

ID-6 / ID-6B Hearing Loop Driver



Installation & User Guide

January 2025

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Product Overview

The ID-6 hearing loop driver is a cost-effective solution designed for seamless integration into various OEM equipment requiring a hearing loop output. With a compact design, flexible mounting options and wide operating power supply range, the driver is versatile for use in applications such as digital signage, retail counters, help points, intercoms, and lifts.

The ID-6 boasts high output voltage and current for compatibility with a range of loop configurations. Its efficient design, transformer isolated audio input, and optional battery backup provide practicality and reliability.

Features

- Compact dimensions
- Flexible mounting options
- Bare wire connections
- Wide operating power supply range 12V -24V DC
- High output Voltage* (7.5Vrms – 15V), allowing a wide array of loops to be used
- High output current, up to 5Arms
- High efficiency
- Audio input is transformer isolated
- Battery back up option (ID-6B required)

* Supply voltage dependent

Please note re. the Battery Backup Box (ID-6B):

- The battery backup feature is only available on the ID-6B model. It cannot be added to the standard ID-6.
- There are no indicator lights or buttons to show the device's status.
- The device's battery is recharged automatically when connected to a power source.

Components

1. ID-6 / ID-6B Hearing Loop Driver
2. Signage [IL-SN01 / IL-SN02]
3. 4 x Universal Wall Plugs
4. 4 x Fixing Screws

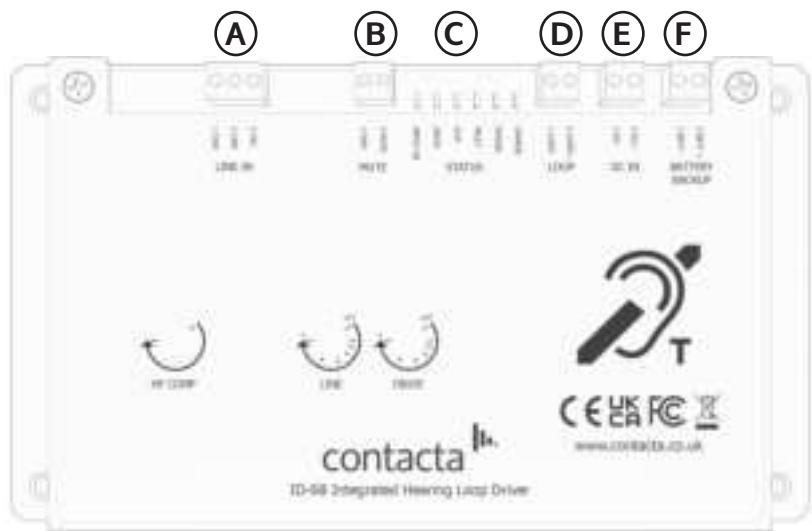
Cable & Equipment: A length of loop cable determined by the loop design is also required. Hearing loop drivers also require ancillary equipment for audio feeds, such as a microphone or sound system.

Connections

ID-6 Hearing Loop Driver



ID-6B Hearing Loop Driver



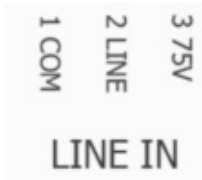
Connections and Status Indicators

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

A) 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).

B) Mute



Mute signal for fast disable/enable of outputs: HIGH (Greater than 6V) = outputs OFF (high-Z), LOW = outputs ON.

The ID-6/6B is unmuted if this input is not used (unconnected).

C) Status Indications

INPUT OK: This LED lights when the input signal is at the minimum level necessary to drive the ID-6 / 6B. If the driver is operating on higher supply voltages with some loops it may be possible to increase the input gain on the LINE IN input beyond the point where the INPUT OK LED lights.

DRIVE: When lit this LED indicates that there is 0.6A of current flowing in the loop.

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

CLIP: When lit this LED indicates the output voltage is approaching its maximum. This varies with the supply voltage see appendix for more details.

FAULT: This LED activates when the output stage is attempting to recover from a fault condition. Fault conditions include overheating and short circuits to ground. If this indication occurs repeatedly the ID-6 should be taken out of use and diagnosed.

POWER: This LED activates when the input power is at an acceptable level. It will light when the DC input voltage is above approximately 10.5 volts.

CHARGE (ID-6B only): Shows that the charging circuit is maintaining the optional battery.

D) Loop Output

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

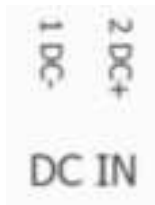
Warning: This output is bridge-tied. Grounding either output may damage the device.



E) DC IN

The ID-6 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.



F) Battery Backup

The ID-6B can operate from direct current (DC) power supply voltages from 12V to 24V (18V to 24V for battery backup).



Suitable Cable Lengths

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

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

12V PSU

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

		2.0A	3.0A	4.0A	5.0A
Cable Type		Cable Length			
Round	1.5mm ²	137m	91m	68m	54m
	2.5mm ²	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	1.5mm ²	92m	61m	46m	36m
	2.5mm ²	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	1.5mm ²	161m	107m	70m	45m
	2.5mm ²	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	1.5mm ²	107m	71m	53m	43m
	2.5mm ²	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

Driver Area Coverage

The following applications are generally considered as 1 to 1 loops:

- Digital signage and advertising displays
- Retail counters and automated checkouts
- Help/call points
- Intercoms/door entry systems

These applications will generally need loops smaller than those used in a room. These loops are commonly mounted vertically (not ideal) and will require higher field strengths than the equivalent horizontal loop.

The tables below detail the maximum turns that the ID-6 can drive at 5 amps for loops with differing dimensions, of course less turns and lower currents can be used.

The loops are constructed from 1mm (0.03") enamel copper wire.

24V 1:1			
Length	Width	Turns	Loop Current @ 5A
100.0mm (3.94 ")	100.0mm (3.94 ")	20	100.0A
200.0mm (7.87")	200.0mm (7.87")	25	125.0A
300.0mm (11.81")	300.0mm (11.81")	19	95.0A
400.0mm (15.75")	400.0mm (15.75")	15	75.0A
500.0mm (19.69")	500.0mm (19.69")	12	60.0A

24V 2:1			
Length	Width	Turns	Loop Current @ 5A
200.0mm (7.87")	100.0mm (3.94 ")	20	100.0A
400.0mm (15.75")	200.0mm (7.87")	19	95.0A
600.0mm (23.62")	300.0mm (11.81")	14	70.0A
800.0mm (31.5")	400.0mm (15.75")	11	55.0A
1000.0mm (39.37")	500.0mm (19.69")	9	45.0A

18V 1:1			
Length	Width	Turns	Loop Current @ 5A
100.0mm (3.94 ")	100.0mm (3.94 ")	20	100.0A
200.0mm (7.87")	200.0mm (7.87")	20	100.0A
300.0mm (11.81")	300.0mm (11.81")	16	80.0A
400.0mm (15.75")	400.0mm (15.75")	13	65.0A
500.0mm (19.69)	500.0mm (19.69)	11	55.0A

18V 2:1			
Length	Width	Turns	Loop Current @ 5A
200.0mm (7.87")	100.0mm (3.94 ")	20	100.0A
400.0mm (15.75")	200.0mm (7.87")	15	75.0A
600.0mm (23.62")	300.0mm (11.81")	11	55.0A
800.0mm (31.5")	400.0mm (15.75")	9	45.0A
1000.0mm (39.37")	500.0mm (19.69)	8	40.0A

14V 1:1			
Length	Width	Turns	Loop Current @ 5A
100.0mm (3.94 ")	100.0mm (3.94 ")	20	100.0A
200.0mm (7.87")	200.0mm (7.87")	16	80.0A
300.0mm (11.81")	300.0mm (11.81")	12	60.0A
400.0mm (15.75")	400.0mm (15.75")	10	50.0A
500.0mm (19.69)	500.0mm (19.69)	9	45.0A

14V 2:1			
Length	Width	Turns	Loop Current @ 5A
200.0mm (7.87")	100.0mm (3.94 ")	20	100.0A
400.0mm (15.75")	200.0mm (7.87")	12	60.0A
600.0mm (23.62")	300.0mm (11.81")	9	45.0A
800.0mm (31.5")	400.0mm (15.75")	7	35.0A
1000.0mm (39.37")	500.0mm (19.69)	6	30.0A

The following examples are more suited to the following applications:

- Digital signage and advertising displays
- Lifts and elevators

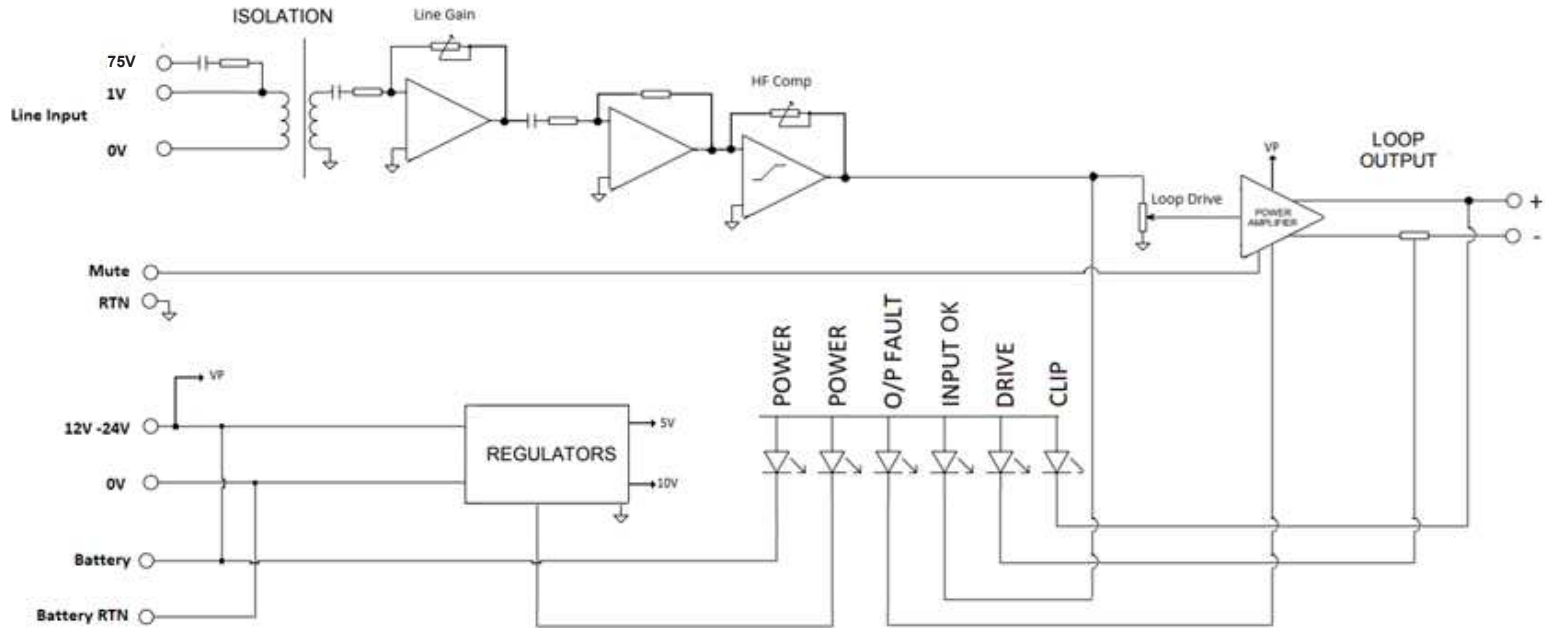
The loops are constructed from 2.5mm (0.09") CSA cable.

24V			
Length	Width	Turns	Loop Current @ 5A
2.4m (7.87ft)	2.0m (6.56ft)	5	25.0A
2.2m (7.22ft)	2.0m (6.56ft)	5	25.0A
2.0m (6.56ft)	2.0m (6.56ft)	5	25.0A
2.0m (6.56ft)	1.8m (5.91ft)	6	30.0A
2.0m (6.56ft)	1.6m (5.25ft)	6	30.0A

18V			
Length	Width	Turns	Loop Current @ 5A
2.4m (7.87ft)	2.0m (6.56ft)	5	25.0A
2.2m (7.22ft)	2.0m (6.56ft)	5	25.0A
2.0m (6.56ft)	2.0m (6.56ft)	5	25.0A
2.0m (6.56ft)	1.8m (5.91ft)	5	25.0A
2.0m (6.56ft)	1.6m (5.25ft)	5	25.0A

14V			
Length	Width	Turns	Loop Current @ 5A
2.4m (7.87ft)	2.0m (6.56ft)	3	15.0A
2.2m (7.22ft)	2.0m (6.56ft)	3	15.0A
2.0m (6.56ft)	2.0m (6.56ft)	4	20.0A
2.0m (6.56ft)	1.8m (5.91ft)	4	20.0A
2.0m (6.56ft)	1.6m (5.25ft)	4	20.0A

System Block Diagram



Controls

Front Panel Overview



- **HF COMP** (High Frequency Compensation) allows the frequency response of the ID-6 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.

- **LINE** (Line Input Gain) allows the adjustment of the line preamplifier gain.

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

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

- **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.

ID-6B Battery Operation

The standard ID-6 does not have a built-in backup power supply. If continued operation in a power outage is required, two options exist:

1. **Connect the ID-6 to an existing backup power source.** This could be a generator or other system already in place at your facility/venue. This often provides the simplest and most cost-effective solution; however, it must meet the 'Key Battery Specifications and Requirements' outlined below.
2. **Use an ID-6B:** The ID-6B model includes an integrated backup power supply to charge and maintain a back-up battery in the event of a power failure. This eliminates the need for external connections and simplifies installation.

The ID-6B is not certified for use as a PAVA (public address - voice alarm) device.

Key Battery Specifications and Requirements

- Battery chemistry: Nickel Metal-Hydride (NiMH)
- Nominal battery voltage: 12 volts (10 NiMH cells)
- Battery capacity: No less than 1000 milliampere hours
- Charger current: approx. 100mA, constant (CC)
- Charger CC termination voltage: approx. 13.25V
- ID-6B DC power: Must be at least 18V for correct battery charging
- Charge LED: Illuminated while battery is charging or maintained

Battery Operation

The operating endurance of the ID-6B whilst powered from a 1000mA/H battery is expected to be approximately 8 hours, although this varies greatly with usage.

The battery charge circuit provides a constant current charge of approximately 100mA, meaning that a 1000mA/H battery will take at least 10 hours to recharge from empty, possibly a little more, depending on the coulombic efficiency of the battery.

Some specifiers and installers may wish to provide their own battery. Batteries with a capacity of less than 1000mA/H must not be used: they may be damaged by over-charging.

It is the responsibility of the specifier and installer to ensure that suitability of any battery that is used. In many premises, it is required that backup batteries are subject to routine inspection and possible replacement. It is the responsibility of the specifier and installer to ensure that such processes are followed.

CHARGE Indicator

The **CHARGE** indicator will illuminate when the battery is being charged. It will not illuminate if the battery is disconnected or if the DC power supply voltage is too low (less than 18V). If the battery is in perfect condition and is fully charged, the charge indicator may be very dim or unlit.

If it is necessary to verify the integrity of the battery and the charging circuit, the DC input power to the ID-6B should be removed for a few minutes and it should be confirmed by the POWER indicator that the ID-6B continues to operate. When the DC power is restored the CHARGE indicator will illuminate.

Hearing Loop Set Up

To ensure optimal performance of a ID-6/6B hearing loop driver, setup should be performed in following order:

Step 1: Metal Loss (see page 20-21)

Step 2: Output Level and Clipping (see page 21)

Step 3: Field Uniformity (see page 21)

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.

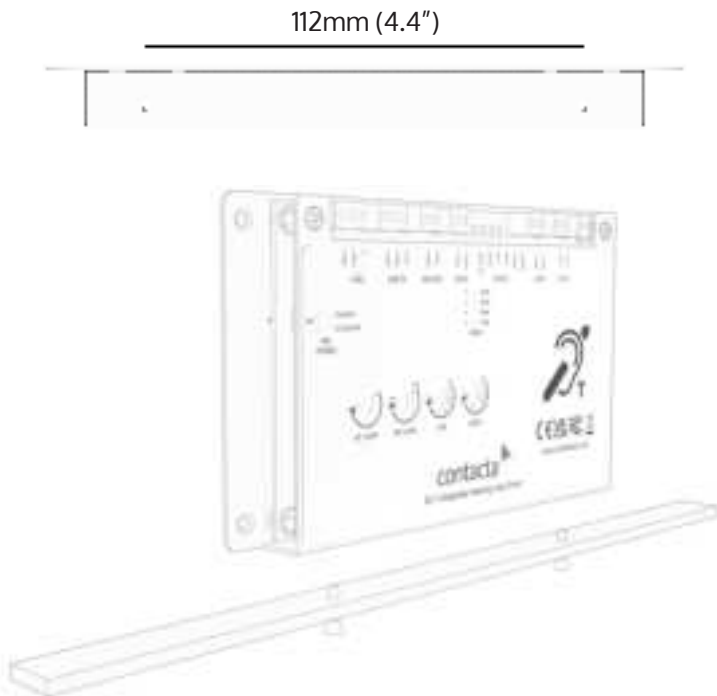
Mechanical / Mounting

The ID-6 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-6.

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)

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:

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