



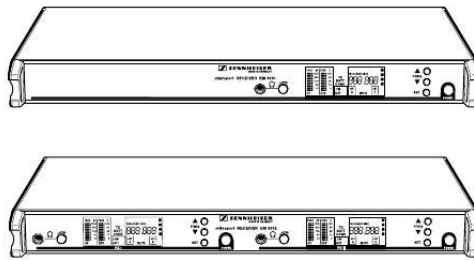
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You can read the recommendations in the user guide, the technical guide or the installation guide for SENNHEISER EM 3032-U. You'll find the answers to all your questions on the SENNHEISER EM 3032-U in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual SENNHEISER EM 3032-U
User guide SENNHEISER EM 3032-U
Operating instructions SENNHEISER EM 3032-U
Instructions for use SENNHEISER EM 3032-U
Instruction manual SENNHEISER EM 3032-U

Instructions for use

EM 3031-U
EM 3032-U



27



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Manual abstract:

@@Page Brief description, variants, special features

.....
.....
.....

.....
.....
.....

..... 29 Connections and operating elements .

.....
.....
.....

.....
.....
.....

..... 30 Noise reduction with HiDyn plus® ..

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

. 33 Assembly and mounting, assembly instructions

.....
.....

.....
.....
.....
.....

.. 34 Connection and mounting of remote antennæ

.....
.....
.....

.....
.....
.....

..... 36 Switching the mains voltage / Mains connection

.....
.....
.....
.....

.....
.....

. 37 Putting the receiver into operation

.....
.....
.....
.....
.....

.....
.....
.....

..... 38 Changing the receiving frequency .

.....
.....
.....
.....

.....
.....
.....
.....

.. 39 Selection and combination of possible receiving frequencies ...

.....
.....

... 40 Reprogramming the receiving frequencies no problem! ..

.....
.....

.....
.....

... 41 Display of frequency groups ..

.....
.....
.....
.....
.....
.....
.....

.....
.....

.....
.....
. 41 Power of the received radio signal

.....
.....

.....
.....

.....
.....

.....
.....

.....
.... 32 Squelch (Muting), AF squelch

.....
.....

.....
.....

.....
.....

.....
.....

.....
.... 32 Advanced muting function .

.....
.....

.....
.....

.....
.....

.....
.....

.....
.....

.....
..... 43 Monitoring the sound signal, headphone connection .

.....
.....

.....
.....

.....
.....

. 44 Replacing a fuse

.....
.....

.....
.....

.....
.....

.....
.....

.....
.....

.... 45 Sennheiser transmitters report their battery status

.....
.....
.....

.....
.....
.....

. 46 Suitable Sennheiser transmitters

.....
.....
.....

.....
.....
.....

..... 47 Error messages ...

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

. 48 Error checklist

.....
.....
.....

.....
.....
.....

.....
.....
.....

..... 48 Safety instructions

.....
.....
.....

.....
.....
.....

.....

.....
.....
.....

48 Recommended accessories

.....
.....
.....
.....
.....
.....
.....

. 49 Technical data

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
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..... 50 1 Brief description With the EM 3031-U and EM 3032-U receivers, Sennheiser offers the professional user high quality RF receivers with a high level of operational reliability and ease of use. The EM 3031-U and EM 3032-U receivers together with the suitable hand-held and pocket transmitters permit wireless transmission with studio quality sound. Due to further optimised PLL and microprocessor technology and the Sennheiser patented HiDyn plus® noise reduction system, these transmission systems surpass the signal-to-noise ratio and dynamic range of modern CD productions.

The true diversity technology of the EM 3031-U and EM 3032-U receivers ensures interference-free transmission and minimises the drop-outs in the RF path.

Especially for small television studios and theatres, the simultaneous use of several EM 3031-U / EM 3032-U receivers is an economical alternative to technically more sophisticated and therefore more expensive multi-channel systems. Variants EM 3031-U: EM 3032-U: Single-32-channel true diversity receiver Two-32-channel true diversity receiver Note EM 3031-U and EM 3032-U differ in the fact that the EM 3032-U contains two complete true diversity receivers in a single 1 U rack housing. These two receivers are powered by a common mains power supply unit and via a common pair of antennæ (antenna splitter integrated). This manual is therefore always restricted to the description of just one receiver, the operation of the second receiver in the EM 3032-U is similar. Special features PLL microprocessor control, programmable Sennheiser HiDyn plus® noise reduction system High transmission reliability due to true diversity reception Ease of use "LOW BATT" display for transmitter battery status 19" 1 U housing Supply voltage for external antenna boosters 29 2 Connections and operating elements Headphone socket 1/4 " (6.3 mm) ø Headphone volume control Multi-function display panel Buttons for selecting the receiving frequency SET/storage button for channel programming Changing the receiving frequency: ° ° ON / OFF switch Button Buttons Button , or for about 3 seconds 30 Fuse holder and mains voltage selection 2-pin IEC mains connector Squelch control μ , 1 Straw relief clamp for mains cable Service interface (not used in normal operation) AF output XLR-3, balanced Control for AF output level at the XLR socket 1 Antenna input B Antenna input A 31 3 Noise reduction with HiDyn plus® Progress you can hear: This receiver is equipped with HiDyn plus®, the Sennheiser noise reduction system. HiDyn plus® reduces interference from the RF Line. It increases the signal-to-noise ratio in wireless audio transmission to up to 110 dB. The dynamic range of a CD is a maximum of 96 dB (16-bit transducer) and is thus surpassed considerably.

HiDyn plus® is a wideband compander system which compresses the AF level on the transmitter side in a ratio of 2:1 (related to dB), and expands it in an exactly the same way on the receiver side. The optimisation of the dynamic range and the supporting effect of the control amplifier in the transmitter effectively reduce modulation problems. HiDyn plus® has been developed for use in high quality radiomicrophone systems. Note Only transmitters which are also equipped with HiDyn plus® can work perfectly in combination with the EM 3031/3032 receiver. If this is not the case, the dynamic range is drastically reduced, the transmission sounds blunt and flat.

HiDyn plus® can not be switched off on the EM 3031/3032 receiver. 32 AF-signal receiver 1 electronic switching from one signal to another AF-signal receiver 2 4 Diversity reception The EM 3031/3032 receiver operates on the "true diversity" principle: A receiving antenna receives not only the electromagnetic waves which reach it by a direct path, but also the reflections of these waves which are created in the room by walls, windows, ceilings and fittings. When these waves are superimposed, destructive interference occurs, which can also be called "field strength gaps". Repositioning the receiving antenna can bring a solution, provided the transmitter remains in its original position. With mobile transmitters, however (which all radiomicrophones are),

the "field strength gap" will then occur with a different transmitter position.

These "field strength gaps" can only be eliminated with true diversity receivers. In true diversity, instead of one antenna and one receiver there are now two antennæ and two receiver sections. The antennæ are spatially separated. By means of a comparison circuit, the receiver section with the strongest RF signal is always switched to the common AF output. The risk of the occurrence of "field strength gaps" in both antennæ at the same time is virtually nonexistent. The display panel of the receiver always shows whether the diversity channel switched is channel A or channel B. 33 5 Assembly and mounting Use as a stand-alone receiver For use as a stand-alone receiver, it is recommended that the supplied telescopic antennæ are used. They can be mounted quickly and easily to the rear of the receiver and are suitable for all applications where good reception conditions provided a wireless transmission system is to be used without a large amount of installation work. To ensure that the receiver is securely mounted on a surface on which it can not slip, four selfadhesive soft rubber feet are supplied. These feet are stuck into the recesses on the lower side of the receiver.

Ensure that the recesses are clean and free from grease before mounting the feet. N.B. Do not use these feet if rack-mounting the receiver. 34 Mounting the receiver into a rack With the two rack mount "ears" supplied, the receiver can be mounted into a 19" rack (1 U). The rack mount "ears" are screwed to the receiver on the left and right . @@@@These are available as accessories.



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@@Antenna and receiver can be connected with a RG 58 co-axial cable. @@@@isolated. @@@@The display "MUTE" (see chapter 13) is lit up .

If a suitable transmitter is already operating on this frequency, the display goes through the four groups in succession. The groups are shown on the display panel in display . @@the modulation of the RF signal (in %) are shown. Both displays have an overmodulation display. @@Short overmodulation is not critical.

@@@@@The adjustment range is between 0 and about 100 μ V. When the squelch is active, the text "MUTE" is shown in display panel . AF squelch The squelch also switches on when the selected radio channel is occupied by a wideband interference signal such as that generated by lighting control systems. This prevents an interfering signal from hindering reception even when the interfering signal has a high RF level. When control ("MUTING") is set to position "0", the AF squelch is also switched off.

42 AMF AMF 15 Advanced muting function This receiver also features AMF (Advanced Muting Function). This special electronic feature comes into effect when an RF signal drops by about 50 dB in a short time. The reception is then muted for 3 seconds. AMF thus suppresses the annoying switch-off click when a transmitter is switched off. Because of the delay in switching on again, the PLL circuit of the transmitter has enough time to adjust itself back to the corresponding transmission frequency. Example One possible area of use for AMF is the inaudible change of a hand-held transmitter. If the battery of the first transmitter has run down (display "LOW BATT" on the receiver), a second transmitter is prepared on the same frequency: insert battery, select transmission channel. Then the first transmitter is switched off, AMF switches to mute and the second transmitter is immediately switched on. The PLL of transmitter 2 stabilises itself, AMF switches on again. The whole procedure takes place inaudibly in the background while AMF is switched to mute.

Without AMF, the switching off, switching on and stabilising of the transmission frequency would have been audible in the form of possible crackles and whistling noises. AMF can be switched off. As it is coupled with the setting of the normal squelch, its function is cancelled if control ("MUTING") is turned to position "0". 43 16 Monitoring the sound signal, headphone connection Socket on the EM 3031/3032 receiver can be used to monitor the sound signal received with headphones. The headphone volume is adjusted with control . Please use headphones with a 1/4 " (6.3 mm) ϕ stereo jack plug. The sound signal itself is mono. The Sennheiser HD 25 headphone is especially useful for this purpose. In order to judge the quality of the received sound signal even under unfavourable conditions (low AF level in the transmitter) and with high ambient noise (e.

g. on the stage), the sound signal at socket can be monitored at an amplification of up to 30 dB compared with the LINE output. For strong sound signals, however, this can distort the sound if control is turned to a high level. In this case, turn control down until the distortion disappears. If the distortion remains, the transmitter itself is overmodulated.

Volume up? No! First of all, the volume control should always be adjusted to the lowest volume (by turning it anti-clockwise as far as possible). Then turn up the volume control gradually until you have reached the desired volume. When people use headphones, they tend to choose a higher volume than with loudspeakers. Listening at high volume levels for long periods can lead to permanent hearing defects. Please protect your hearing, and as far as possible, check the sound signal only briefly with the headphone.

44 17 Replacing a fuse Disconnect the receiver completely from the mains! To do so, pull out the mains connector on the receiver. You can then remove the fuse holder with the inserted fuse. Replace the fuse by a new fuse with the same rating and switch on the receiver again. Make sure that you have inserted the fuse holder in such a way that the receiver is operated with the correct mains power! A faulty fuse should always be regarded as a warning. In most cases, the cause is harmless a short voltage surge or some similar cause has triggered the protective mechanism. When the fuse has been replaced, the receiver works again. If the replacement fuse also blows, please consult a specialist who can discover the cause. We recommend you to contact your Sennheiser distributor or to send the receiver, with a precise description of the trouble, to a Sennheiser service department in your area. You can find the address of your nearest service department in the enclosed Service card or on the Internet under "http://www.sennheiser.

com". 45 18 Sennheiser transmitters report their battery status Sennheiser supplies hand-held and pocket transmitters which provide information on the available transmitter battery status to the receiver. This information can be evaluated with the EM 3031 / EM 3032 receivers. @@You should now immediately replace the transmitter battery. @@@@However, it can be significantly longer if reception is subject to interference from time to time. This time is then also needed by the display in display panel in order to update the information shown. 46 19 Suitable Sennheiser transmitters For the optimum use of the excellent reception qualities of the EM 3031 / EM 3032 receivers, Sennheiser offers hand-held and pocket transmitters in a variety of configurations: Pocket transmitters: SK 1063-U BF 1083-U SK 50-U SK 250-U SKM 1072-U SKM 3072-U SKM 5000-U (without display of battery condition) (without display of battery condition) (with display of battery condition) (with display of battery condition) (without display of battery condition) (with display of battery condition)* (with display of battery condition) Hand-held transmitters: Information on the many possible combinations of Sennheiser products and their use in multichannel systems can be found in the planning brochure "Practical Applications in RF Technology" which your Sennheiser distributor has in stock or will be pleased to order for you from Sennheiser. Up to date information on Sennheiser products can also be found on the Internet under "http://www.sennheiser.com".

Sennheiser products are exclusively distributed through authorised Sennheiser distributors. We regret that deliveries direct to private customers are not possible. * available from approx. 4/97 47 20 Error messages The display panel of the receiver is also used by the integrated microprocessor to display error messages for service purposes. If you see error messages such as ERR j, ERR TM, ERR £ or ERR ¢, there is a fault in the receiver unit which can only be corrected by your local Sennheiser service department.



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21 Error Error checklist Possible cause Fuse defective Frequency of transmitter does not agree with receiving frequency · Switching threshold adjustment for mute function too high AF output signal adjusted too high. Input of the connected mixing console or amplifier is overmodulated Transmission microphone overmodulated (see corresponding section in the operating manual of the transmitter) Receiver does not work; operating display dark Receiver does not work; operating display lit up Sound distorted Sound overlaid with background noise Transmitter not sensitive enough; where appropriate, switch transmitter sensitivity from "low" to "high" 22 Safety instructions Never open electronic devices! This must only be done by authorised personnel and is all the more important for current-carrying units. If devices are opened by customers in breach of this instruction, the warranty becomes null and void. Always disconnect the unit from the main by removing the plug when you wish to change connections or move the device to a different place. Keep the system away from central heating radiators and electric heaters.

Never expose it to direct sunlight. Use the system in dry rooms only. Use a damp cloth for cleaning the device. Do not use any cleansing agents or solvents. 48 23 Recommended accessories Antenna mount Active antenna Ground plane antenna Co-axial cable, 1 m Co-axial cable, 5 m Co-axial cable, 10 m BNC coupler Active antenna splitter acc. to customer specifications Monitoring headphone GA 3030-AM A 12 UHF GZA 1036-9 GZL 1019 A1 GZL 1019 A5 GZL 1019 A10 GZV 1019A AS-X HD 25 Cat. no. 04368 Cat. no. 04156 Cat.

no. 02332 Cat. no. 02324 Cat. no. 02325 Cat. no. 02326 Cat. no. 02368 Cat.

no. 03273 Cat. no. 02976 49 24 Technical data EM 3031 / EM 3032 RF characteristics 430960 MHz max. 32 in 4 groups, pre-programmed to customer specifications 24 MHz \pm 10 ppm (-10°C to +55°C) typ: 5 μ V for 90 dB A eff SNR 0 to 100 μ V, adjustable 50 dB, typ.

65 dB 75 dB (400 kHz/800 kHz) > -57 dBm (2nW) 2 BNC sockets 50 AF characteristics Frequency range Receiver frequencies Switching bandwidth Frequency stability Sensitivity (with HiDyn plus®) Squelch threshold Image rejection Adjacent channel rejection Intermodulation attenuation typ. 66 dB Free field interference radiation 30 2000 MHz Antenna input Antenna input impedance Modulation Comander system De-emphasis Nominal/peak deviation AF frequency response AF outputs LINE MONITOR wideband FM Sennheiser HiDyn plus® 50 μ s \pm 40 kHz/ \pm 56 kHz 4520,000 Hz 3-pin XLR, transformer balanced 1/4" (6.3 mm) ϕ jack plug (mono signal on stereo socket Signal to L- and R-ring, sleeve earthed) LINE: 05.6 V adjustable, 2 k MONITOR: 02.8 V adjustable, 600 30 dB 50 (LINE at max.

level) 120 dBA eff 116 dB external eff 106 dB CCIR peak 0.5%, typ. 0.25% AF output voltage at peak deviation Amplification on monitor output Source impedance of AF output Signal-to-noise ratio at 1 mV RF and peak deviation THD at 1 kHz and nominal deviation Overall device Temperature range Power supply Power consumption EM 3031 / 3032 Dimensions (without rack mount "ears") Weight approx EM 3031 / 3032 -10°C to +55°C 115/230 V AC +10%/-15% max 10 VA / max 15 VA 436 x 215 x 43 mm (19", 1 U) 3300 g / 4000 g 50 Änderungen vorbehalten Subject to alterations Sous réserve de modification Con riserva di modifiche Reservado el derecho a introducir modificaciones Wijzigingen voorbehouden Sennheiser electronic GmbH & Co. KG D-30900 Wedemark Printed in Germany Telefon +49 (0)5130/600 0 Telefax +49 (0)5130/600 300 Publ. 02/97 58822 / A02 .



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