable lengths for differing maximum required currents.

Examples are shown at 12V, 14V and 24V supply voltages.

Loop impedance (at 1.6kHz) should be less than the voltage capability of the driver divided by the required current that achieves 400mA/m field strength at 1kHz.

12V PSU

Single-Turn Hearing Loop (Metric)
12V Power Supply (Metric)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	1.5mm²	137m	91m	68m	54m
	2.5mm²	154m	103m	77m	61m
Flat	10.0mm	86m	57m	43m	34m
	12.5mm	164m	109m	82m	65m
	25.0mm	217m	145m	108m	87m

Double Turn Hearing Loop (Metric)
12V Power Supply (Metric)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	1.5mm²	92m	61m	46m	36m
	2.5mm²	96m	64m	48m	38m
Flat	10.0mm	76m	50m	38m	30m
	12.5mm	117m	78m	58m	47m
	25.0mm	139m	92m	69m	55m

Single-Turn Hearing Loop (Imperial)
12V Power Supply (Imperial)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	14AWG	482ft	321ft	239ft	190ft
Flat	18AWG	403ft	269ft	200ft	160ft
	14AWG	639ft	426ft	318ft	255ft

Double Turn Hearing Loop (Imperial)
12V Power Supply (Imperial)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	14AWG	301ft	200ft	150ft	118ft
Flat	18AWG	318ft	209ft	157ft	124ft
	14AWG	416ft	278ft	206ft	167ft

14V PSU

Single-Turn Hearing Loop (Metric) 14V Power Supply (Metric)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	1.5mm²	161m	107m	70m	45m
	2.5mm²	181m	120m	90m	72m
Flat	12.5mm	192m	124m	70m	45m
	25.0mm	255m	170m	127m	90m

Double Turn Hearing Loop (Metric) 14V Power Supply (Metric)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	1.5mm²	107m	71m	53m	43m
	2.5mm²	113m	75m	56m	45m
Flat	10.0mm	89m	59m	44m	35m
	12.5mm	137m	91m	68m	55m
	25.0mm	163m	108m	81m	65m

Single-Turn Hearing Loop (Imperial) 14V Power Supply (Imperial)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	14AWG	564ft	374ft	282ft	223ft
	18AWG	475ft	314ft	236ft	190ft
Flat	14AWG	751ft	501ft	370ft	237ft

Double Turn Hearing Loop (Imperial) 14V Power Supply (Imperial)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	14AWG	351ft	232ft	173ft	141ft
Flat	14AWG	488ft	324ft	242ft	193ft

24V PSU

Single-Turn Hearing Loop (Metric) 24V Power Supply (Metric)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	1.5mm²	322m	214m	140m*	90m*
	2.5mm²	362m	241m	181m	144m
Flat	12.5mm	385m	257m	140m*	90m*
	25.0mm	510m	340m	255m	178m*

Double Turn Hearing Loop (Metric) 24V Power Supply (Metric)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	1.5mm²	215m	143m	107m	86m
	2.5mm²	226m	151m	113m	90m
Flat	10.0mm	178m	118m	89m	71m
	12.5mm	275m	183m	137m	90m*
	25.0mm	326m	217m	163m	130m

Single-Turn Hearing Loop (Imperial) 24V Power Supply (Imperial)

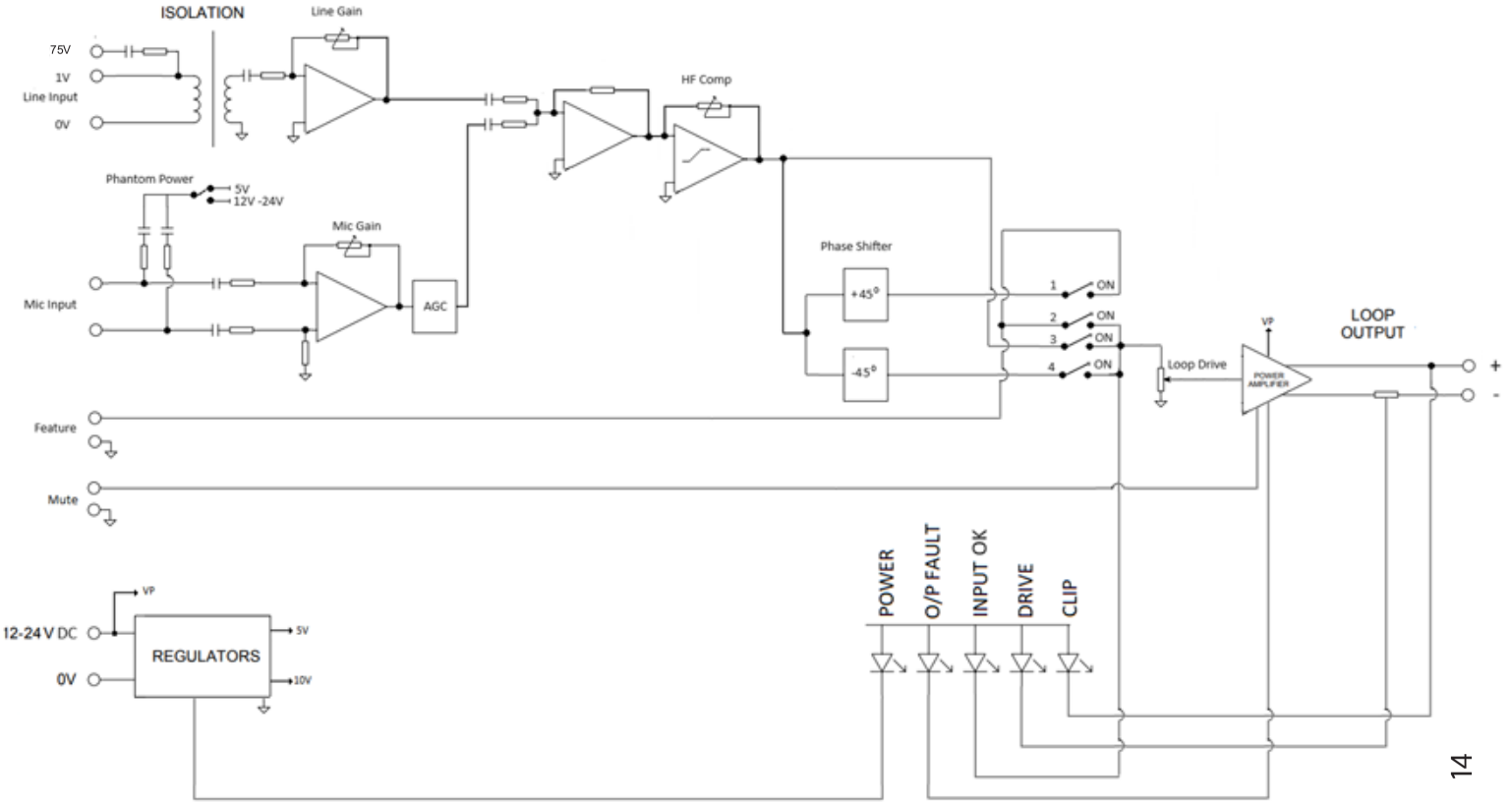
		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	14AWG	1128ft	751ft	564ft	449ft
Flat	14AWG	1505ft	1003ft	751ft	474ft*

Double Turn Hearing Loop (Imperial) 24V Power Supply (Imperial)

		2.0A	3.0A	4.0A	5.0A
Cable Type		**Cable Length**			
Round	14AWG	705ft	469ft	351ft	282ft
Flat	14AWG	980ft	652ft	488ft	390ft

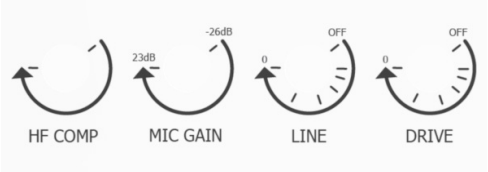
*Power Limited

System Block Diagram



Controls

Front Panel Overview



- **HF COMP** (High Frequency Compensation) allows the frequency response of the ID-7 to be modified to counteract the effects of metal in the vicinity of the installed loop.

  Rotating the control clockwise increases the amount of HF Comp applied (increases the high frequency whilst reducing the lower frequency relative to 1Khz).

  Rotating the control counterclockwise reduces the amount of HF Comp applied.

  At the minimum position (flat) there is no compensation applied.

- **MIC GAIN** (Microphone Input Gain) allows the adjustment of the microphone input preamplifier gain.

  Rotating the control clockwise increases the gain of the microphone input preamplifier.

  Rotating the control counterclockwise reduces the gain of the microphone input preamplifier.

- **LINE** (Line Input Adjustment) allows the adjustment of the line input amplitude.

  Rotating the control clockwise increases the level of the line input signal.

  Rotating the control counterclockwise reduces the level of the input signal.

- **DRIVE** (Output Current Adjustment) allows the loop output current to be adjusted.

  Rotating the control clockwise increases the current available from the loop output.

  Rotating the control counterclockwise reduces the current available from the loop output.

  The graduations on the control are in 3dB steps: off (minimum), -15dB, -12dB, -9dB, -6dB, -3dB, 0dB (maximum).

MODE Switch Functions

1. **Switch 1**: Enables the ID-7 to send a phased signal to another ID-7 (secondary driver).
2. **Switch 2**: Enables the ID-7 to receive a signal from another phased ID-7 (primary driver).
3. **Switch 3**: Enables the ID-7 to operate as a single, unphased driver (standard mode).
4. **Switch 4**: Enables the ID-7 to operate as a phased primary driver.

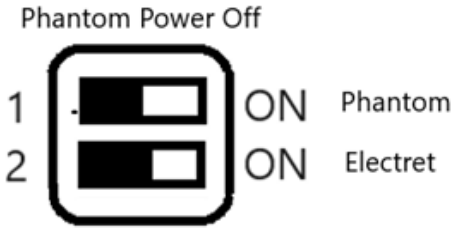
Key Points:

- **Single Driver**: Only Switch 3 should be on.
- **Phased Primary Driver**: Both Switch 2 and Switch 4 should be on.
- **Phased Secondary Driver**: Only Switch 1 should be on.

Remember: Only one switch should be on at a time, except when configuring the ID-7 as a phased primary driver.

Phantom Power

When using microphones that require external power, select the correct voltage. This is achieved on the ID-7 by selecting the correct setting on the "Mic Power" DIP switch.



Hearing Loop Set Up

To ensure optimal performance of a ID-7 hearing loop driver, setup should be performed in following order:

Step 1: Metal Loss (see below)
Step 2: Output Level and Clipping (see page 19)
Step 3: Field Uniformity (see page 19)

Step 1: Metal Loss

1. Position a Field Strength Meter in the centre of the hearing loop.

2. Set up the Field Strength Meter, ensuring that the two vertical arrows in the top-right corner of the device are placed at the correct height:

   
   • 1.2 metres (3′ 9″) for seated user.
   • 1.7 metres (5′ 6″) for standing users.

   Note: A tripod or similar for mounting the Field Strength Meter is recommended.

3. Connect the Test Signal Generator to the line input of the hearing loop driver.

4. Set the Test Signal Generator to the "Pink" noise setting.

5. Set the Field Strength Meter to the Third Octave F= 1000Hz setting.

6. Adjust the "Line" input level until the "Input OK" LED is lit.

7. Adjust the "Drive" control to -6dB.

8. Set the Field Strength Meter to the Third Octave F= 100Hz setting and record the value measured.

9. Set the Field Strength Meter to the Third Octave F= 5000Hz set-

ting and record the value measured.

10. If the difference between the values measured at 1000Hz and 5000Hz is **less than 3dB**, record the results and move on to Step 2: Output Level and Clipping.

    If the difference is **higher than 3dB,** rotate the HF comp adjustment clockwise until the difference between the values measured at 1000Hz and 5000Hz is less than 3dB, record the results and move on to Step 2: Output Level and Clipping.

Step 2: Output Level and Clipping

Note: This test should be performed as briefly as possible.

1. Do not move the Field Strength Meter.

2. Connect the system audio to the Line Input.

3. Adjust the "Line" input level until the "Input OK" LED is lit.

4. Set the Field Strength Meter to the RMS/Peak A-Weighted mode.

5. Adjust the drive level to -6dB.

6. Measure the field strength. Achieve 0dB by using the Field Strength Meter's indicated peak field strength. If the reading is lower than 0dB then increase the drive level and if too high reduce the driver level.

Note: If more than 6dB is required to achieve 0dB, a different loop design will be required.

Step 3: Field Uniformity

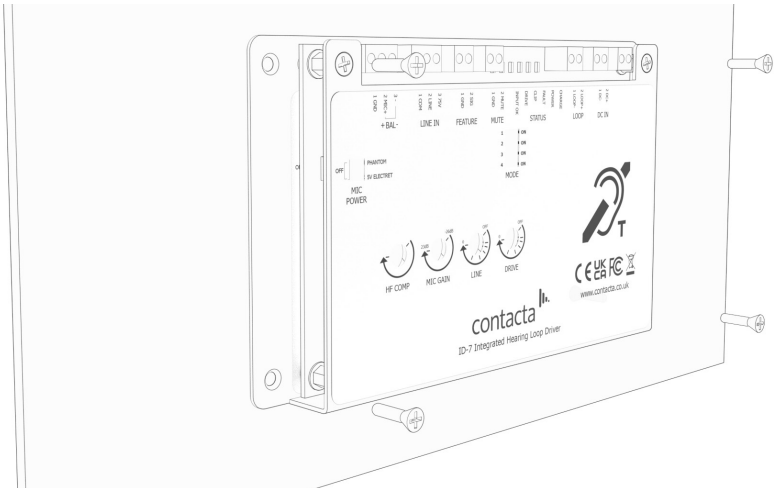
1. With the level now set in the centre of the loop, move the Field Strength Meter to other user positions within the looped area and record the values measured by the Field Strength Meter.

2. The differences measured in other positions are ideally not greater than +/- 3dB of the result measured in the first position.

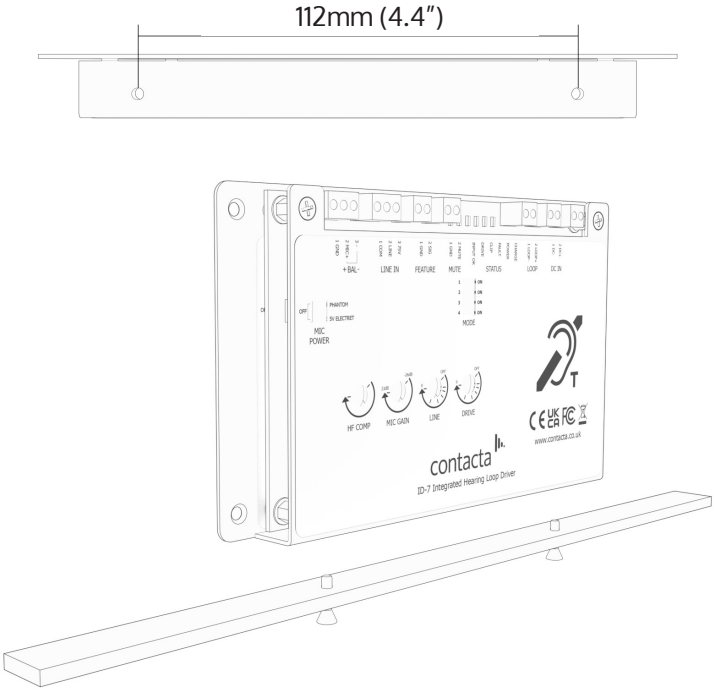
Mechanical / Mounting

The ID-7 offers two mounting options:

- **Flat Face Mounting**: Secure the device to a flat surface using the four mounting holes. We recommend using M3 countersunk screws. A set of universal wall plugs and screws are provided for installation. Please source appropriate fixings for your specific installation environment.



- **Edge Mounting**: Secure the device using the two bottom mounting holes. These components feature internal M3 threads. Please note that M3 bolts are required for this mounting option (not supplied).



When using the edge mounting option, ensure the screws you use are no longer than 10mm (0.3"). This is important to avoid internal damage to the ID-7.

Technical Specification

Power
- Voltage: 12V - 24V DC
- Current: 2.5A - 4.17A
- Power Supply: External PSU

Inputs
- Line level, transformer isolated, 3.81mm screw terminal (bare wire)
- 75V Line level, transformer isolated, 3.81mm screw terminal (bare wire)
- Microphone, selectable 12V phantom balanced via 680Ω / 5V single ended electret

Output Characteristics
- Output Voltage: 7V (19.79Vpk-pk) - 15Vrms (42.3Vpk-pk) @ 5Arms (14.14Apk-pk) dependent on PSU voltage
- Output Current: 5Arms (14.14Apk-pk) on audio peaks
- Loop Connector: 3.81mm screw terminal

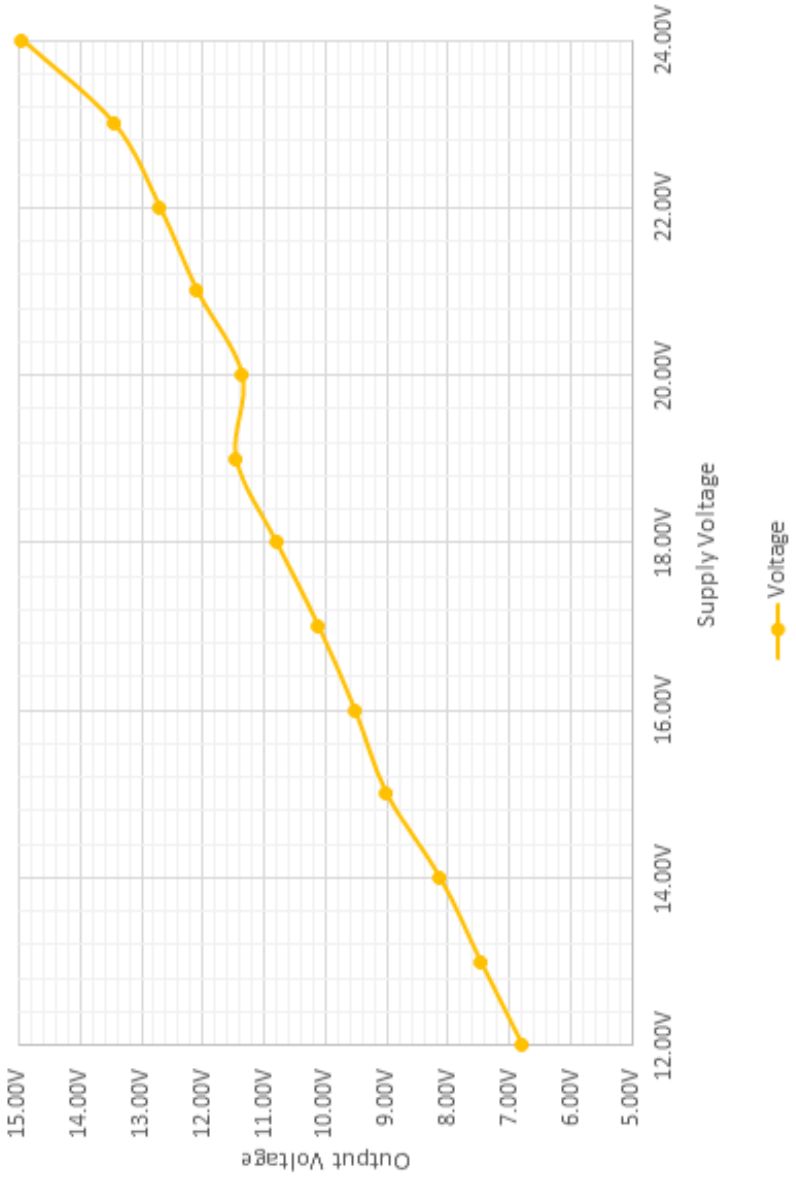
Audio System
- Frequency Response: 80Hz to 9kHz
- Distortion: THD+N <1% (-40dB)
- AGC: Peak detecting
- HF Comp: Adjustable

Controls
- Adjustable: Rotary trimmers

Fault Monitoring and Protection
- Cooling: No external heatsink required

Physical
- Height: 94.4mm (3.7")
- Depth: 16.3mm (0.63")
- Width: 165mm (6.49")
- Weight: 350g (0.77lbs)

Output Voltage vs Supply Voltage



Standards

2014/30/EU The Electromagnetic Compatibility Directive
Test Standards: EN 55032:2015, Class B

> EN55016-2-1:2009 A1 2011
> EN55016-2-3:2010 A1 2010
EN 55103-2:2009 E2
> EN61000-4-2:2009
> EN61000-4-3:2006 A1 2008 A2 2010
> EN61000-4-4:2012
> EN61000-4-5:2014
> EN61000-4-6:2009
> EN61000-4-11:2004
EN 61000-3-2:2014
EN 61000-3-3:2013

EN 303 348 V1.2.1 Radio Equipment Directive Audio frequency induction loop drivers up to 45 amperes in the frequency range 10Hz to 9kHz.

2014/35/EU Low Voltage Directive (LVD)

2012/19-EU Waste Electrical & Electronic Equipment (WEEE) Directive

2011/863/EU The Restriction of Hazardous Substances Directive

This product has been designed and tested to comply with the following North American and Canadian standards:

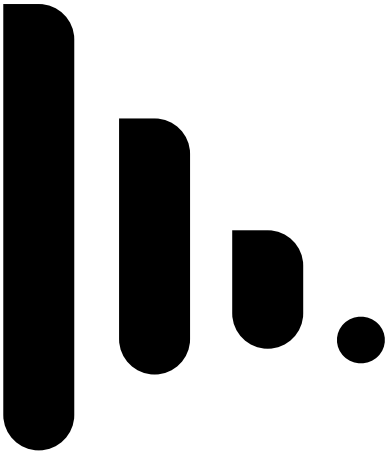
- FCC class "B" EMC (emissions)
- ICES-003

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by Contacta Systems LTD or an authorised partner could void the user's authority to operate the equipment.

Correct disposal of this product

This marking indicates that this product should not be disposed with other household waste throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal and to conserve material resources, this product should be recycled responsibly. To dispose of your product, please use your local return and collection systems or contact the retailer where the product was purchased.



Local dealer:

UK & ROW
+44 (0) 1732 223900
sales@contacta.co.uk

www.contacta.co.uk

US & Canada
+1 616 392 3400
info@contactainc.com

www.contactainc.com