



# Inductive loop systems: *Product overview*



**AUDIO**ropa





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## Inductive transmission of audio signals directly to personal hearing instruments

### Acoustic accessibility: Switching to »T«

People with hearing loss can receive audio signals directly in their personal hearing aids via an inductive hearing system, regardless of whether they wear hearing aids or cochlear implants (CI).

The prerequisite for this is an integrated T-coil, which activates its carrier by switching to »T« or »MT«. The signal thus reaches the wearer instantly, free of unwanted noise. As a rule, no special receivers are needed for this; the hearing aid or CI system alone is sufficient.

Hearing-impaired people, whose hearing aids do not have an integrated T-coil or who do not wear corresponding hearing aids, have the alternative of corresponding induction receivers with audio amplification. This includes, for example, the stethoset receiver [»LPU-1 DIR«](#) from the AUDIOropa portfolio.

### How does an inductive listening system work?

An inductive hearing system is a technical device with which audio signals, such as speech, can be made accessible to people with impaired hearing.

In its simplest form, the system consists of a signal source (for example, a microphone), a loop amplifier and a loop conductor routed around the supplied area to be supplied.

The loop amplifier converts the audio signal into an electric current. The loop conductor, laid on or under the floor, emits an alternating magnetic field

which generates a corresponding audio signal in the receiver coil of the hearing aid – the so-called T-coil. In the hearing aid, this is amplified and adjusted to the individual hearing loss and output to the wearer of the hearing aid in an appropriately optimised way.

The audio supply via inductive listening systems can be tailored for rooms and halls of all sizes - even with complex floor plans - as well as for small dialogue zones, for example counselling and reception desks or counters.



A familiar symbol indicates to those affected that they are entering an area supplied with inductive audio signals and that they can switch their hearing instruments accordingly.

The configuration and structure of inductive hearing systems with optimal efficiency depend on numerous external factors. Therefore, it is advisable to involve specialists for this technology from the project planning phase onwards.

More information in this context can be found in the appendix of this document, starting on [Page 24](#).







## Loop amplifier Pro Loop NX3

The Pro Loop NX3 loop amplifier, like all amplifiers in the NX series, is designed primarily for continuous use. The integrated switched-mode power supply and the Class-D amplifier design enable high efficiency with low waste heat and forms the basis for high reliability and operational safety.

- Automatic Gain Control (AGC) ensures a consistent level on the listening loop.
- Metal Loss Correction (MLC) can be used to correct the frequency response due to metal structures.

**Pro Loop NX3 is also available as a set in the following versions:**

- A-4231-0: Pro Loop NX3 CL set with table microphone and cross-the-counter loop
- A-4232-0: Pro Loop NX3 SL set with table microphone and SignLoop

Pro Loop NX3 · Technical details		Item No.: A-4230-0
Power supply:	100 - 240 V AC 50/60 Hz	
■ <b>Amplifier output</b>		
Loop current max.:	2.5 A RMS	
Loop voltage max.:	12 V	
Frequency range:	80 - 6000 Hz (± 1.5 dB)	
Loop resistance DC:	0.2 - 1.0 Ω	
■ <b>Outputs</b>		
Loop output:	2 pole Euroblock plug	
■ <b>Inputs</b>		
Input 1:	5-20 mV / 2 kΩ / 48 V fixed (MIC) 180 mV - 2 V / 10 kΩ (LINE) Switchable between Mic and Line Level, 3-pin Euroblock plug	
Input 2:	5-20 mV / 2 kΩ / 48 V switchable (MIC), 3.5 mm stereo jack 180 mV - 2 V / 10 kΩ (LINE), 3 pol. Euroblock Stecker	
Input 3:	(LINE) 3.5 mm stereo jack, mono summed	
■ <b>Automatic Gain Control (AGC)</b>		
voice:	voice-optimised	
Dynamic:	>40 dB	
■ <b>Metal Loss Correction (MLC)</b>		
MLC:	0 - 4 dB/Octave	
■ <b>Cooling</b>		
Type:	fanless	
■ <b>Mechanical specifications</b>		
Dimensions (H x W x D):	32 x 167 x 95 mm	
Weight:	370 g	

**Subject to change without notice**

## Pro Loop NX3 single-channel



Pro Loop NX3 CL-Set



Pro Loop NX3 SL-Set







## Loop amplifier Pro Loop NX7

Like all AUDIOropa loop amplifiers of the Pro Loop NX series, the Pro Loop NX7 is primarily designed for continuous use. The integrated switching power supply and the Class-D amplifier design enable high efficiency and low waste heat. Among other things, this results in the high reliability and operational safety of the systems.

The function of the induction loop and the amplifier is continuously monitored. A functional error is signalled via displays on the unit and at the error output.

- Automatic Gain Control (AGC) ensures a consistent level on the listening loop.
- Metal Loss Correction (MLC) can be used to correct the frequency response due to metal structures.
- Link connections allow several amplifiers to be combined into one unit.
- The output signal can be controlled via a headphone output.
- A screw-fixed cover prevents the setting from being changed.

## Pro Loop NX7

### single-channel

#### Essential features

- 7 A RMS
- 34 V RMS
- 3 mixable inputs
- 48 V Phantom power
- 100 V Priority input
- Link Connections for setting up larger systems
- Settings protected by cover plate

#### Pro Loop NX7 · Technical details

Item No.: A-4282-0

Power supply:	110 - 265 V AC 50/60 Hz
<b>■ Amplifier output</b>	
Loop current max.:	7 A RMS
Loop voltage max.:	34 V RMS
Frequency range:	80 - 6000 Hz ( $\pm 1.5$ dB)
Loop resistance DC:	0.5 - 3.0 $\Omega$
<b>■ Outputs</b>	
Headphones:	3.5 mm stereo jack
Link connections:	6.3 mm jack, symmetrical
Status connection:	3 pol. Euroblock plug
Connection:	NL4 Speaker Twist, assignment 1+ parallel to 2+/1- parallel to 2-
<b>■ Inputs</b>	
Input 1:	5-100 mV / 2 k $\Omega$ / 48 V switchable (MIC) 100 mV - 6 V / 10 k $\Omega$ (LINE) Switchable between mic and line level, combo jack
Input 2:	5-100 mV / 2 k $\Omega$ / 48 V switchable (MIC) 100 mV - 6 V / 10 k $\Omega$ (LINE) Mic and line level, switchable, 3-pin Euroblock plug
Input 3:	100 V priority input, 2 pole Euroblock plug
Link in:	6.3 mm jack, symmetrical
<b>■ Automatic Gain Control (AGC)</b>	
Dynamic range:	voice-optimised >40 dB
<b>■ Metal Loss Correction (MLC)</b>	
MLC:	0 - 4 dB/Octave
<b>■ Cooling</b>	
Type:	fanless
<b>■ Mechanical specifications</b>	
Dimensions (H x W x D):	43 x 430 x 290 mm, 19" 1HE
Weight:	3.72 kg

*Subject to change without notice*





## Loop Amplifier Pro Loop NX15

Loop amplifiers of the Pro Loop NX series are primarily designed for continuous use - as is the case with the Pro Loop NX15 amplifier. The integrated switching power supply and the Class-D amplifier design enable high efficiency and low waste heat and form the basis for high reliability and operational safety.

The function of the induction loop and the amplifier is continuously monitored. Functional errors are signalled via displays on the unit and at the error output.

- Automatic Gain Control (AGC) ensures a consistent level on the listening loop.
- Metal Loss Correction (MLC) can be used to correct the frequency response due to metal structures.
- Link connections allow several amplifiers to be combined into one unit.
- The output signal can be controlled via a headphone output.
- A screw-fixed cover prevents the setting from being changed.

## Pro Loop NX15

### single-channel

#### Essential features

- 14 A RMS
- 34 V RMS
- 3 mixable inputs
- 48 V Phantom power
- 100 V Priority input
- Link Connections for setting up larger systems
- Cover plate to protect of the settings made

## Pro Loop NX15 · Technical details

Item No.: A-4288-0

Power supply:	110 - 265 V AC 50/60 Hz
<b>■ Amplifier output</b>	
Loop current:	14 A RMS
Loop voltage:	34 V RMS
Frequency range:	80 - 6000 Hz ( $\pm$ 1.5 dB)
Loop resistance DC:	0.5 - 3.0 $\Omega$
<b>■ Outputs</b>	
Headphones:	3.5 mm stereo jack
Link connections:	6.3 mm jack, symmetrical
Connection status:	3 pol. Euroblock plug
Connection:	NL4 Speaker Twist, assignment 1+ parallel to 2+/1- parallel to 2-
<b>■ Inputs</b>	
Input 1:	5-100 mV / 2 k $\Omega$ / 48 V switchable (MIC) 100 mV - 6 V / 10 k $\Omega$ (LINE) Switchable between mic and line level, combo jack
Input 2:	5-100 mV / 2 k $\Omega$ / 48 V switchable (MIC) 100 mV - 6 V / 10 k $\Omega$ (LINE) Mic and line level, switchable, 3-pin Euroblock plug
Input 3:	100 V priority input, 2 pole Euroblock connector
Link in:	6.3 mm jack, symmetrical
<b>■ Automatic Gain Control (AGC)</b>	
Dynamic range:	voice-optimised >40 dB
<b>■ Metal Loss Correction (MLC)</b>	
MLC:	0 - 4 dB/Octave
<b>■ Cooling</b>	
Type:	fanless
<b>■ Mechanical specifications</b>	
Dimensions (H x W x D):	43 x 430 x 290 mm, 19" 1HE
Weight:	3.72 kg

**Subject to change without notice**







## Loop amplifier Pro Loop NX7LOS

The Pro Loop NX7LOS has three mixable inputs. Two inputs process analogue microphone and line levels. For condenser microphones, 48 V phantom power can be switched in. The third input processes 100 V signals with priority over the other inputs.

With the two-channel amplifier, loop output B can be switched between 0° or 90° phase shift.

Like all AUDIORopa loop amplifiers of the NX series, the Der Pro Loop NX7LOS is primarily designed for continuous use. The integrated switching power supply and the Class-D amplifier design enables high efficiency with low waste heat and forms the basis for high reliability and operational safety.

- The functions of the induction loop and the amplifier are continuously monitored. Indicators on the unit and on the error output indicate functional errors.
- The Automatic Gain Control (AGC) ensures a constant level on the induction loop.
- Metal Loss Correction (MLC) can be used to correct the frequency response due to metal structures.
- Link connections allow several amplifiers to be combined into one unit.
- The output signal can be controlled via The output signal can be controlled via a headphone output.
- A screw-fixed cover prevents the setting from being changed.

## Pro Loop NX7LOS

### two-channel

#### Essential features

- 2x 7 A RMS
- 2x 34 V RMS
- 3 mixable inputs
- 48 V Phantom power
- 100 V Priority input
- 0/90° Phase shift for Loop output B switchable
- Link Connections for setting up larger systems
- Settings protected by cover plate

#### Pro Loop NX7LOS · Technical details

Item No.: A-4283-0

Stromversorgung:	110 - 265 V AC 50/60 Hz
<b>■ Amplifier output</b>	
Loop current:	2x 7 A RMS
Loop voltage:	2x 34 V RMS
Frequency range:	80 - 6000 Hz (± 1.5 dB)
Loop resistance DC:	0.5 - 3.0 Ω
<b>■ Outputs</b>	
Headphones:	3.5 mm stereo jack
Link connections:	6.3 mm jack, symmetrical
Status connection:	3 pol. Euroblock plug
Connection:	NL4 Speaker Twist, assignment 1+ parallel to 2+/1- parallel to 2-
<b>■ Inputs</b>	
Input 1:	5-100 mV / 2 kΩ / 48 V switchable (MIC) 100 mV - 6 V / 10 kΩ (LINE) Switchable between mic and line level, combo jack
Input 2:	5-100 mV / 2 kΩ / 48 V switchable (MIC) 100 mV - 6 V / 10 kΩ (LINE) Mic and line level, switchable, 3-pin Euroblock plug
Input 3:	100 V priority input, 2 pol. Euroblock plug
Link in:	6.3 mm jack, symmetrical
<b>■ Automatic Gain Control (AGC)</b>	
Dynamic range:	voice-optimised >40 dB
<b>■ Metal Loss Correction (MLC)</b>	
MLC:	0 - 4 dB/Octave
<b>■ Cooling</b>	
Type:	fanless
<b>■ Mechanical specifications</b>	
Dimensions (H x W x D):	43 x 430 x 290 mm, 19" 1HE
Weight:	3.8 kg

*Subject to change without notice*







## Loop amplifier Pro Loop NX15LOS

The Pro Loop NX15LOS has three mixable inputs. Two inputs process analogue microphone and line levels. For condenser microphones, 48 V phantom power can be switched in. The third input processes 100 V signals with priority over the other inputs.

With the two-channel amplifier, loop output B can be switched between 0° or 90° phase shift.

Like all AUDIOropa loop amplifiers of the NX series, the Der Pro Loop NX15LOS is primarily designed for continuous use. The integrated switching power supply and the Class-D amplifier design enables high efficiency with low waste heat and forms the basis for high reliability and operational safety.

- The functions of the induction loop and the amplifier are continuously monitored. Indicators on the unit and on the error output indicate functional errors.
- The Automatic Gain Control (AGC) ensures a constant level on the induction loop.
- Metal Loss Correction (MLC) can be used to correct the frequency response due to metal structures.
- Link connections allow several amplifiers to be combined into one unit.
- The output signal can be controlled via a headphone output.
- A screw-fixed cover prevents the setting from being changed.

## Pro Loop NX15LOS

### two-channel

#### Essential features

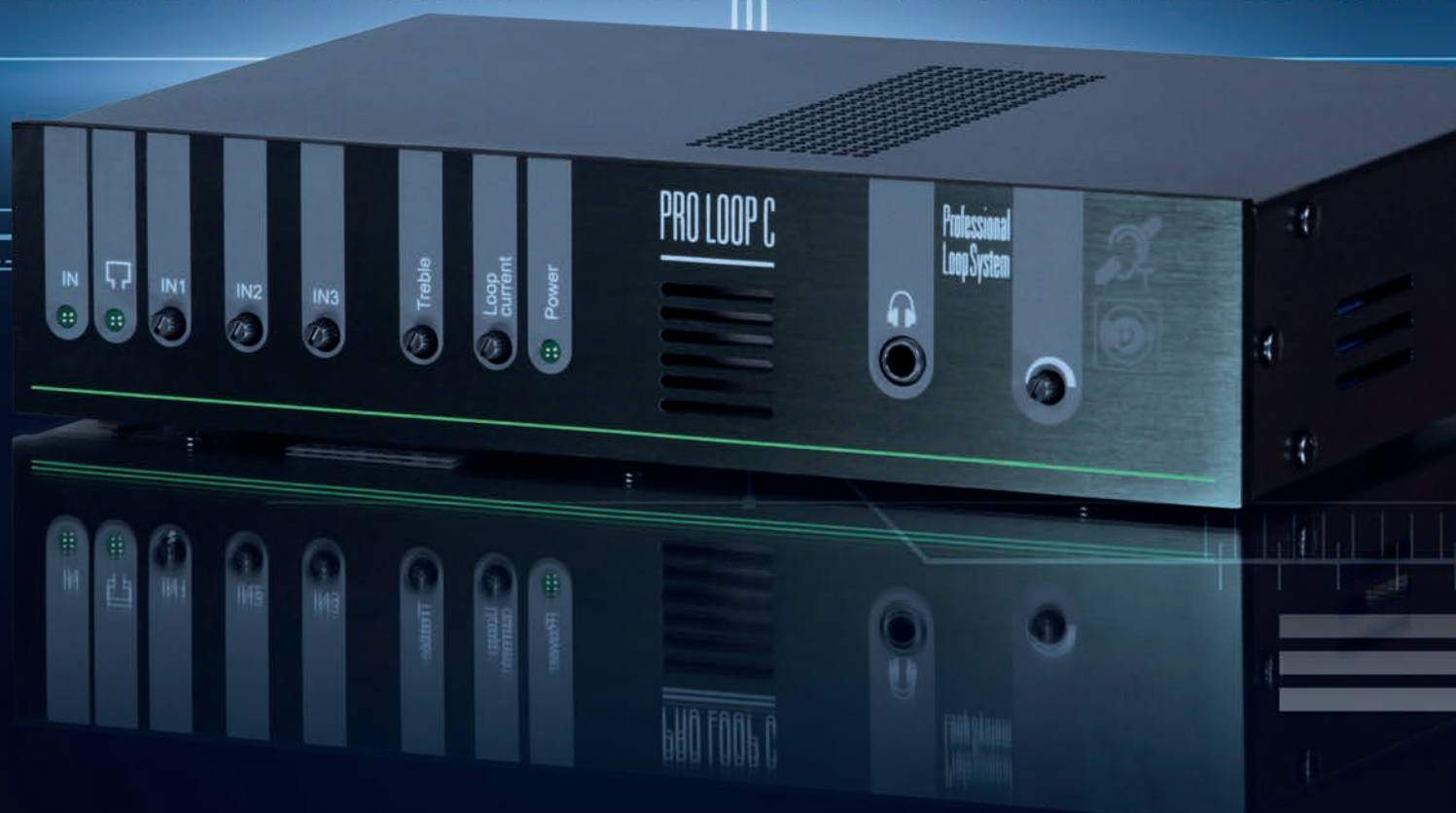
- 2x 14 A RMS
- 2x 34 V RMS
- 3 mixable inputs
- 48 V Phantom power
- 100 V Priority input
- 0/90° Phase shift for Loop output B switchable
- Link Connections for setting up larger systems
- Settings protected by cover plate

#### Pro Loop NX15LOS · Technical details

Item No.: A-4289-0

Power supply:	110 - 265 V AC 50/60 Hz
<b>■ Amplifier output</b>	
Loop current:	2x 14 A RMS
Loop voltage:	2x 34 V RMS
Frequency range:	80 - 6000 Hz (± 1.5 dB)
Loop resistance DC:	0.5 - 3.0 Ω
<b>■ Outputs</b>	
Headphones:	3.5 mm stereo jack
Link connections:	6.3 mm jack, balanced
Connection status:	3 pol. Euroblock plug
Connection:	NL4 Speaker Twist, assignment 1+ parallel to 2+/1- parallel to 2-
<b>■ Eingänge</b>	
Input 1:	5-100 mV / 2 kΩ / 48 V switchable (MIC) 100 mV - 6 V / 10 kΩ (LINE) Switchable between mic and line level, combo jack
Input 2:	5-100 mV / 2 kΩ / 48 V schaltbar (MIC) 100 mV - 6 V / 10 kΩ (LINE) Mic and line level, switchable, 3-pin Euroblock plug
Input 3:	100 V priority input, 2 pole Euroblock connector
Link in:	6.3 mm jack, symmetrical
<b>■ Automatic Gain Control (AGC)</b>	
Dynamic range:	voice-optimised >40 dB
<b>■ Metal Loss Correction (MLC)</b>	
MLC:	0 - 4 dB/Octave
<b>■ Cooling</b>	
Type:	fan-cooled
<b>■ Mechanical specifications</b>	
Dimensions (H x W x D):	43 x 430 x 290 mm, 19" 1HE
Weight:	3.8 kg

*Subject to change without notice*





## Induction loop amplifier Pro Loop C

The Pro Loop amplifier family, reliable and time-tested, is designed for professional use in private and public facilities where particularly high reliability with extremely safe operation is required.

With 100 per cent short-circuit-proof amplification, with switchable, balanced XLR(F) inputs and highly stable output powers, the Pro Loop C meets these requirements.

The Automatic Gain Control (AGC) ensures a constant field strength and produces a stable sound with clear speech emphasis even in acoustically difficult environments.

The sound quality can be assessed via the integrated monitor output using appropriate test equipment.

## Inductive loop case

The sound quality can be assessed via the integrated monitor output using appropriate test equipment.

The induction loop case contains a complete portable loop system including:

- Pro Loop C induction loop amplifier
- Two cable drums with 20 metres of induction loop cable each.
- Measuring device Pro Loop FSM and LPU-1 induction loop receiver.

The system is easy to use and ready for operation »in no time« - ideal for temporary installations.

## Pro Loop C

### single-channel

#### Essential features

- High output current: 4.0 A RMS
- Short-circuit proof
- Automatically resettable fuse
- Two balanced XLR(F) inputs
- One RCA input
- One line output
- Extra sturdy sockets
- Dual Action AGC for high speech intelligibility
- High availability, operational and quality assurance
- Comfortable monitoring of the magnetic field can easily be done through headphones or loudspeakers.
- Tweeter controller to compensate for high-frequency losses due to armouring
- 19 inch mounting material included in the scope of delivery

#### Pro Loop C - Technical details

Item no.: A-4246-0

Mains connection:	115 / 230 V AC (mains switch) 50 / 60 Hz, 7-200 W, 10 A fuse
<b>■ Induction loop output</b>	
Max. current:	4.0 A RMS
Max. voltage:	21.9 V RMS
Output AGC:	Sets voltage and current for continuous signals such as oscillation and sine curves to -10 dB after 0.6-1 second. Short pulses and normal programme signals are not limited.
Frequency range:	100 - 5.000 Hz (± 3 dB)
Distortion:	< 1%
Cable connection:	Screw connections at the rear of the amplifier
<b>■ Outputs</b>	
1. LINE OUT:	0 dBv RCA output (with AGC function)
<b>■ Inputs</b>	
IN 1 and 2:	0.5 mV-100 mV / 10 kΩ (Mic.) alt. 25 mV - 4 V/ 10 kΩ (Line) AGC, phantom power switchable, XLR(F) connectors
IN 3:	50 mV-10 V / 10 kΩ, RCA connection
<b>■ AGC</b>	
Dynamic:	> 70 dB
Rise time:	2 - 500 ms
Drop time:	0.5 - 20 dB/s
<b>■ Controllers and displays</b>	
Treble control:	0 - +9 dB, potentiometer
Induction loop adjustment:	0 - 170 m <sup>2</sup> , potentiometer
Display:	Mains connection: 1 green LED Input level: 1 green LED Current loop: 1 green LED
<b>■ Induction loop monitoring</b>	
6.3 mm jack for headphone connection	
<b>■ Housing</b>	
Dimensions (H x W x D):	64 x 295 x 205 mm
Assembly:	19 inch mounting material included in the scope of delivery
Weight:	3.6 kg
Colour:	black

#### Inductive loop case

Item no.: A-4271-0

*Subject to change without notice*



Induction loop case





induction loop system for counters LA-90 Set



### Portable induction loop system LA-90

The »LA-90« is a compact loop system for transmission over small distances, for example at reception desks, counters or in sales areas.

Positioned between the interlocutors, the »LA-90« records the spoken word via its built-in microphone or optionally an additionally connected microphone (e.g. table microphone or EH1205). The integrated ring loop inductively transmits the signals to hearing aids or other

inductive receivers (e.g. LPU-1). In addition, it is possible to connect headphones.

#### The »LA-90-Set« ...

... includes the compact LA-90 ring loop system and also contains a table microphone and a connected telephone handset.

Power is supplied either via the plug-in power supply unit included in the scope of delivery or via the integrated rechargeable battery.

## LA-90

**Portable compact induction loop system integrates amplifier and ring loop in a single housing – ideal for use in consulting areas**

#### LA-90 · Technical details

Item No.: A-4210-0

Dimensions (H x W x D):	200 x 185 x 70 mm
Weight:	650 g
Microphone sensitivity:	up to 60 dB $\pm$ 3 dB
Power supply:	Primary power supply 100-240 V 50-60 Hz AC Secondary 16 V DC or via built-in 12 V 1300 mAh rechargeable battery
Output power:	max. 10 W
Connection cable power supply unit:	1.8 m

#### induction loop system for counters LA-90 Set

Item No.: A-4227-0

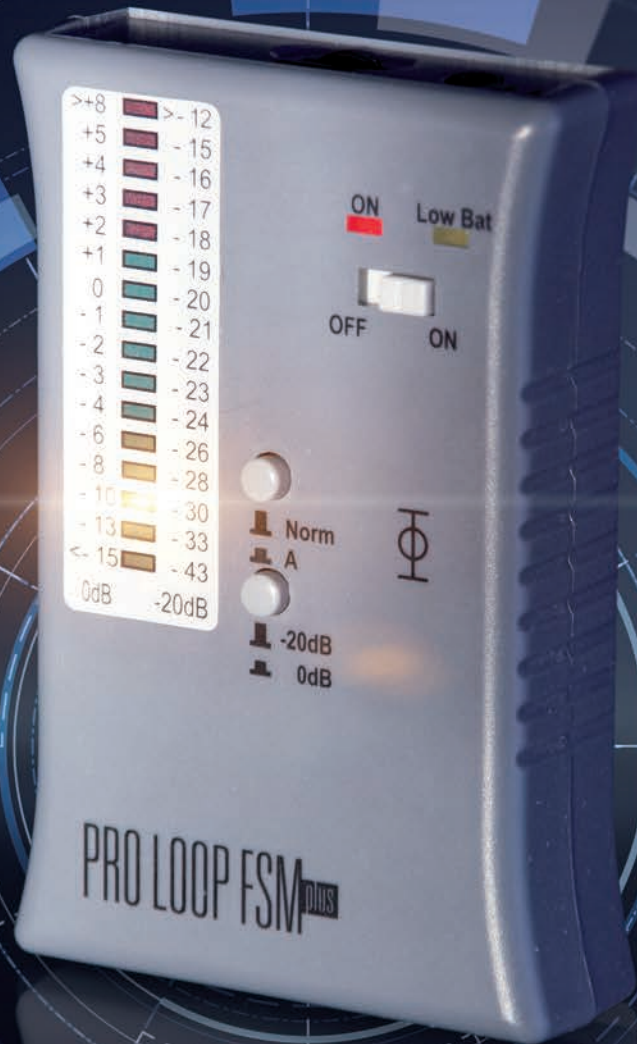
#### LA-90 Accessory set

Item No.: A-4293-0

Scope of delivery: handset; black insert with retaining lug for handset; connecting cable to handset

## LA-90 Set

**Induction loop system for counters LA-90, extended configuration**







## Pro Loop FSMplus

### Field strength tester

Item no.: A-4292-0

The Pro Loop FSMplus is a testing device, which can register the magnetic field strength of induction loop systems according to IEC 60118-4:2006 and BS 6083, Para. 4.

The device delivers reliable RMS values on the output level, response frequency, AGC function (Automatic Gain Control), distortion and background noise in the induction loop tested.

In addition, it enables the user to make an acoustic evaluation of the sound using signal reproduction via earphones.

- Compliant with IEC 60118-4:2006 and BS for testing equipment used to evaluate induction loop systems.
- True RMS: 125 ms average time
- Crest factor: 3
- A filter
- Measuring range: +6 dB ...-40 dB (0 dB = 400 mA/m)
- Power supply: 2x 1.5 V AA batteries, long battery life
- Display: Battery status control via LED
- Field strength: via LED-scale (approx. 1 dB resolution)
- Headphone jack with volume control

## Pro Loop FSMplus Bundle

### Field strength tester incl. headphones

Item No.: A-4299-0

## Accessories

**The AUDIORopa portfolio includes all hardware needed for the setup of inductive loop systems.**

This page presents an excerpt of essentials from the offered accessory components for loop systems.

You can find the complete range of loop conductors, small loops, connection cables, microphones, converters and much more at [www.AUDIORopa.com](http://www.AUDIORopa.com)

## Accessories



### Induction receiver, incl. 1 battery

#### LPU-1 DIR Induction receiver, incl. 1 rechargeable battery

Item no.: A-4276-0

#### LPU-1 stethoset receiver for inductive audio signals

The LPU-1 takes the signals transmitted by an induction loop system directly to the ears of people who do not wear hearing aids.

The ear buds of the featherweight, ergonomically designed under-the-chin receiver can swivel to stay comfortably fixed in the user's ears even when he/she moves his or her head. The soft flexible material of the the ear buds also nestles gently into the auditory canal to effectively subdue ambient noise.

#### LPU-1 · Specifications

Item no.: A-4276-0

Sound frequency transmission range	70-5400 Hz
Distortion factor	< 1%
Signal-to-noise ratio	60 dB
Maximum volume	120 dB
Weight	55 g

#### Accessories

#### Item no.

Silicone earpieces	Please ask for versions and item numbers
Additional battery	A-4970-0

### Charging stations for LPU-1

#### 5-bay recharger for LPU-1 DIR

Item no.: A-4976-0

#### Single recharger for LPU-1 DIR

Item no.: A-4977-0



### Induction receiver, incl. 2 rechargeable battery

#### LPU-2 PR Pocket Loop Receiver, incl. 2 rechargeable battery

Item no.: A-4277-0

#### LPU-2 PR

The handy »LPU-2« induction loop receiver has a belt clip, which can also be replaced with a carrying cord (included).

The 3.5 mm jack output enables the connection of various headphones and other audio components. This new development combines optimum reception of inductive audio signals with long-lasting battery life.

#### LPU-2 PR · Technical data

Item no.: A-4277-0

Weight:	~ 111 g mit Akku
Colour and material:	ABS plastic, black
Battery, operating time:	2x AAA NiMH rechargeable batteries, approx. 6 hours
Audio frequency transmission range:	85Hz - 6kHz ± 0.5dB
Low Cut:	400Hz - 6kHz - 3dB
Distortion:	<0.5% THD @ 1KHz
signal-to-noise ratio:	typ. 60 dB
Output power:	>100mW @ 16Ω
Controller/switch:	Rotary control for on/off+volume, low-cut filter

### Charging stations for LPU-2 PR

#### Single charger for PR-22+ / LPU-2 PR

Item no.: A-4971-0

#### 5-bay charger for PR-22+ / LPU-2 PR

Item no.: A-4972-0



## Active display for inductive loop fields

T-Sign, luminescent		Item no.: A-4278-0
Dimensions H x W x D:	18 cm x 15 cm x 4,5 cm	
Weight:	360 g	
Indication:	LED green or red, depending on the signal strength of the loop.	
Signal strength detection:	integrated loop signal strength sensor + external loop sensor	
Scope of delivery:	T-sign; power supply; wall mounting set with plasterboard anchor, screws and cable ties; external loop sensor (plugged into the loop label); small screwdriver; instruction manual	

## Small »Cross-the-counter« induction loop

cross-the-counter Loop approx. 40 x 25 cm, with 4.5 m supply cable, incl. fixing material	Item no.: A-4917-0
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## »Sign Loop«: compact small inductive listening system

»Sign Loop« – information sign 20 x 20 cm with integrated inductive loop, incl. white cover caps and bracket pins	Item no.: A-4214-0
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## loop cables – insulated

CFC 075-50 Copper flat ribbon cable, 0.75 mm <sup>2</sup> , roll 50 m	Item no.: A-4911-0
CFC 075 Copper flat ribbon cable, 0.75 mm <sup>2</sup> , roll 100 m	Item no.: A-4912-0
CFC 54-50 Copper flat ribbon cable, 5.4 mm <sup>2</sup> , 50 m roll	Item no.: A-4937-0
CFC 54 Copper flat ribbon cable, 5.4 mm <sup>2</sup> , 100 m roll	Item no.: A-4948-0
CFC 18-50 Copper flat ribbon cable, 1.8 mm <sup>2</sup> , 50 m roll	Item no.: A-4938-0
CFC 18 Copper flat ribbon cable, 1.8 mm <sup>2</sup> , 100 m roll	Item no.: A-4949-0

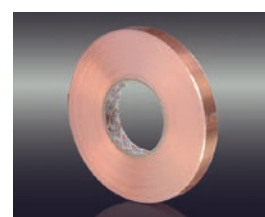
## Inductive loop marking

Fabric tape for inductive loop marking PE, roll 50 m	Item no.: A-4956-0
Special fabric tape, open weave, 50 m	Item no.: A-4957-0

## Inductive listening system: information sign

Information sign 30 x 30 cm Information sign for marking areas with inductive listening systems, incl. fastening material	Item no.: A-4279-0
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## Accessories





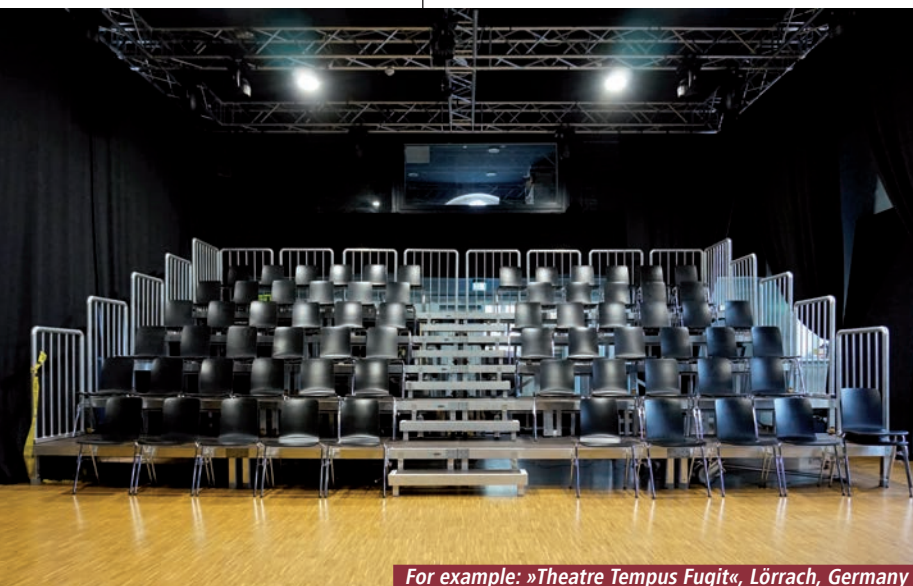
## Annex



For example: »Kampnagel« (Culture Factory), Hamburg, Germany



For example: Culture Centre / City Hall, Weisenau, Germany



For example: »Theatre Tempus Fugit«, Lörrach, Germany

### Loop design

As a rule, an induction loop as a rectangle encloses the area to be supplied. Generally, the loop is laid on the floor. Depending on room size, room geometry and other environmental and/or general conditions, special loop designs and loop amplifiers are required.

Basically, loop systems can be divided into two types: Perimeter loops and phased arrays.

### The perimeter loop

A perimeter loop is not very complex, is easy and inexpensive to install, and requires only one amplifier channel to operate.



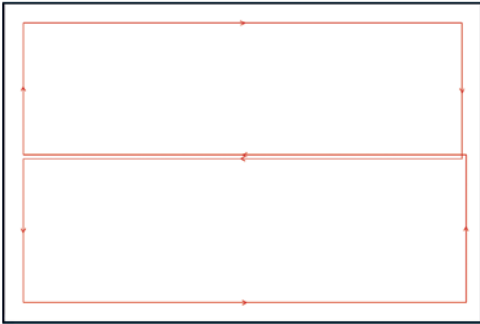
Perimeter loops are particularly suitable in rooms where there is

- no metal structure,
- no other inductive hearing system is operated in the vicinity and
- confidentiality is not a necessity.

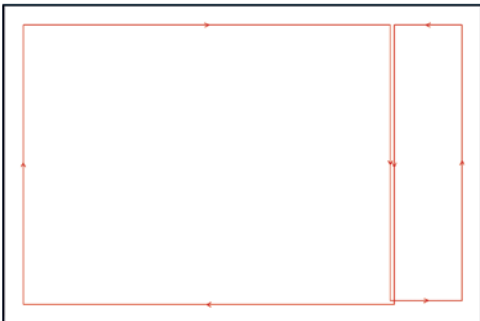
In large perimeter loops, the level response varies significantly: the level decreases significantly from the edge to the center. Once metal structures are present, the metal losses drastically reduce the field strength in the middle of the loop.

A larger perimeter loop can therefore only be used if no metal structure is present. Otherwise, a perimeter loop can only be reasonably used in small spaces.

Furthermore, there are variations of the perimeter loop in which several loops of this type are combined. This form is usually referred to as an eight, figure 8 or single array. The advantage of this is that the subdivision into smaller areas reduces the required loop current and metal losses are better compensated. Its disadvantage: In the area of the parallel conductors, no usable magnetic field is available for the listener.



Another special form is the stop loop, also called cancellation loop. Here, a small loop segment limits the magnetic crosstalk in one direction. The design of this requires careful planning and the use of a simulation program is recommended in this context.

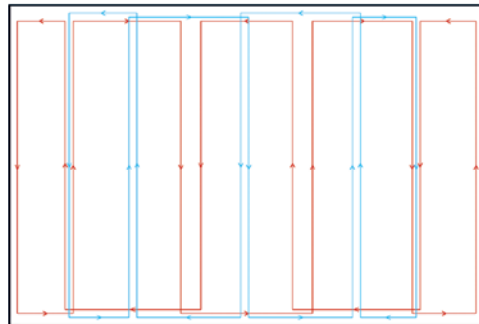


## The Phased Array

The phased array is a combination of two overlapping loops driven by two amplifier channels. One amplifier channel is driven with a 90° phase shift. Phased arrays can homogeneously supply large areas even if a metal structure is present.

With a special design, phased arrays can greatly limit magnetic crosstalk in the horizontal plane.

For the design, careful planning and the use of a simulation program is necessary.



## AUDIOropa Pro Loop inductive loop amplifiers

AUDIOropa's portfolio of Pro Loop loop amplifiers provides a wide range of devices for almost any application.

The range includes single-channel loop amplifiers for perimeter loops in the power class from 2 A to 15 A. For phased arrays, two-channel loop amplifiers are available in the power class from 5 to 15 A.

The amplifiers prove to be reliable, robust, durable and offer an all-round convincing audio quality. A convenient operating concept allows users to tap into the full flexibility that these systems offer in terms of adaptation to the respective room and application conditions.

# AUDIOropa

## AUDIOropa is a brand of the Humantechnik Group

The AUDIOropa portfolio offers audio technology for professional use – stationary and portable. The system spectrum includes

- **Inductive loop systems**
- **Radio transmission systems**
- **Infrared transmission systems**
- **Intercom systems**
- **Wi-Fi streaming system (Bettlear brand)**
- **Auracast™ streaming system (Bettlear brand)**

One focus is on solutions for acoustic accessibility in the context of inclusion projects.

With an increase in audio quality and speech understanding for the hearing impaired, resulting from the integration of audiological technology, AUDIOropa systems prove themselves even under difficult acoustic conditions.

Please also visit [www.AUDIOropa.com](http://www.AUDIOropa.com), or you can also request information about radio and infrared transmission systems.

Welcome to the dialog:

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