



With your choice of this axxent induction loop amplifier you have decided on a high quality, reliable and rugged part of your sound system. In order to gain the maximum performance, we recommend to carefully read this manual.

IMPORTANT!

Because of potential dangerous hazard, the user may operate only the controls on the front side of the unit. All internal settings described on the following pages should be adjusted by qualified service personnel only – the same applies to opening the metal case (risk of electric shock).

NOTE

The induction loop amplifier ISV1090 is contained in a standard 19" rack case with mounted rack ears. It may also be used as a table top unit with its rubber feet.

Rack mounting: when the unit is intended for rack mounting, you should make sure whether the factory pre-selected power setting for a coverage of up to 200 square meters would be sufficient for your application – if not, you will have to remove the housing top first.

Internal jumpers on the PCB (printed circuit board) allow to alter these settings. On page 3 you will find the instructions for changing the jumper setting.

Surface mounted unit: Please unscrew the rack ears with the four screws each side. Changing the settings, of course, is the same as described in the previous paragraph.



SETTINGS AND ADJUSTMENTS

Since the Universal Induction Loop Amplifier ISV1090 not only is appropriate as a stand-alone amplifier, but also in combination with one or more amplifiers connected, you are able to set the output power plus the operation modes.

First, the output power:

Please keep in mind that the induction loop amplifier ISV1090 can drive induction loops for venue surfaces of up to 1000 square meters. In the maximum power position the current reaches valued up to 8.8 A rms, equivalent to approximately 12.7 A peak.

The ISV1090 provides adjustments for 4 different power levels:

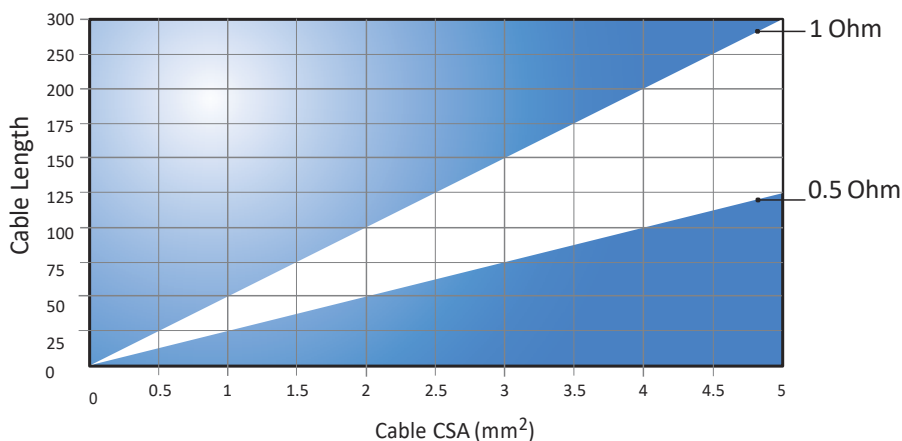
- Up to 100 sqm, or 3 A rms
- Up to 200 sqm, or 4.3 A (factory pre-set)
- Up to 500 sqm, or 6.7 A rms
- Up to 1000 sqm, 8.8 A rms

The factory setting is the second level for up to 200 sqm, 4.3 A. Other settings for power/coverage are easily made by changing the internal jumper position (see schematic on next page)

Obviously, changes of factory settings can only be made when you remove the steel cover. **Important: before you remove the cover, unplug the power cord. All changes may be made only by qualified technicians and not by consumers/endusers!**

The following instruction explains the setting of the two xlr microphone inputs sensitivity. Factory setting is at 1.5 mV, which is an average sensitivity of dynamic microphones. Using a small screwdriver, the sensitivity may be reduced down to 150 mV. This a typical auxiliary level, for example for MP3 players.

Cable cross-section finding the right gauge (single conductor, insulated) for an impedance between .5 and 1 ohm.



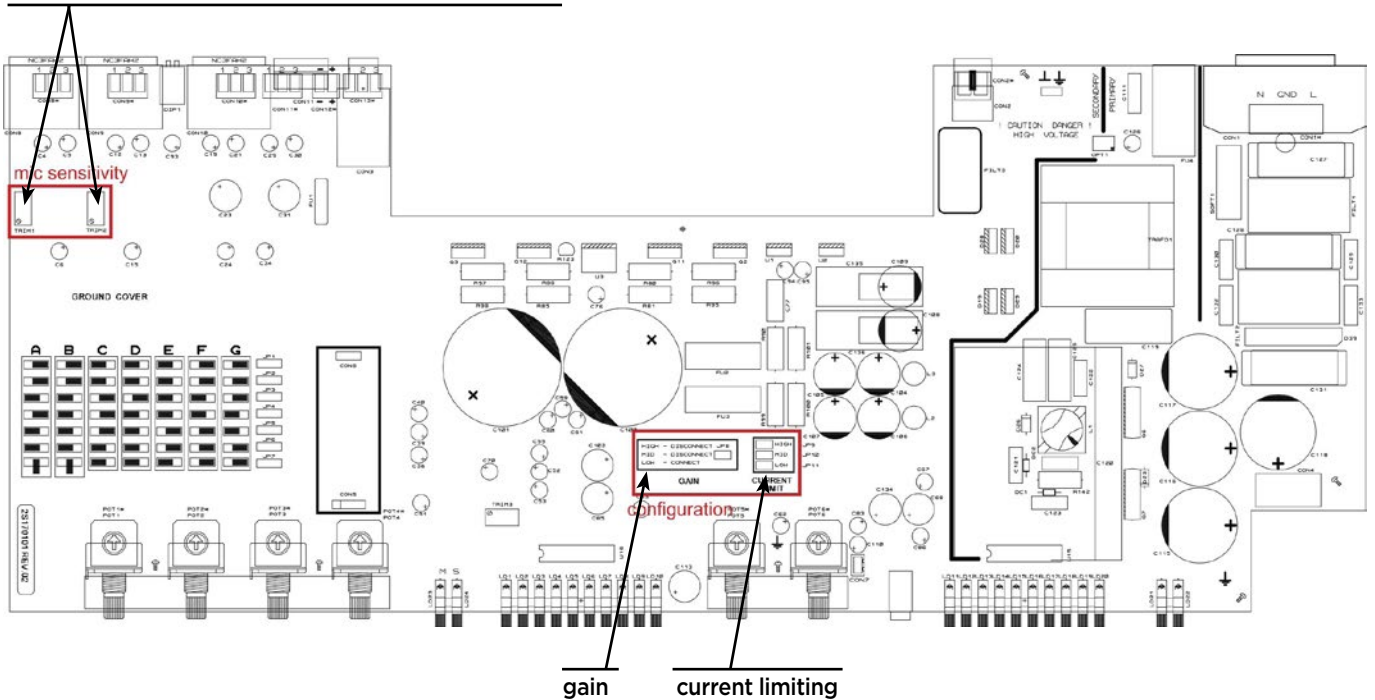
Selection guide for correct wire gauge: Wire should be single conductor, stranded and the load impedance between 0.5 to 1 Ohm.

Internal settings

Input sensitivity for mic inputs 1 and 2

screwdriver adjustable in the range 1.5 to 150 mV

default value is 1.5 mV (input sensitivity line 1 & 2 = 150 mV)



Adjustment of the basis configurations via internal jumpers

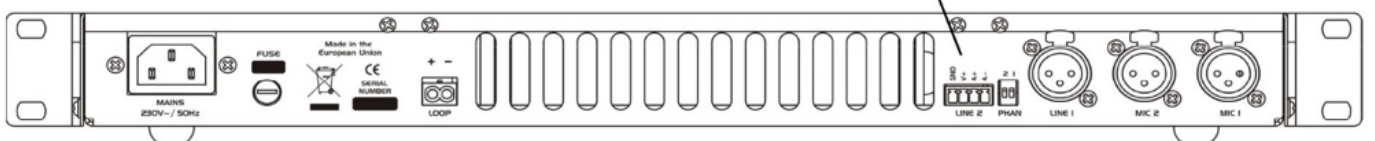
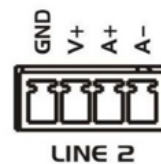
power level	gain jumper	current limit jumper		
up to 1000 sqm, 8.8 A _{rms}	no	High: yes	Mid: no	Low: no
up to 500 sqm, 6.7 A _{rms}	no	High: no	Mid: yes	Low: yes
up to 200 sqm, 4.3 A _{rms}	yes	High: no	Mid: no	Low: yes
up to 100 sqm, 3.0 A _{rms}	yes	High: no	Mid: no	Low: no

Input LINE 2

Pin A+, A- balanced input

Pin V+ output 22 V DC, max. 1 A Pin

Pin GND ground



*22 VDC output serves as power supply for external microphone to line pre-amplifiers.

Second, operation modes:

The ISV1090 has been developed to drive not only single perimeter or figure-of-eight and similar loops, but, with additional units and in combination with a 90° phase shifter module (PSM90) complex low spill-over loops.

Standard perimeter wire loops stray the induction signal outside their borders by far. Therefore, multi-segment induction loops are required to reduce this effect. Typically, adjacent rooms such as conference rooms, multiplex cinemas, and similar require such. Low spill-over loops require careful lay-out that can be performed only by experienced consultants/audio contractors.

Therefore, the operation mode has to be selected by jumper connectors inside. Modes are ...

SINGLE

induction loop amplifier acting as a stand-alone unit (Jumper setting combinations A or B)

MASTER

induction loop amplifier with another unit as SLAVE and inserted 90° phase shifter module into the master unit (jumper setting combinations C, D or E)

SLAVE

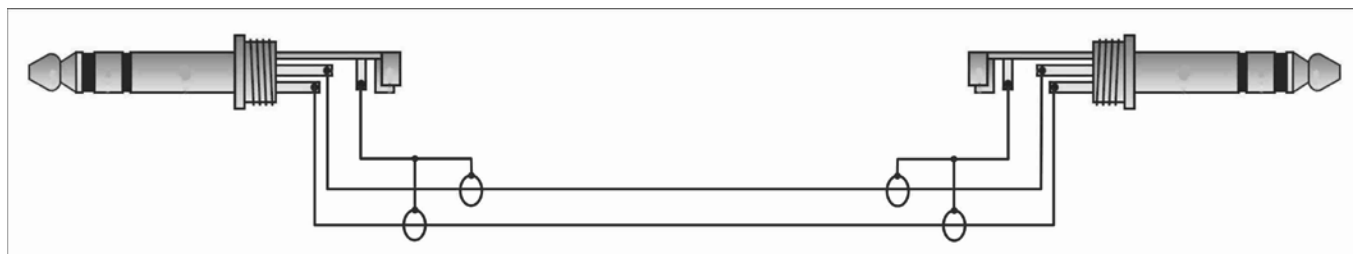
amplifier connected to the master (jumper settings F or G)

IMPORTANT!

In **master/slave mode**, amplification/gain settings of both amplifiers should be identical.

The ISV1090 also may be connected with another one in parallel for more induction loops.

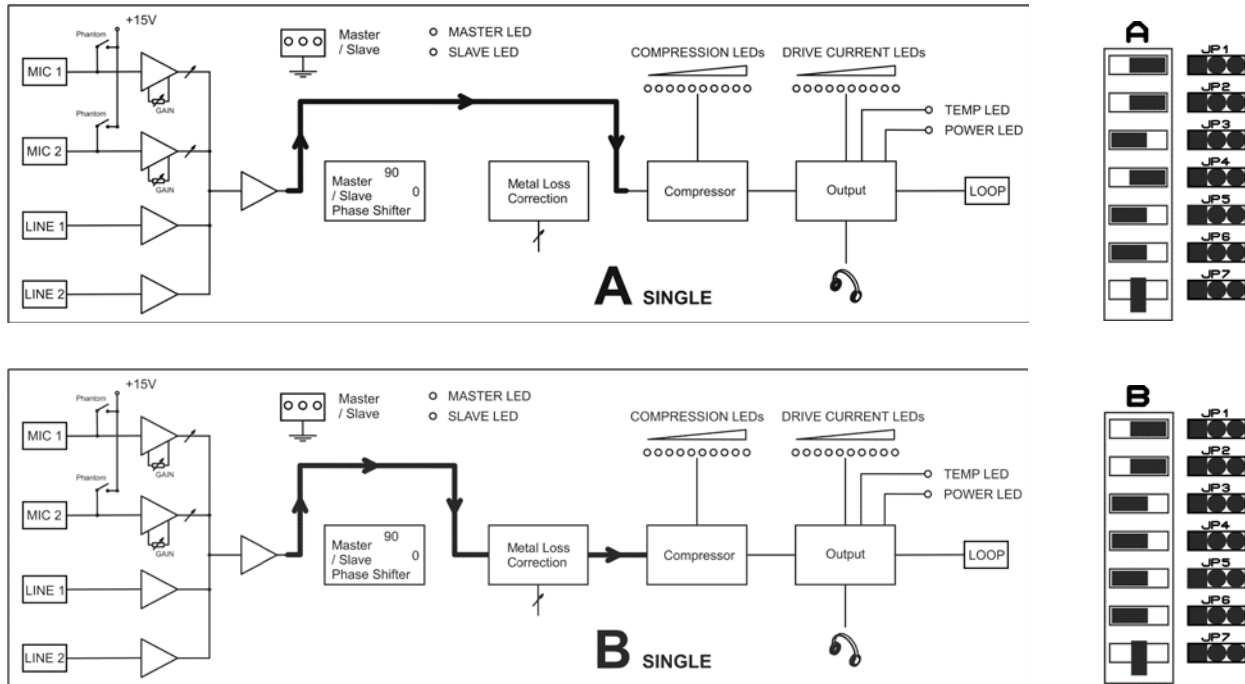
In this mode the Master settings should be used. All the inputs of the connected amplifiers may be mixed together.



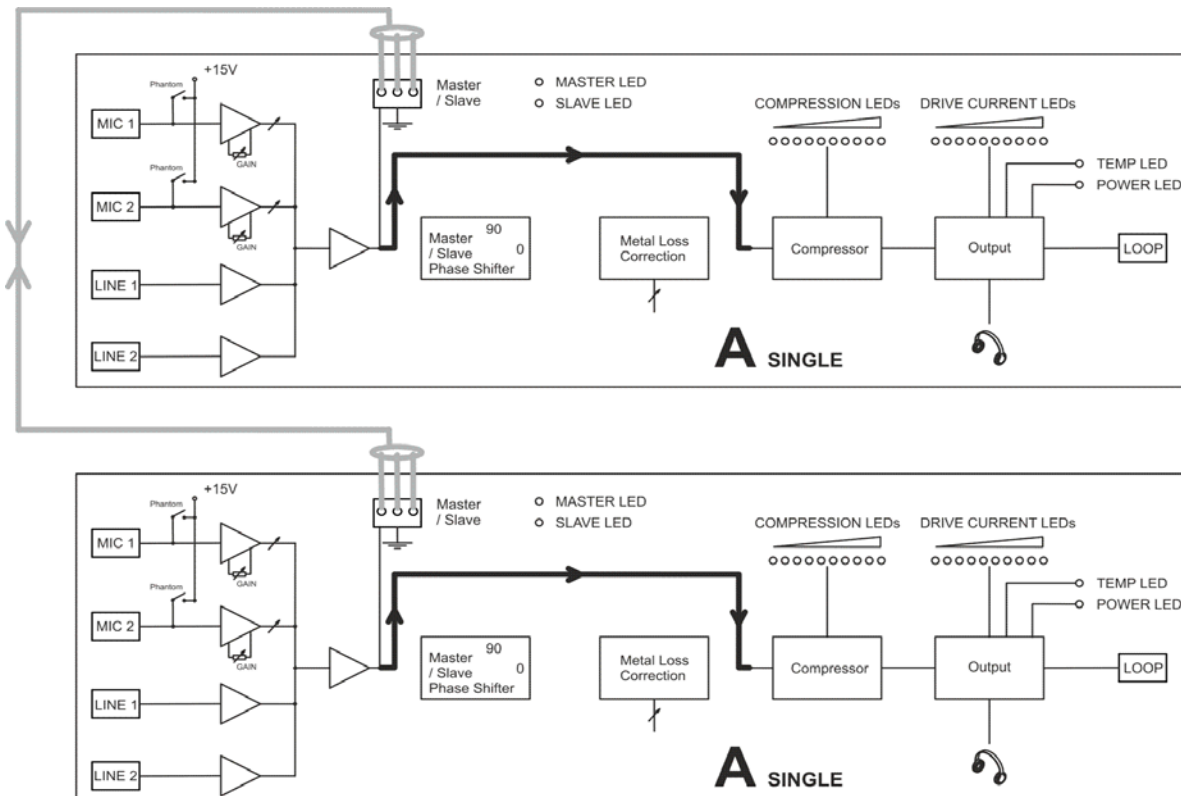
Wiring diagram for the connection cable between two ISV1090, 3 pin 6.3 mm phone plug.

SINGLE mode

In SINGLE mode the device works as an independent induction amplifier. Here are schematic diagrams of possible configurations A and B. The difference is in using metal loss correction function:



When joining 2 SINGLE devices through MASTER/SLAVE Jack 6.3 connector we can mix the inputs of both devices.

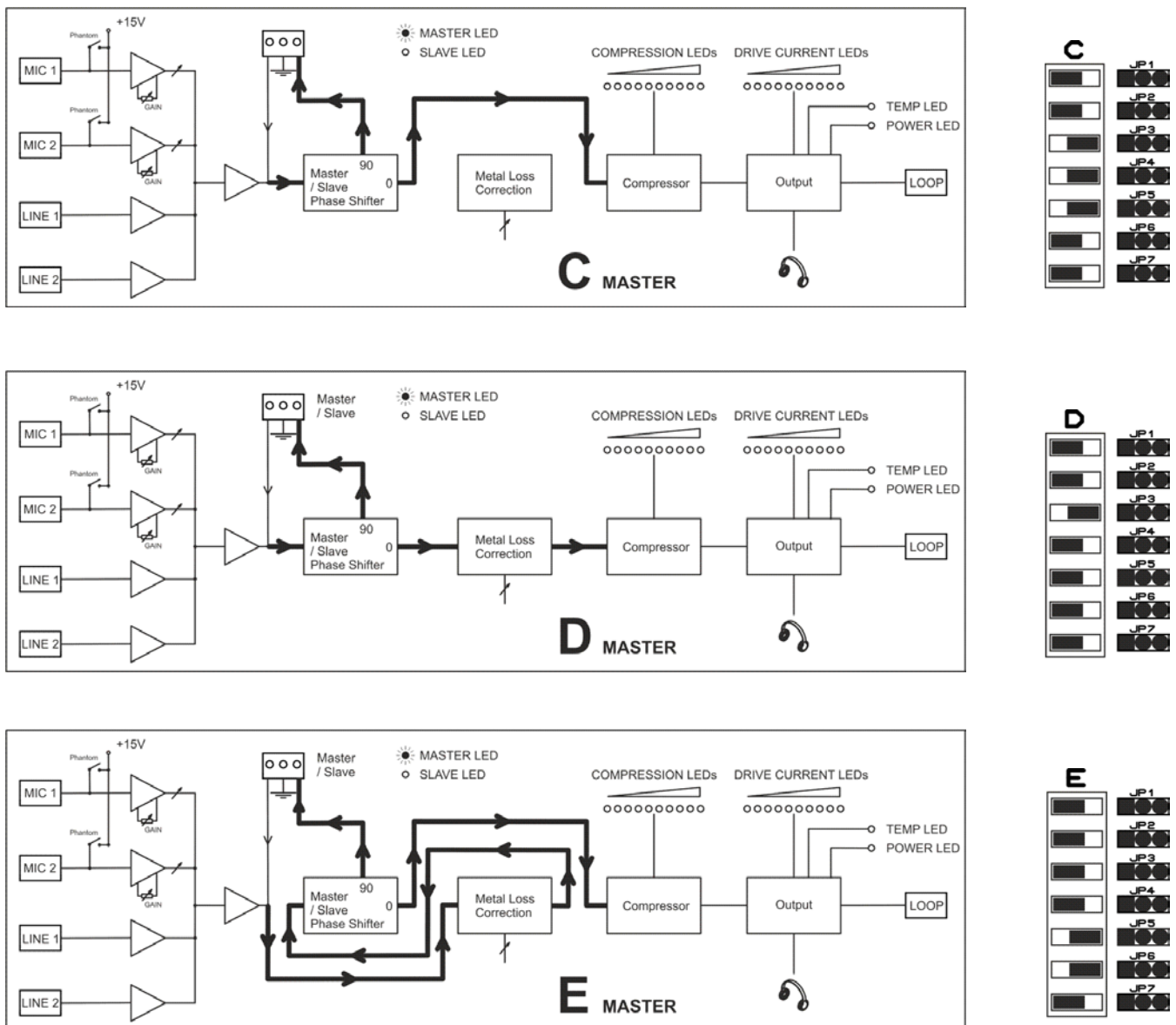


MASTER and SLAVE modes

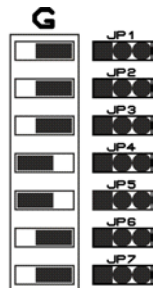
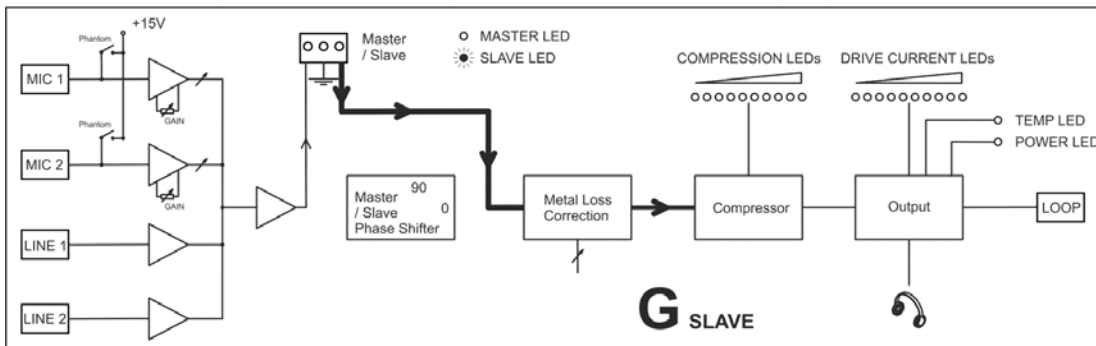
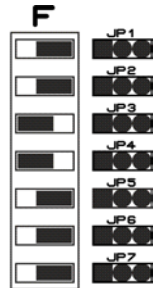
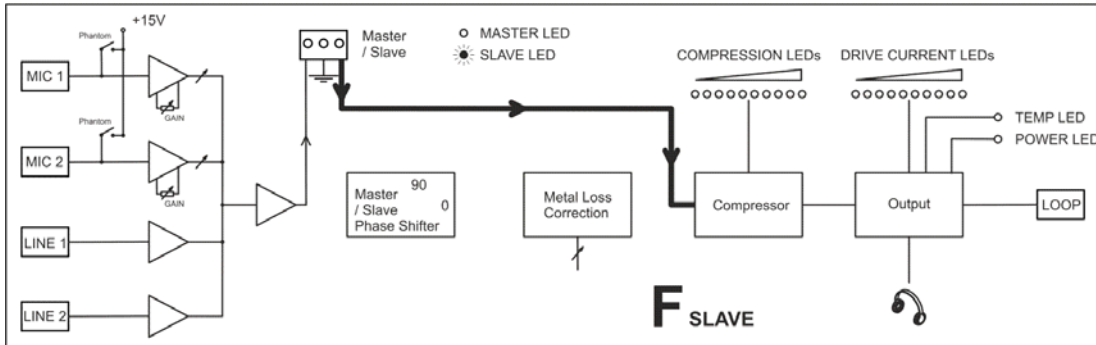
This operation mode, using a master amplifier with plugged in phase shifter module and a second amplifier in slave mode minimises overspill of the induction loop signal to adjacent rooms.

Then devices are connected through MASTER/SLAVE Jack 6.3 connector. One device works as MASTER (configuration C, D or E) and has Phase-shifter-module put into its mainboard. Another device is SLAVE (configurations F or G) and has no Phase-Shifter module. Induction loops connected to these two devices are laid out in a special overlapping pattern.

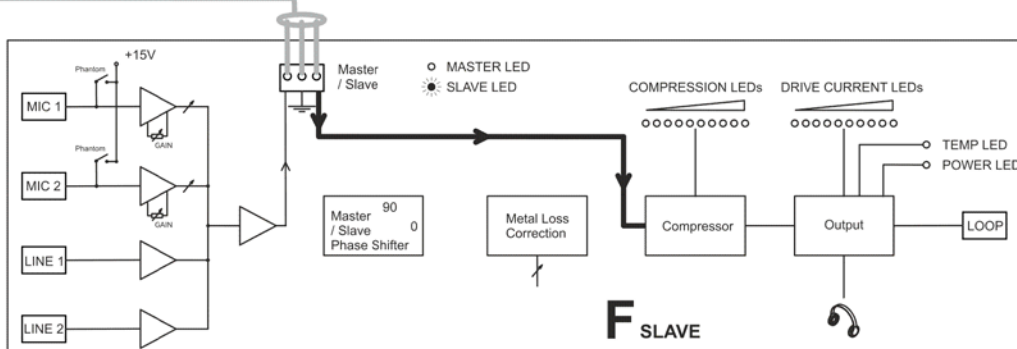
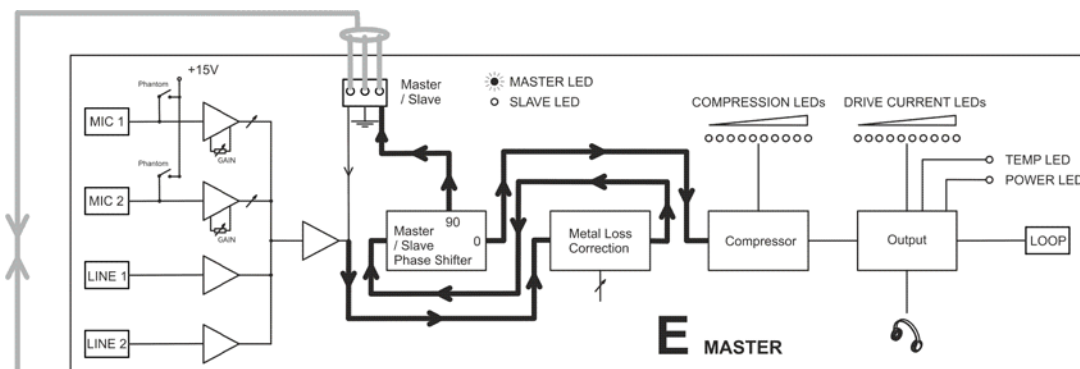
Here are MASTER mode configurations C, D, E :



Here are SLAVE mode configurations F, G:

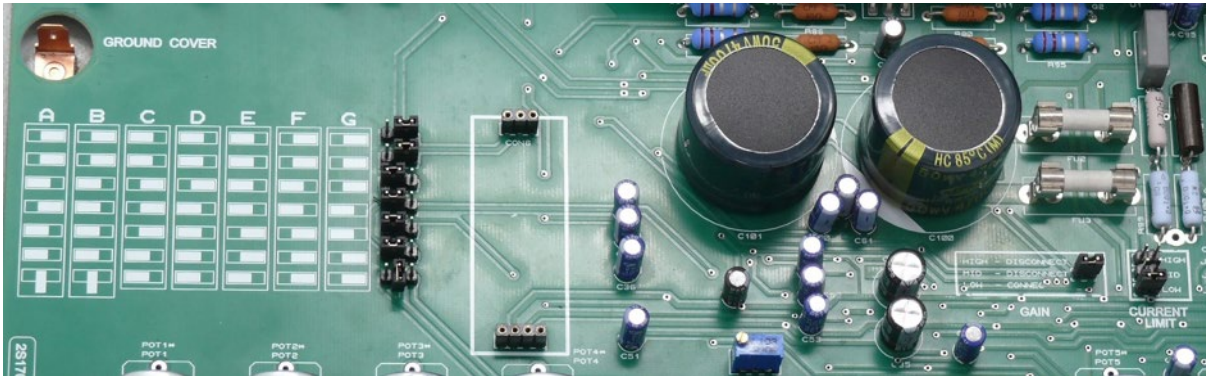


Recommended MASTER-SLAVE connection is E-F type as follows:



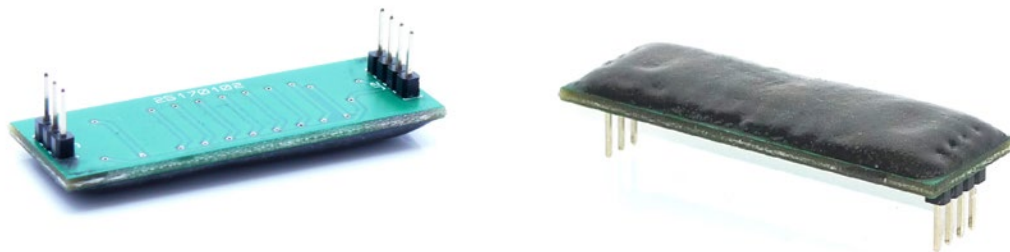
ISV 1090 Universal Induction Loop Amplifier

Here a photograph of the ISV1090 inside, showing on the left side the jumper bank for the operation mode setting, to the right the 90° phase shifter module socket, and far right the jumpers for adjusting output power of the ISV1090.



PHASE SHIFTER MODULE PSM90

This is a PSM90, 90° phase shifter module for operation master/slave, to be inserted into the master unit:

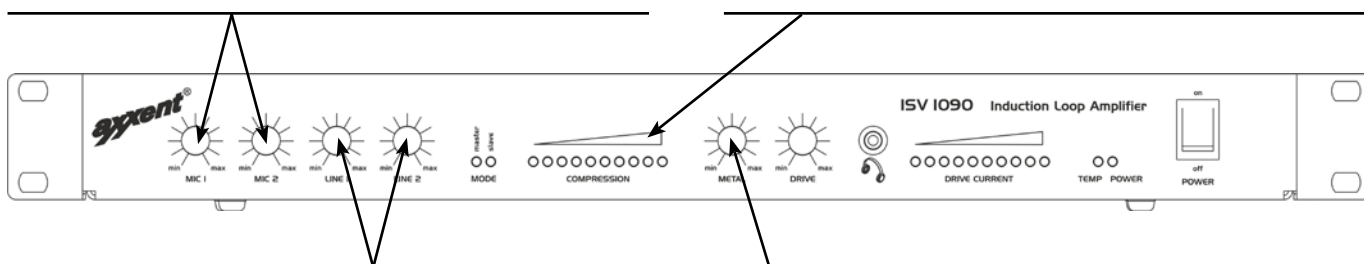


As already described on the previous pages, the universal induction loop amplifier ISV1090 allows you to choose from four different power levels. So practically all power requirements for various venue sizes and auditoriums can be met with one model – a really unique feature.

THE CONTROLS (Front)

MIC 1, MIC 2

Left on the front side you will note four control knobs. The two left ones control the microphone input level. On the rear you will find the two corresponding 3pin XLR connectors. As already described on the previous pages, the input sensitivity of these inputs may be altered via small internal potentiometers, located on the printed circuitry board. Phantom power (48 V) for condenser microphones can be activated separately for each input via DIP switches labelled „PHAN 2 1“ (lower ON position).

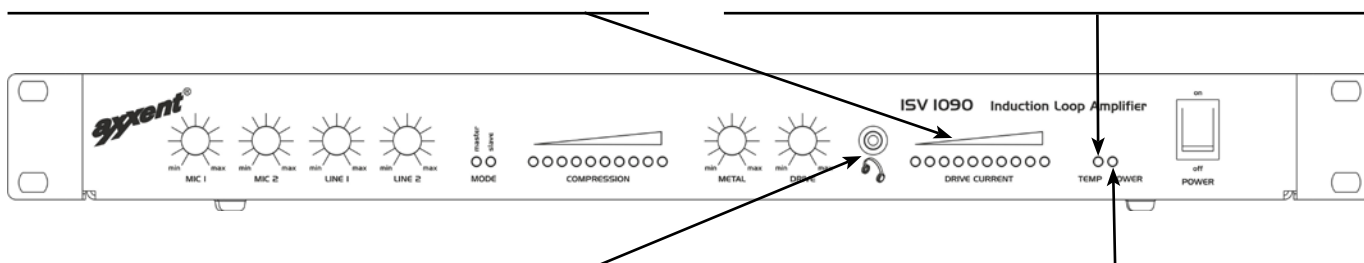


LINE 1, LINE 2

Right from the MIC potentiometers you will note two control knobs for the line signals. The corresponding connectors are also located on the rear side. Line 1 is a balanced 3pin XLR connector (female), while LINE2 is equipped with a 4 pole Phoenix connector. A+/A- and GND is the balanced line input, while V+ with GND represents the 22 v DC output, intended as power supply for external microphone preamplifiers.

DRIVE, DRIVE CURRENT

The DRIVE control sets the output power (output current) of the amplifier indicated by the LED chain. The “normal” safe level is represented by the green LEDs, while the red LEDs should only be lit at absolute level peaks.



HEADPHONE SYMBOL

This is the input connector for any type of headphones with standard phone plug 3.5 mm in order to check the audio signal for distortion or other anomalies.

COMPRESSION

In the centre of the front side you see an LED chain, labelled COMPRESSION. The bargraph indicates the amount of compression, e.g. how much the dynamic range between the lowest audible signal and the maximum peak levels are compressed. This compression facilitates intelligibility especially for the “quiet” low level signals, highly appreciated by hearing impaired persons.

METAL

This potentiometer allows compensation of frequency anomalies, caused by metal parts or tubes located in vicinity of the induction loop. In order to determine these frequency response anomalies, we recommend the use of an induction loop measurement instrument.

TEMP

The red TEMP LED lights when the maximum operating temperature is exceeded. If it lights up continuously, the induction loop is probably not properly sized or the amplifier is overdriven. Please check out these potential trouble causing sources.

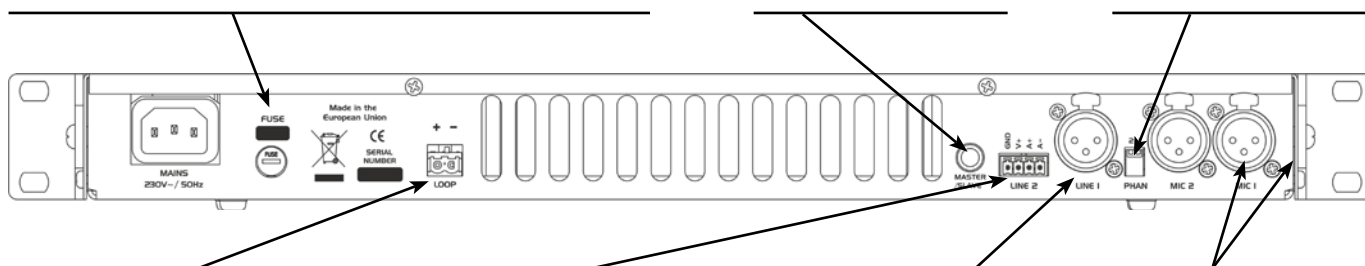
POWER

Green LED indicator confirms activated POWER switch on the right (ON).

REAR SIDE

FUSE

This is the fuse holder for glass fuses 5 x 20 mm, 2 A with “slow blow” characteristic. In case this fuse fails, please have it replaced with the same type of fuse (by qualified service personnel). In case this fuse blows again, please return the device for repair to your dealer or the manufacturer axxent e.K.



LOOP

2 pin Phoenix connector for the induction loop connection

LINE 2

4 pin Phoenix connector with additional 22 VDC output for remote mic/line preamp voltage support

LINE 1

3-pin xlr female connector for line level input

MIC 1 AND MIC 2

Identical 3-pin xlr female connectors

Declaration of Conformity CE

PRODUKT: Low Frequency Power Amplifier for Hearing Impaired Persons

MODEL: axxent ISV1090, professional induction loop amplifier

Product is designed for amplifying acoustic frequency signals, to be used in systems for hearing impaired persons.

Producer of electronic devices in subject this declaration of conformity hereby declares in sole responsibility that the equipment specified above is in compliance with mentioned directives and standards and conforms to the requirements of the harmonized product standards.

Used directives and standards:

EMC regulation 2014/30/EU and the low voltage directive 2014/35/EU. Electro-magnetic susceptibility 2004/108/EG is based on EN55032:2015, Class B; EN61000-3-2, -3. Further EN55024:2010+A1:2015; EN61000-4-2, 3,4,5,6,8,11. Low voltage directive EN60950-1 of 2006 +A11+A12+A2

Further, the product fulfills the requirements of the regulation 2011/65/EU of the European parliament and the council for reduction of potential hazardous product in electrical and electronic appliances.

The product emits a magnetic induction according to its primary use according to standard EN 60118-4

PRODUCER: axxent e.K.

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DATE: June 25, 2018