CONTENTS

AVAILABLE MODELS

SZI 1029 EU

High Power IR Radiator for wideband and narrow-band operation together with a suitable modulator. Infra-red radia-ting power 5 W, single-channel (MONO) or multi-channel (MUITI) operation. BNC output socket for connection of additional SZI 1029 or SZI 1015 radiators. Black housing. Supplied with a European mains cable.

SZI 1029-EU-W

As SZI 1029-EU but white with unpainted aluminium housing.

SZI 1029-120

As SZI 1029-EU but supplied with a USA mains cable.

SZI 1029-UK

As SZI 1029-EU but supplied with a UK mains cable.

SZI 1029-24

As SZI 1029-EU but for 24 V DC supply.

SZI 1029-24-W

As SZI 1024 but white with unpainted aluminium housing.

SZI 1029-10-EU-B

As SZI 1029-EU but with 10 W infra-red radiating power.

SZI 1029-10-EU-W

As SZI 1029-EU-B but white with unpainted aluminium housing.

SZI 1029-10-US-B

As SZI 1029-EU-B but supplied with a USA mains cable.

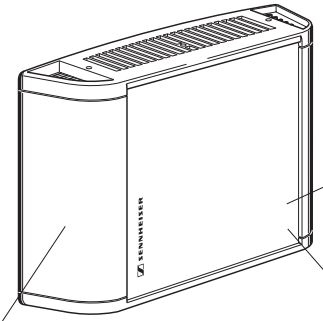
SZI 1029-10-120-W

As SZI 1029-10-EU but supplied with a USA mains cable, white with unpainted aluminium housing.

OVERVIEW

	Black housing	Unpainted aluminium housing	Wideband transmission	Narrow-band transmission	Connection via a modulator	IR radiating power 5 W	IR radiating power 10 W	Supplied with European mains lead	Supplied with a UK mains lead	Supplied with a USA mains lead	24 V DC operation	Catalogue Number
SZI 1029-EU	X		X	X	X	X		X				03664
SZI 1029-EU-W		X	X	X	X	X		X				04076
SZI 1029-10-EU	X		X	X	X		X	X				04005
SZI 1029-120	X		X	X	X	X				X		04078
SZI 1029-10-120		X	X	X	X	X				X		04006
SZI 1029-UK	X		X	X	X	X			X			04077
SZI 1029-24	X		X	X	X	X					X	04079

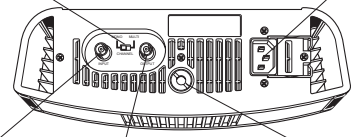
OPERATING ELEMENTS



Green LED, operation indicator

Red LED, mains supply indicator and warning light for reduced IR radiating power (malfunction indicator)

The side parts of the housing serve as heat sinks. Do not cover the openings at the top and the bottom!



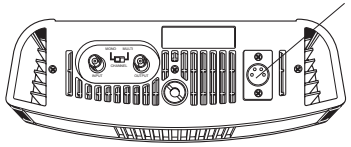
Selector switch for single channel (MONO)/multi-channel (MULTI) operation

IEC mains connector

BNC infra-red input socket

Thread for mounting the radiator

BNC output socket for connecting further radiators



24 V DC input socket (only with 1029-24 model)

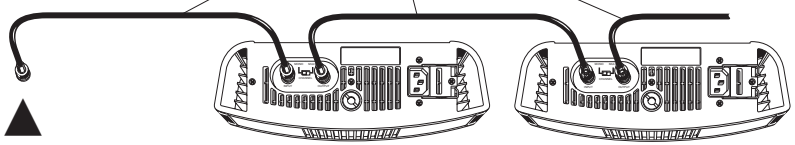
CONNECTING SEVERAL RADIATORS

WIDEBAND AND NARROW-BAND TRANSMISSION, SINGLE-CHANNEL AND MULTI-CHANNEL

Starting with an infra-red modulator

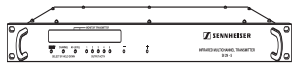
BNC/BNC cable (RG 58, 50 Ω): GZL 1019 A1, -5, -10

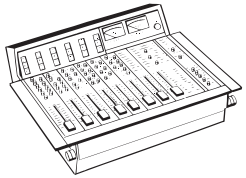
Additional SZI 1029... ▶ Connect a terminating impedance 50 Ω to the out-put BNC socket of the last radiator.



SZI 1029

SZI 1029





INFRA-RED TECHNOLOGY

The SZI 1029 is a high power infra-red radiator. In a cordless infra-red sound transmission system it transforms the electrical signal delivered by an infra-red modulator or by an audio source into invisible infra-red light and radiates this IR light into a room. In contrast to radio transmission infra-red transmission is limited to the room, thus other systems can be operated in neighbouring rooms without interference.

- The high-power radiator SZI 1029 is switched on by the IR carrier signal that is produced by the modulator. Commercially available 50 Ω coaxial cables with BNC connectors are used for feeding sig nals from the modulator to the SZI 1029 radiator.

The infra-red radiator diodes in the high power radiator respond to the received signals and radiate modulated infra-red light. Depending on the model the radiator delivers a radiating power of 5 or 10 W (**see AVAILABLE MODELS**).

WIDEBAND

Infra-red wideband transmission systems are chiefly used for transmitting audio signals in hi-fi quality.

The two available wideband channels (2.3 MHz and 2.8 MHz) are internationally standardized and are either used for two mono channels or for stereo transmission.

NARROW-BAND

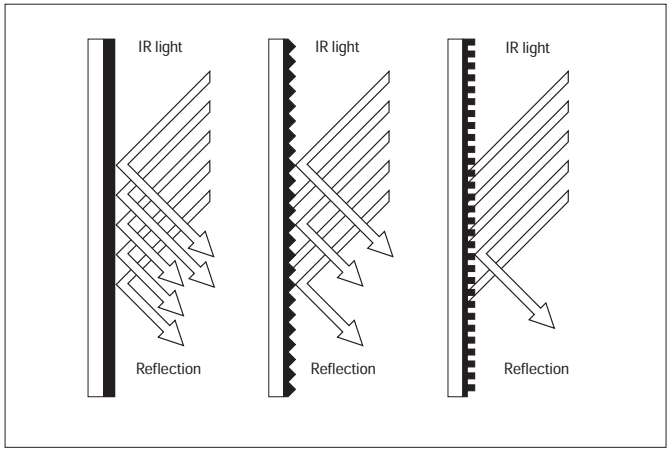
Infra-red narrow-band transmission systems allow the transmission of up to 32 mono channels with a slightly reduced audio frequency response. They are ideal for multi-channel interpretation systems and multilingual information systems.

AREAS OF APPLICATION

- Conference and simultaneous interpretation systems
- High quality cordless sound transmission in recording studios or for hi-fi systems

PROPAGATION OF INFRA-RED LIGHt

The propagation of the infra-red signal radiated by the SZI 1029 can be compared to the propagation of normal daylight or artifical (lamp) light. Thus it is subject to similar conditions when it falls onto different materials:



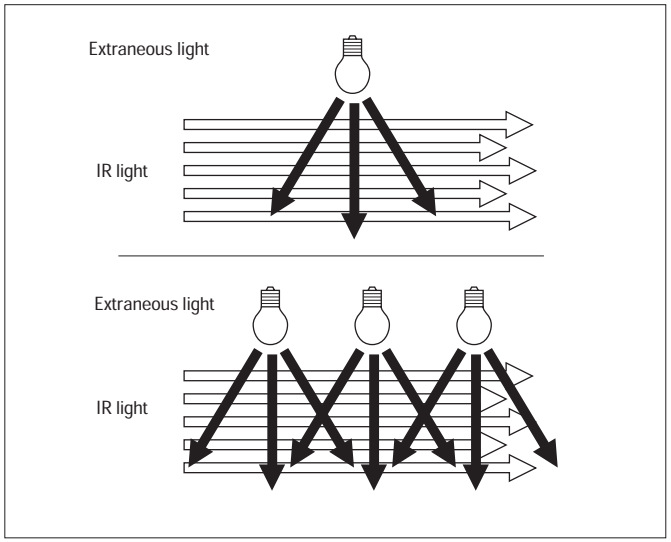
IMPACT OF CURTAINS, CARPETS, AND PAINTS

- Dark and heavy materials, curtains, carpets, panellings, and wall coverings tend to absorb the light, a good reception can only be achieved in direct line of sight of the infra-red radiator.
- Roughcast and strongly structured wallpapers (such as woodchip, embossed or fabric papers) reflect the light unevenly but allow a more uniform propagation of the infra-red signal.
- Smooth and bright walls, smooth tiled floors and windows are highly reflective and are thus favourable for the propagation of in fra-red light.
- Different wall paints may reflect infra-red light differently although they have the same colour. This is due to the type and thecomposit-ion of the paint pigmentation.

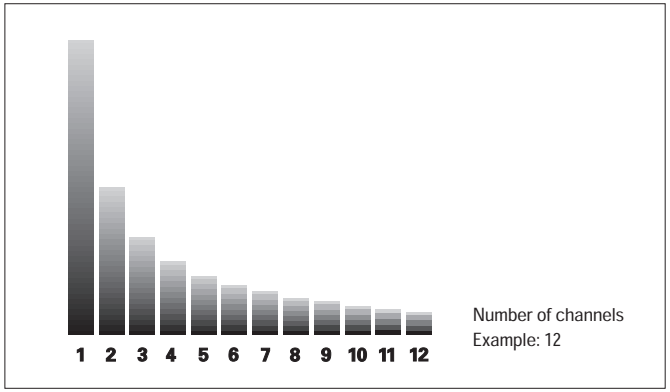
The power which is necessary to irradiate a room varies accordingly.

IMPACT OF EXTRANEOUS LIGHT

Daylight and artificial light in a room also have an impact on the IR reception. Since the spectrum of this light also contains infra-red portions it can interfere with the useful signal radiated by the SZI 1029. At worst, the reception is disturbed by hissing noise.



RADIATING POWER



RADIATING POWER DURING MULTI-CHANNEL OPERATION

(Not for SZI 1029-T models) The number of transmitted channels has an impact on the radiated power of the infra-red radiator SZI 1029. The power is uniformly divided in such a way that, for instance, in a system with 12 narrow-band channels only 1/12 of the desired radiating power is available for each audio channel.

COMPUTING THE RADIATING POWER

During single channel operation (switch set to **MONO**), every SZI 1029 radiator will supply an area of about 1000 sq.m. The SZI 1029-10 radiators are able to supply approximately double this area.

When switched to narrow-band multi-channel operation (switch set to **MULTI**) power output and thus irradiated area are reduced by approximately 35 % (see **RADIATING POWER DURING MULTICHANNEL OPERATION**).

A simple formula facilitates the calculation of the number of radiators necessary to irradiate a given room:

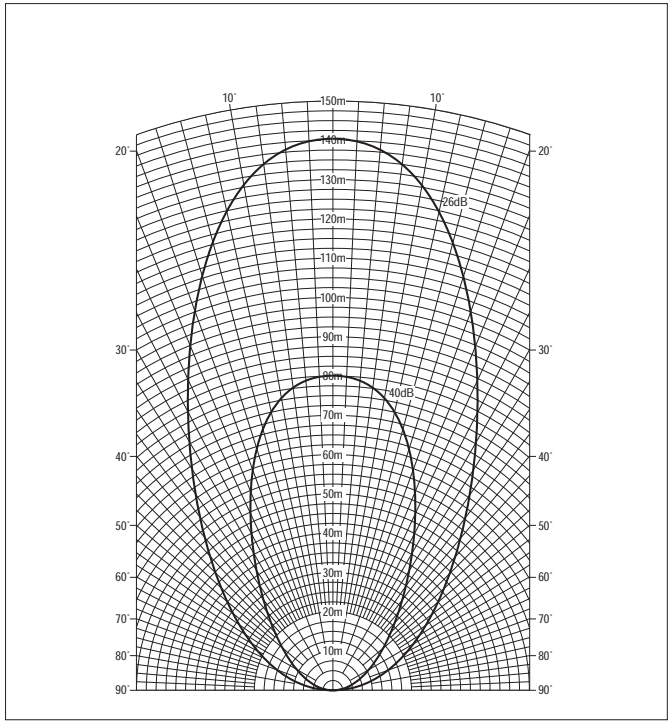
RULE OF THUMB

$$\text{Number of radiators (SZI 1029)} = \frac{\text{surface area in sq. m. x number of channels}}{650}$$

$$\text{Number of radiators (SZI 1029-10)} = \frac{\text{surface area in sq. m. x number of channels}}{1300}$$

PROPAGATION OF INFRA-RED LIGHT

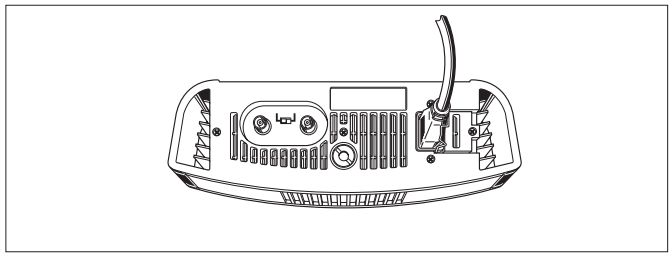
The high power radiator SZI 1029 radiates the infra-red light in a lobar shape. With increasing distance the intensity becomes weaker. When a receiver leaves the irradiated area the transmission is interrupted. Recei vers without squelch will produce a hissing noise, receivers with squelch will mute.



PUTTING THE RADIATOR INTO OPERATION

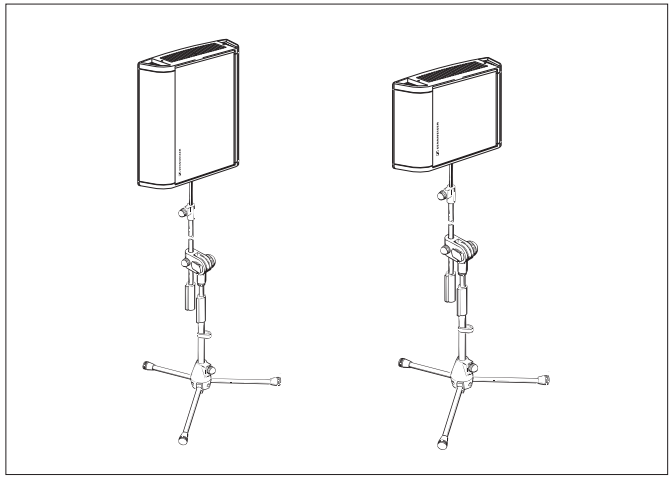
MAINS CONNECTION

Insert the mains connector and secure it with the steel clamp.

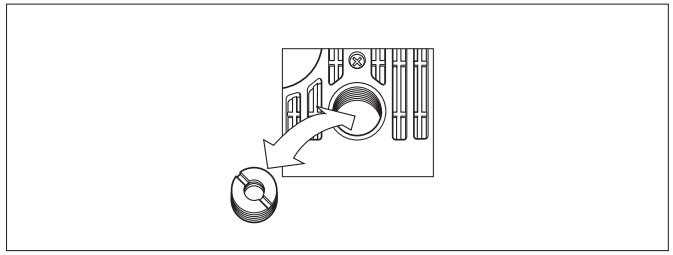


Install the SZI 1029 high power radiator in a vertical (or almost vertical) position. The cables are guided downwards.

The vertical position ensures sufficient cooling of the radiator - air can circulate through the cooling fins that are integrated into the sides of the radiator.

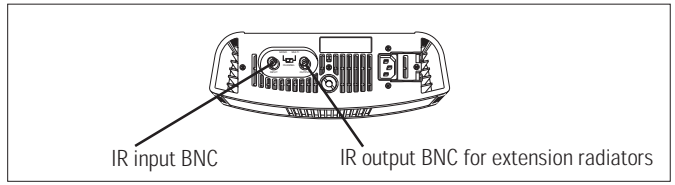


The SZI 1029 high power radiator is provided with an interchangeable thread for mounting it to stands with 3/8" or 1/2 „threads using an adaptor (included in the scope of delivery).



CONNECTING AN IR RADIATOR

After having connected the radiator to the mains, the IR input of the SZI 1029 has to be connected to the IR output of the modulator. Several co-axial cables are available for this purpose (see **ELECTRICAL ACCESSORIES**). The cables can be connected to one another using a BNC coupler GZV 1019 A.



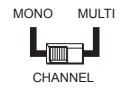
For **permanently installed systems** you should use commercially available 50 Ω coaxial cables, such as RG 58 (75 Ω cables can be used if 50 Ω cables are unavailable). If you want to use several SZI 1029 radiators you have to connect them in series. This is done by connecting the output BNC socket of the first radiator with the IR input BNC socket of the second radiator. A maximum of 100 radiators can be connected in series. The maximum total length of the cable should not exceed 1500 m.

After having connected the last radiator you can put the transmission system into operation by switching on the modulator. It transmits a carrier signal which automatically switches on the radiators. When the carrier signal stops, the radiators switch off automatically.

N.B.: In order to avoid standing waves a terminating impedance of 50 Ω should be connected to the last radiator (or 75 Ω terminating impedance if 75 Ω cable was used).

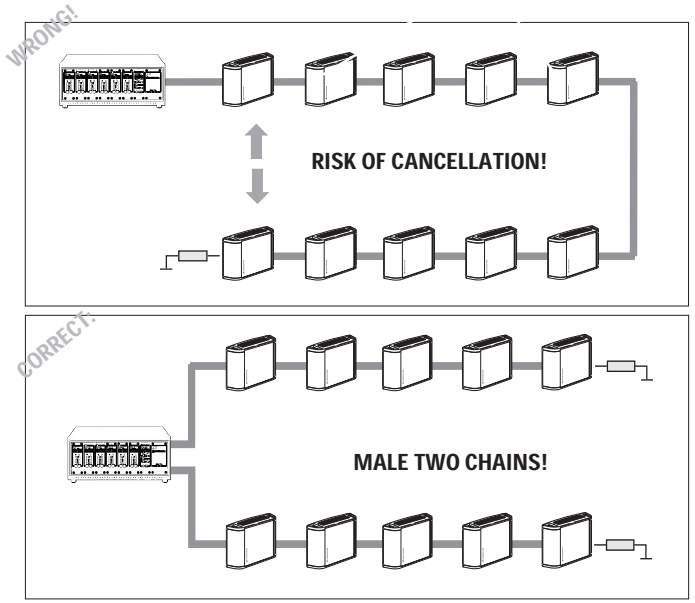
SINGLE-CHANNEL/MULTI-CHANNEL OPERATION

Selector switch single-channel (Mono)/multi-channel (Multi)



CANCELLATION WITH GREATER CABLE LENGTHS

The length of the cable between two neighbouring radiators should not exceed 75 m, otherwise signal cancellation can occur when the radiation is not in phase! Do not forget the terminating impedance!



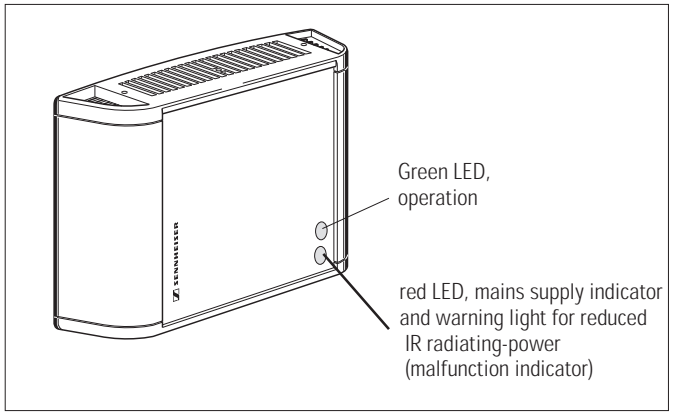
The SZI 1029 high power radiator is provided with 12 independent output stages, each stage amplifies the received signal for a power block of 12 infra-red LEDs. The SZI 1029-10 models with 24 independent output stages have double the power.

MALFUNCTION INDICATOR

If one power block fails, transmission quality is not considerably affected. Only if more than one third of all the blocks fail to operate, the red LED will light up in addition to the green one, thus indicating that the device will have to be repaired.

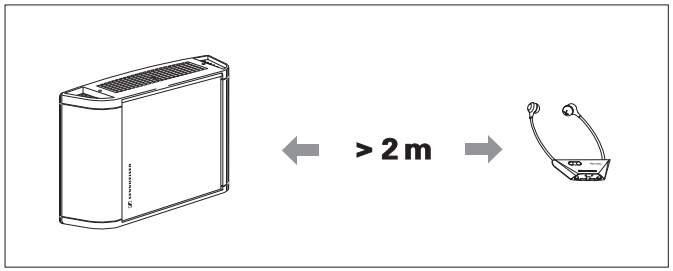
OPERATION INDICATOR

The indicators work as follows: Red Indicator Only: The radiator is connected to the mains but there is no IR signal present. Green Indicator Only: IR signal is present, the radiator is working normally. Red & Green Indicator:FAULT **CONDITION!** 30 % or more of the diodes are not working and the radiator should be returned to your local Sennheiser agent for repair.



DISTANCE BETWEEN RADIATORS AND RECEIVERS

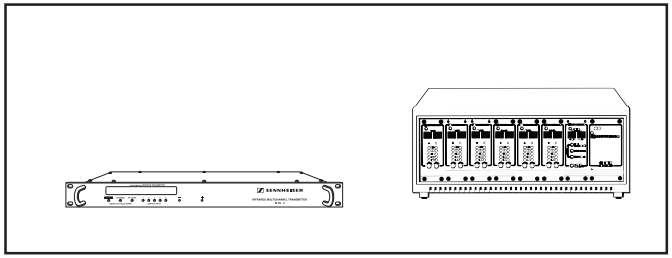
Please observe a minimum distance of 2 m between radiators and receivers as otherwise the receiver input stage could be overloaded. This would result in a very poor transmission quality.



INSTALLATION

If possible the radiators should be installed in such a way that they are directly orientated towards the infra-red receivers. For best reception the radiators should be installed as high as possible with a slight downward inclination. For uniform irradiation of a given room the radiators should be installed decentralised, usually in the corners of the room.

SUITABLE MODULATORS

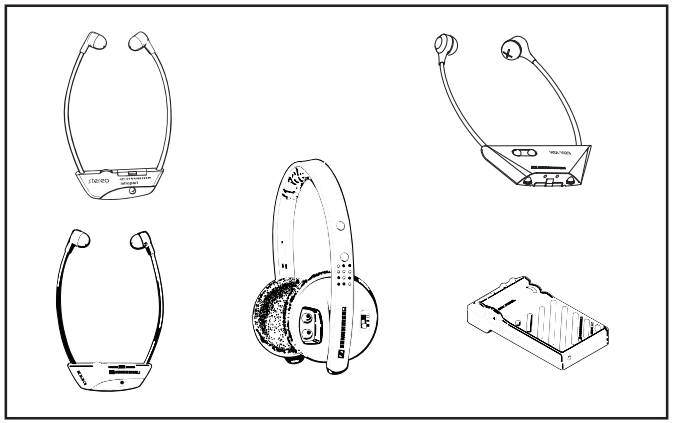


SI 1015 Wideband, single-channel, switchable between 2.3 MHz and 2.8 MHz

SI 1029 Narrow-band, modular system, up to 32 channels (up to 12 channels per mainframe)

SI 29-5 Narrow-band, 5-channel, choice of 5 out of 32 possible channels

SUITABLE RECEIVERS



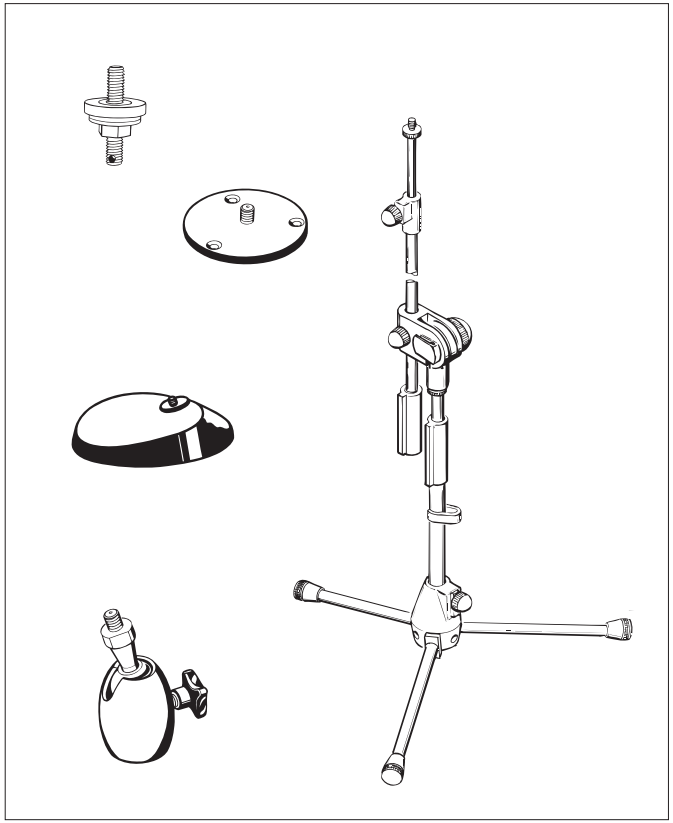
For use in conference and simultaneous interpretation systems

HDI 1029 PLL Narrow-band, 8- or 16-channel, mono, stethoset receiver

EKI 1029 Narrow-band, 7-, 12-, 16- or 32-channel, mono, stethoset receiver

additionally RI 250, RI 150, RI 300, RI 500, HDI 302, HDI 380

MECHANICAL ACCESSORIES



MZT 14 **Mounting bolt**
For mounting goosenecks and swivel joints with 3/4 „ threads to table tops.

GZP 10 **Mounting plate**
For wall and ceiling mounting.

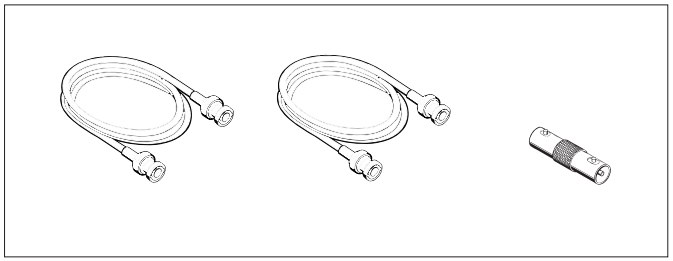
GZG 1029 **Swivel joint**
For mounting and aligning the radiator, used in combination with mounting plate GZP 10, mounting bolt MZT 14 or a stand. Interchangeable thread 1/4 „ - 3/8 „.

MZT 100 **Table stand**
In combination with GZG 1029 for simply placing the radiator on shelves and cupboards.

MZT 1019 **Mounting bar**
For mounting two radiators. With 3/8 „ internal thread.

SEMS 3136 **Stand**
For mounting and aligning the radiator. 3/8 „ thread.

ELECTRICAL ACCESSORIES



GZL 1019 A1

Connection cable
For connecting the radiator to the transmitters SI 1013, SI 29-5 or SI 1029. Length 1 m.

GZL 1019 A5

Connection cable
For connecting the radiator to the transmitters SI 1013, SI 29-5 or SI 1029. Length 5 m.

GZL 1019 A10

Connection cable
For connecting the radiator to the transmitters SI 1013, SI 29-5 or SI 1029. Length 10 m.

GZV 1019

BNC coupler
For connecting two connection cables GZL 1019 A1, -5, -10.

N.B.: „INFRA-RED PLANNING BROCHURE" FROM SENNHEISER

If you consider using a transmission system with high power IR radiators SZI 1029 the „Infra-red Planning Brochure" from Sennheiser is available. Besides in-depth information on infra-red transmission technology it contains application examples and lists with combinations and overviews for infra-red system planning.

Since we are continually trying to improve our products it may happen that some technical alterations are made on the described products after these operating instructions have gone to press. We apologise for any inconvenience.

TECHNICAL SPECIFICATIONS

SZI 1029 (SZI 1029-10)

Number of radiator diodes		144 (288)
Approximate radiating power		5 W (10 W)
Wavelength of radiated infra-red light approx.		880 nm
Carrier frequency range		30 kHz - 6 MHz
IR input		50 mV - 3 V / approx. 5 kΩ
Input/output connections		BNC sockets
Switching treshold for automatic on/off function		50 mV
Operating voltage	...-120	85 - 265 V ± 10 %, 50 - 60 Hz
	...-EU	85 - 265 V ± 10 %, 50 - 60 Hz
	...-UK	85 - 265 V ± 10 %, 50 - 60 Hz
	...-24	24 V min., ideally 25 - 35 V DC
Current consumption	...-120	approx. 610 mA (1A) with 120 V
	...-EU	approx. 350 mA (700 mA) with 230 V
	...-UK	approx. 350 mA (700 mA) with 240 V
	...-24	approx. 1.6 A (3.2 A) with 24 V DC
Stand-by		60 mA max.
Mains fuse for 120/230/240 V		2 A, anti-surge type in the IEC mains socket
Fuse for 24 V		DC 2 A, anti-surge type
Dimensions in mm		250 x 180 x 80 (250 x 288 x 80)
Weight		approx. 2.1 kg (approx. 3 kg)
Supply schedule		1 radiator 1 mains cable (2.5 m)
UL-No. (only for 120 volt USA version)		to be advised