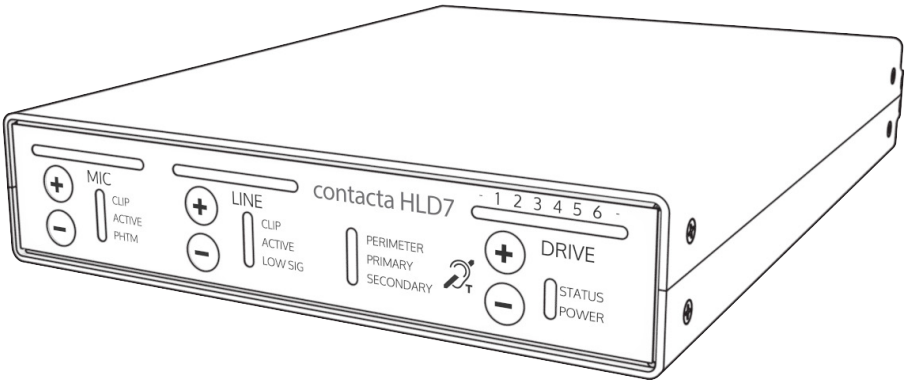
contacta

HLD7

Hearing Loop Driver



User Guide

October 2016

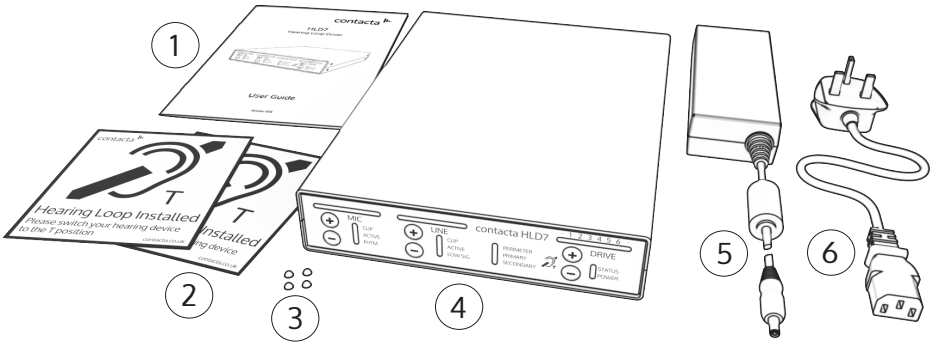
Contents

Product Overview

Our HLD7 is a pioneering modular hearing loop driver for perimeter or phased array configurations, designed for medium sized facilities such as meeting rooms, lecture halls, places of worship and small theatres.

The HLD7 is a high efficiency hearing loop driver, meaning that it emits very little heat from its compact packaging.

Components

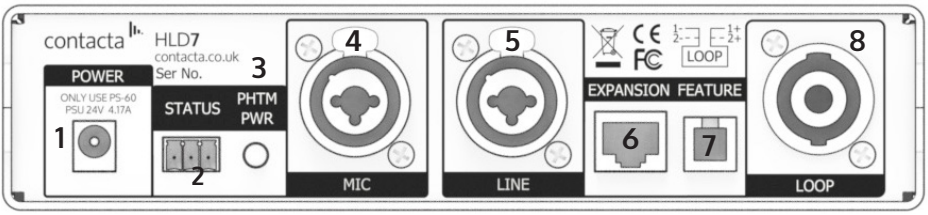


1. User Guide
2. Hearing Loop Stickers x 2
3. Rubber Feet x 4
4. Hearing Loop Driver
5. Power Supply
6. IEC Power Lead

You will also need: loop cable or flat copper tape of a length and type, which will be determined by the loop design. The driver requires an audio feed such as a microphone or sound system. Loop test equipment is also required as detailed on page 6.

Connections

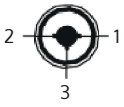
Rear Panel Connections:



1. Power Supply Input.
   Power Sources - The use of unauthorised power supplies may cause damage to the unit and may invalidate the warranty.
2. External Port - Status Indicator (Volt-free relay contacts).
3. Phantom power indication for microphone.
4. Input 1 (Microphone) - Balanced XLR with switchable 12VDC phantom power or ¼" unbalanced TRS jack for electret microphone with 5VDC power via 680Ω load.
5. Input 2 (Line) - Balanced XLR or ¼" TRS jack to ohmically isolated input.
6. Expansion.
   CAUTION: For connection to other Contacta systems only.
7. Feature - External monitor & control, Contacta communications processor.
   CAUTION: This is not a telecommunications port.
8. NL4 Loop Output Connection.

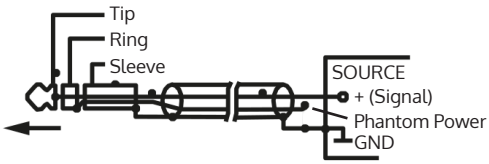
Audio Connections:

Mic & Line
XLR connector

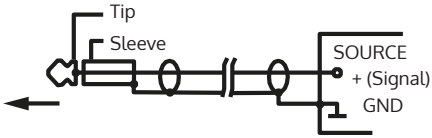


1: Screen/Shield
2: + (Signal Hot)
3: - (Signal Cold)

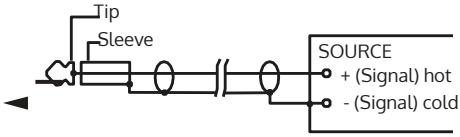
Mic
Unbalanced TRS Jack



Mic
Unbalanced Mono TS Jack



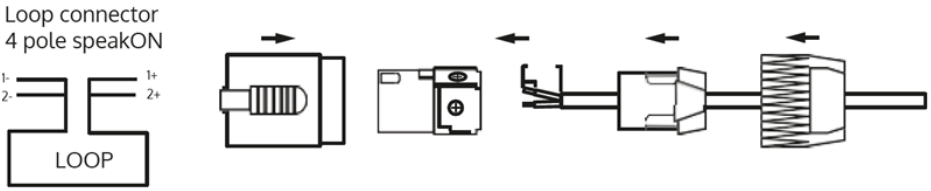
Line
Unbalanced Mono TS Jack



Loop Connections:

Connect a twisted pair or quad core loop feeder cables to the supplied NL4 connector (diagram below). Insert into Output Channel A/B sockets on the rear of the driver.

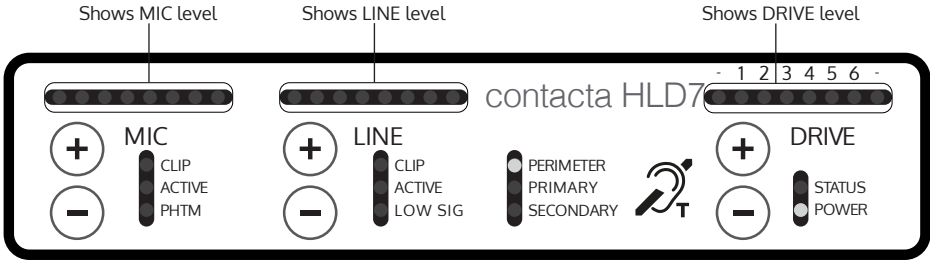
NL4 connector:



CAUTION: Route loop output cables as far away as possible from the driver audio input cables.

Setting up the Driver

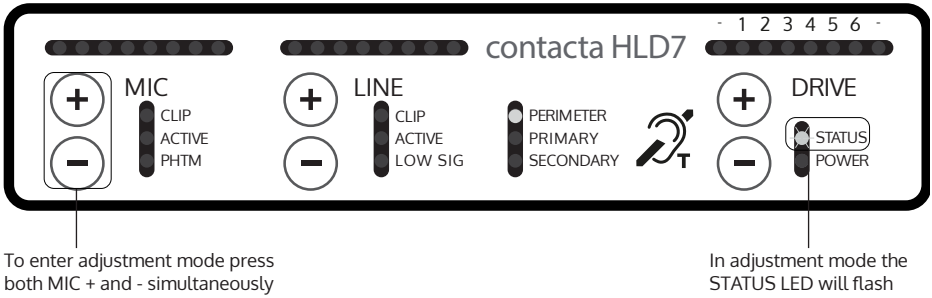
Front panel overview:

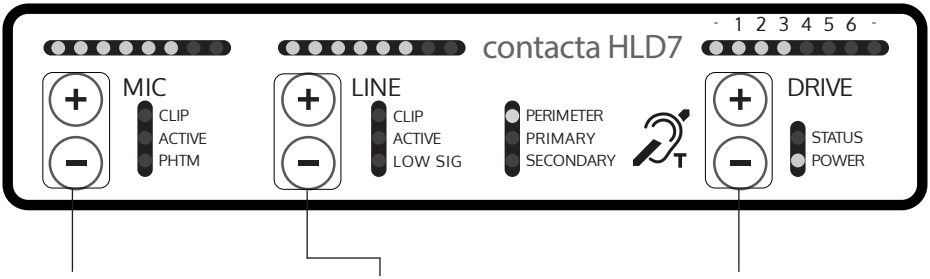


Active on power on
Indication only - buttons have no effect, except unlock combination

Driver modes

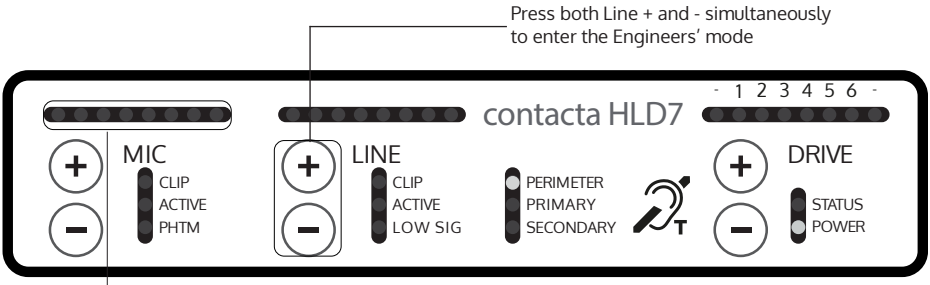
Normal operation mode – The driver is fully functional. The controls on the front do not change the driver operation.
Adjustment mode – In this mode one can adjust all of the levels using the ⊕ or ⊖ buttons.





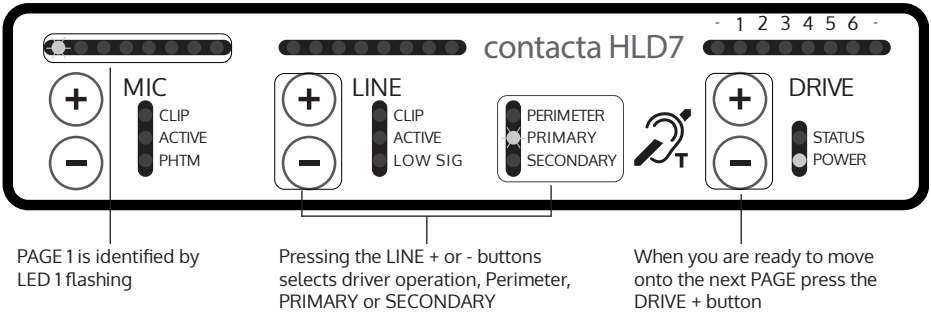
Engineers mode – In this mode there are additional items that can be adjusted, such as driver type, phantom power and high frequency compensation.

You must first be in adjustment mode (see page 7). To enter the engineers mode, press both Line ⊕ and ⊖ simultaneously.



There are 5 PAGE settings, each identified by a flashing MIC LED: PAGE 1 is LED 1, PAGE 2 is LED 2, etc.

PAGE 1 allows you to select the driver operation; either perimeter, primary or secondary. Always select the driver operation mode before installing the driver in its rack mount bracket.



Changing the driver type

You must be in engineers mode to change the driver type.

Ensure you have selected PAGE 1.

- When only this first light is illuminated and the driver is in the engineers mode, press either the LINE ⊕ or ⊖ to change the driver type from PERIMETER, PRIMARY OR SECONDARY.
- When finished setting up the driver type, press the DRIVE ⊖ button to take the driver out of the engineers mode and put if back into the adjustment mode. The status light will begin to flash.
- Pressing the MIC (⊕ and ⊖) buttons simultaneously will take the driver back to the normal operation mode where the controls are non-functional.

The three operating modes are:

- **PERIMETER mode**, for a single loop or (with a secondary driver) two widely separated loops.
- **PRIMARY mode**, the first and controlling driver of two in a phased array loop layout.
- **SECONDARY mode**, the second driver of two in a phased array loop layout.

Loop Configurations / Set Up

PLEASE NOTE: The loop cable must be connected before powering up the driver. Upon power up the loop is automatically analysed and set up. If no loop is connected the status light will be solid red. To RESET unplug the driver and wait 60 seconds minimum after all lights go out.

Perimeter Loop or Primary Driver Setup*
(Assumes unit is properly connected and loop has continuity)

1. Power up the driver and once the loop analysis (indicated by the flashing LED sequence) is complete, confirm or select the correct driver type (Perimeter or Primary). Instructions on changing driver type on page 13.

2. Enter the "Adjustment Mode" by pressing the MIC (⊕ and ⊖) buttons simultaneously until the red status light flashes.

3. While in "Adjustment Mode" (red status light flashing) confirm that the MIC, LINE and DRIVE levels are set to their minimum level by individually holding in the ⊖ button of each for a few seconds.

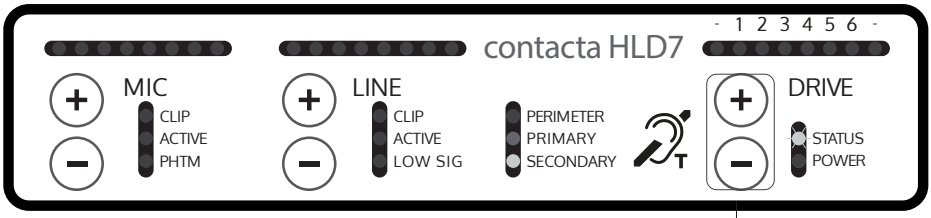
4. Connect the input signal to the LINE input unless you are directly connecting a microphone. If testing with our Test Signal Generator (TSG), connect to the HLD7's LINE input.

5. For either input signal (in adjustment mode) increase the appropriate input level by pressing the ⊕ button until the first yellow LED illuminates (this will be solid if using a sine wave) or occasionally flash if used on music or speech sources.

6. Bring the DRIVE level up by pressing the DRIVE ⊕ button until the required level is reached.

*Assumes unit is properly connected and loop has continuity.

Secondary Driver Setup*



To adjust drive when you have selected your mode press DRIVE + and - together. The status LED will flash.

- Press DRIVE + to increase level.
- Press DRIVE - to reduce level.

Press DRIVE + and - together when adjustment complete.

1. Confirm that the driver has been set to the SECONDARY mode (see page 12). In this mode the driver follows the signal sent from the primary or perimeter loop driver.

2. Connect an RJ45 cable between the expansion jack of the primary/ perimeter driver and the expansion jack on the secondary driver. Note: if connected to a primary driver the driver outputs are 90 degrees out of phase (for a phased array).

3. Nothing should be connected to the LINE or MIC input jacks on the back of the secondary driver, and the input controls are not used on the secondary driver apart from the drive level.

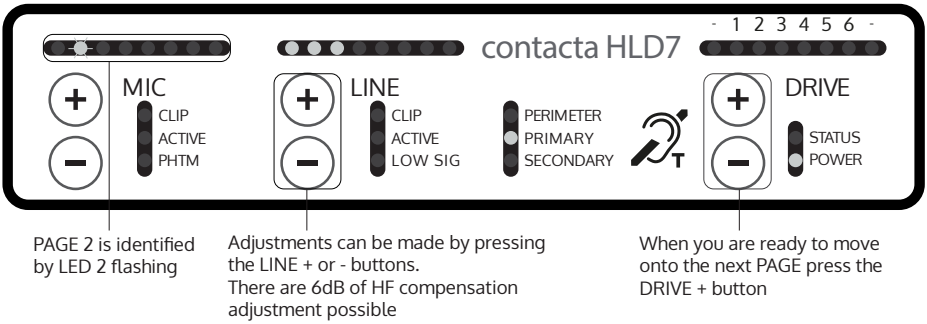
4. To enter the "Adjustment Mode" push the DRIVE (⊕ and ⊖) buttons simultaneously until the status light begins to flash on and off.

5. If setting up a phased array bring the current level up until the DRIVE output lights from primary and secondary driver match, after releasing the controls. Note: there are 8 button pushes between each output light. In the phased array you want the same signal level in the centre of the secondary loop as you have in the primary.

*Assumes unit is properly connected and loop has continuity.

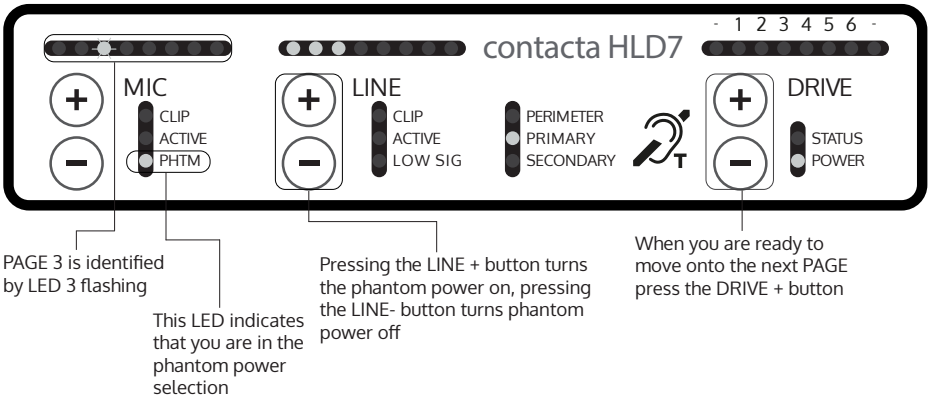
High Frequency Compensation (PAGE 2)

PAGE 2 settings are for the high frequency compensation which is required to compensate for loss of high frequencies due to the presence of metal within the proximity of the loop.



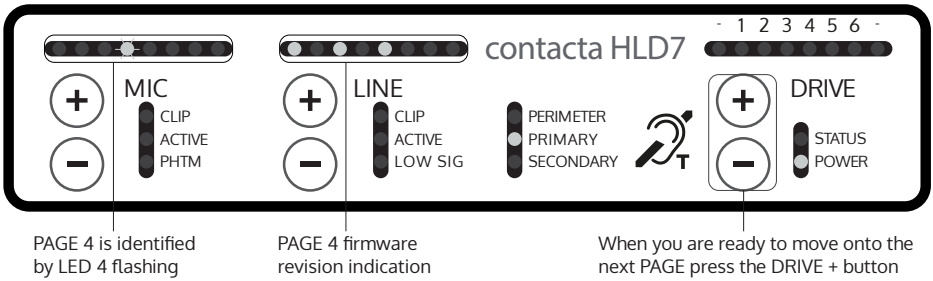
Microphone Phantom Power Selection (PAGE 3)

PAGE 3 settings are for the microphone phantom power selection.



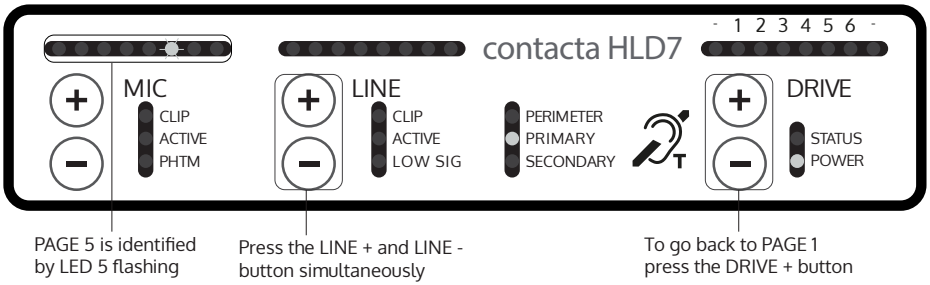
Firmware Revision Indication (PAGE 4)

THIS MODE IS DISPLAY ONLY: NO SETUP CAN BE CHANGED.



Restore to Factory Settings (PAGE 5)

PAGE 5 is for restoring settings.



To exit Engineers' mode press the DRIVE - button.

Troubleshooting

Symptom	Possible Fault	Action
I've adjusted the HF comp and see no change.	1) The driver is working close to maximum output so there is not enough headroom for the HF comp to make a difference.	1) Check loop characteristics. If response OK at 1 amp, the headroom is inadequate.
I start the driver and immediately the status light turns on. I start the driver and test sequence starts, but after it's done, the status light turns on. I've connected the loop and the driver doesn't work, the status light comes on. My driver has been working well for a couple weeks and now the status light is on.	1) Loop shorted or open, too small or too large. 2) Internal self-test failure.	1) Check loop and connections, try known good loop. 2) Check loop DC resistance with an ohm meter: 0.33 ohms minimum.
The power light doesn't come on.	1) Mains power absent. 2) Internal failure.	1) Check mains power. 2) Seek assistance.
I can't get my driver out of adjustment mode.	1) Button presses not coinciding. 2) Internal failure.	1) Press both buttons together to exit mode. 2) As a last resort, cycle power off/on. New settings should have been saved.
Interference (buzzing/whistling/hissing) is heard through induction loop.	1) Bad input signals. 2) Internal failure.	1) Power off driver and confirm that interference isn't from external origin. 2) Disconnect input signals. If sound disappears, check inputs.
My driver is very hot.	1) Large amount of mains hum present on input. 2) Internal failure.	1) Check input signal source. 2) Incorrect driver being used.

Symptom	Possible Fault	Action
No signal on the line input.	1) No input signal connected. 2) HLD in slave mode. 3) Equipment failure.	1) Check "active" light: if unlit check source, if lit, adjust level. 2) HLD must be in PERIMETER or PRIMARY. 3) Seek assistance.
The low signal light is on.	1) The HLD is having to use very high gain to process the input signal.	1) Increase the input signal level at source, reduce the HLD input level setting.
The Drive level indicate current is flowing but I hear nothing in the loop.	1) Shorted feeder cable (unlikely). 2) Loop listener not working or being used away from loop.	1) Check feeder cable, although the HLD will usually refuse to tune to shorted feeder. 2) Check listener and location.
The sound is very distorted.	1) Input level has been turned up too high for signal level at input jack. 2) Input signal is distorted.	1) Reduce input level setting. 2) Check signal source.

HLD = Hearing Loop Driver.

If no action is successful please seek assistance from your distributor or a Contacta installer.

Technical Specification

Mains input
Voltage: 24V DC @ 4.1A
Power: 100W
Connection: 2.1mm DC Jack
Audio Inputs
Input 1
(Microphone) Balanced XLR with switchable phantom power or ¼" TRS jack for electret microphone with 12VDC power via 680Ω load
Adjustment range: Off, then to maximum in 50x 1dB increments
Input 2
(Line) Balanced XLR or ¼" TRS jack (TRS gives galvanic isolation) input
Adjustment range: Off, then to maximum in 50x 1dB increments
Loop output
Loop connection 4-pole speakON connector
Adjustment range
Off, then to maximum in 63 1dB increments
Loop drive current
6A RMS compliance current @ 1Khz sine wave (loop dependant)
Loop drive voltage
15V RMS compliance voltage (loop dependant)
Loop current frequency response
100 Hz – 5kHz (±3dB) (loop dependant)
Distortion
Better than -40dB, inputs at nominal level
Expansion
Contacta interconnect Input or output to or from additional Contacta products with 90° phase shift selectable
Status
Volt-free relay contacts SPCO
Feature
External monitor & control Contacta communications processor interface
Displays
Microphone level 8 level bar graph with peak hold, 6dB steps
Line level 8 level bar graph with peak hold, 6dB steps
Output drive level 8 level bar graph with peak hold, 0.6A steps
Other indications LEDs for all setup and status indications
Dimensions
Height – 1.75" (2U 19" rack mount)
Width – 7.87" (19" half rack)
Depth – 10.24"
Weight 5.5lbs
Construction/Finish
Front & Rear: Mild Steel / Top & Bottom: Aluminium Powder Coated Black
Continual improvement policy
Contacta has a policy of continual improvement for its products. This means that designs and specifications are subject to change without notice.

Warranty

We offer a 5 year warranty* for our large area loop drivers. For our other products a 1 year warranty** applies. The warranty will begin from dispatch date from our warehouse.

Exceptions

This warranty will not cover products that have been misused, tampered with or are faulty as a result of standard wear and tear, or careless handling. Any water damage will void the warranty and cosmetic damage will not be covered. Cable, stickers & batteries are not included within the warranty policy.

Returns

Our products can be returned up to 30 days from the receipt of goods. Products for return must be within the original packaging, in unchanged condition. Bespoke and made to order products are non-refundable.

Contact us using distributors@contacta.co.uk if you'd like to request to return a product. Please state the date of purchase, invoice number and your reason for return. On receipt of returned items we will issue you a credit note for the cost of the product. Please note, the original cost of shipping or shipping back to us is not covered.

Faulty Goods

If you have a faulty product, please email us at distributors@contacta.co.uk.
We will work with you to resolve the problem remotely, using the standard test procedure contained in our Troubleshooting documents and other methods. If a manufacturing fault is confirmed we will arrange for the shipping back to us at our cost.

In the instance that we receive a faulty product we will either repair and return the product to you or a credit note will be provided (the product must be in a reasonable condition according to the terms).

If a product is returned as faulty but we cannot detect an issue, you may be charged a troubleshoot fee and you will be liable for the cost of shipping. Goods that arrive in a damaged condition must be reported to us immediately.

*Exceptions apply.
**2 year warranty for export distributors.

Standards

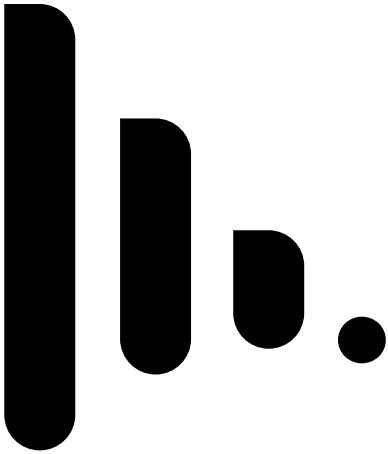
EMC
BS EN 55103-1: 2009 (EMC emissions)
BS EN 55103-2: 2009 (EMC immunity)
FCC class "B" EMC (emissions)

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.



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