

BEDIENUNGSANLEITUNG

OPERATING INSTRUCTIONS

NOTICE D'UTILISATION

Opus 100

Drahtloses System
Wireless System
Système sans fil



beyerdynamic

OPERATING INSTRUCTIONS Opus 100

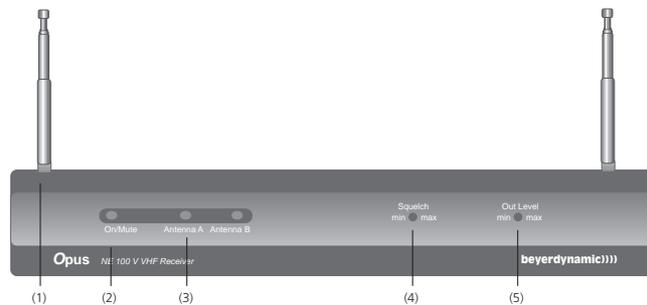
■ **Thank you for** selecting the Opus 100 wireless system. Please take some time to read carefully through this manual before setting up the equipment.

The Opus 100 system has a single frequency in the VHF frequency range 174 to 236 MHz or in the UHF frequency range 798 to 862 MHz.

1. NE 100 Diversity Receiver

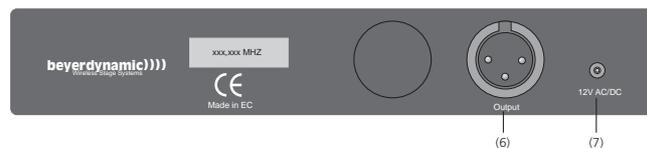
1.1 Controls and Indicators

Front view



- (1) Telescopic antennae (fixed)
- (2) Power On / Mute LED
- (3) Diversity LEDs A/B (Antenna A Antenna B)
- (4) Squelch control
- (5) Output level control (balanced output signal, 3-pin XLR)

Rear view



- (6) AF-output, 3-pin XLR, balanced output signal
- (7) DC-connection for external power supply unit

1.2 Antennae

■ **Fully extend the** antennae and set them at an angle of 60° between each antenna. The two antennae are positioned this way to achieve the best pick-up reception.

1.3 Setting up

1. Place the NE 100 diversity receiver in the same room or area as the transmitters. Ensure that the NE 100 is installed as close as possible to the mixing console or amplifier so that all indications can be seen at all times.
2. Do not place the NE 100 diversity receiver near digitally controlled equipment.
3. Connect the XLR-output (6) to the corresponding input of the mixing console or amplifier. Using the output level control (5) you can adjust the gain.
4. Make sure the mains voltage shown on the power supply unit corresponds to the local mains voltage.
5. Connect the power supply unit to the receiver and to AC power. The receiver has no separate On/Off switch. The power On / Mute LED (2) is illuminated red.
6. To adjust the input gain turn the squelch control (4) to maximum.
7. If the On/Mute LED (2) is illuminated green when there is no transmitter switched on, there is RF noise present. Turn the squelch control (4) counter clockwise to minimum until the RF noise is disappeared.
8. As soon as you switch on the transmitter, the On/Mute LED (2) should go out and the diversity LEDs (3) indicate which antenna input is active.

1.4 Diversity Indication of the Receiving Channel

■ **The NE 100 has** two separate receiving circuits for each of the antennae A and B. The signal with the better S/N ratio is silently switched to the output. The received diversity channel A or B is shown on the LEDs (3).

1.5 Squelch

■ **Switch off the** transmitter before you change the squelch. Now the receiver should be muted. If it is not, then slowly adjust the squelch (4) until all unwanted signals are muted. As soon as the receiver has been muted, the On/Mute LED (2) is illuminated red. Setting the level too high, however, will reduce the range of your system.

Squelch control (4) to the left = minimum range

Squelch control (4) to the right = maximum range - **Caution:** Interferences can occur!

1.6 Setting the Gain

■ **First adjust the** gain of your transmitter (only TS 100; refer to chapter 3.3). Once the transmitter gain is optimised, it is necessary to match the receiver's output gain to your mixing console or PA system. Adjust the gain control (5). Setting the gain too high may cause distortion.

1.7 Mounting NE 100 into ZTE 100/200 Mounting Bracket

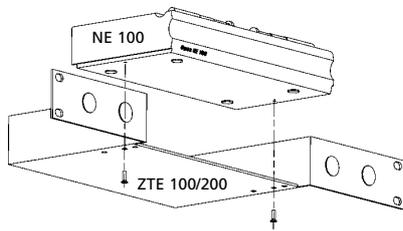


Illustration 1

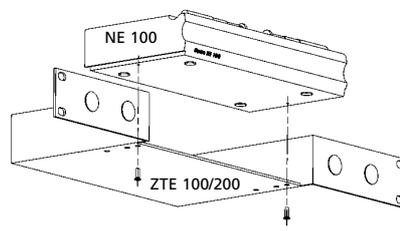
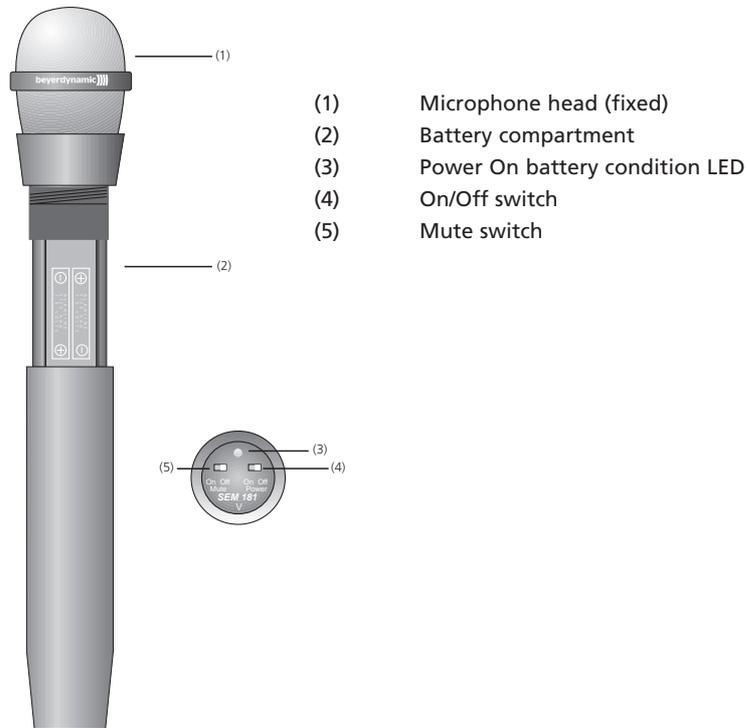


Illustration 2

- For mounting the NE 100 receiver into the ZTE 100/200 mounting bracket the NE 100 has one hole on the right and on the left side at the bottom.
- The NE 100 can be mounted into the ZTE 100/200 in two ways.
- If the receiver is to be mounted further to the back refer to illustration 1.
- If the receiver is to be mounted further to the front refer to illustration 2.
- The ZTE 100/200 is supplied with 2 screws for mounting the NE 100 into the ZTE 100/200 and 4 screws for 19"-rack mounting.

2. SDM 159, SDM 169 and SEM 181 Handheld Transmitters

2.1 Controls and Indicators



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2.2 Setting up

1. Switch on the NE 100 receiver.
2. Rotate the microphone under the microphone head (1) counter clockwise and carefully slide the transmitter shaft down. Insert two 1.5 V alkaline batteries (AAA type - micro). Observe the polarity marks.
3. Slide the transmitter into the shaft again and rotate the microphone clockwise to lock.
4. Switch on the microphone by switching the On/Off switch (4) to the "On" position. The Power On battery condition LED (3) is illuminated. If the transmitter is properly working one of the diversity LEDs of the NE 100 receiver should be illuminated.
5. Make sure that the mute switch (5) is switched to the "Off" position. The mute switch (5) is for muting the transmitter during pauses of speech. Please note that the microphone is still consuming power when it is muted.
6. When the battery capacity is too low for operation, the power on battery condition LED (3) will flash for around 1 hour before the transmitter switches off (LED (3) goes out).

7. To avoid popping, try holding the microphone at a slight angle below your mouth.
8. To avoid covering the integrated antenna by your hand, do not hold the microphone at the microphone head as this could reduce the transmission strength. Furthermore, feedback can occur.

2.3 Maintenance

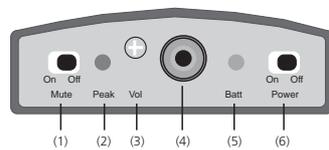
■ **Protect the microphone** from humidity, knocks and shock. Avoid dropping the microphone at all times.

If your microphone sounds dull, clean the integrated foam pop shield. To do this, follow the instructions below.

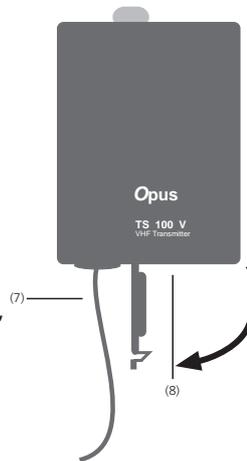
- **SDM 169:** Unscrew the microphone upper basket counter clockwise.
- **SDM 159, SEM 181:** Unscrew the whole microphone basket clockwise.
- Pull out the foam pop shield and clean it under clear running water. If necessary, use a mild washing-up liquid. Dry it afterwards with a hairdryer or allow it to dry overnight.
- Place the dry pop shield inside the microphone basket and replace the microphone basket by screwing it on clockwise or counter clockwise.

3. TS 100 Beltpack Transmitter

3.1 Controls and Indicators



- (1) Mute switch
- (2) red Peak LED (audio)
- (3) Gain control (audio)
- (4) Connection for microphones / instruments, 3.5 mm stereo jack (female), screw-type
- (5) green Power On battery condition LED
- (6) On / Off switch
- (7) Antenna
- (8) Battery compartment



3.2 Setting up

1. Open the battery compartment (8) by pulling the cover downwards. Insert a 9 V alkaline battery or rechargeable battery observing the polarity +/- marks.

2. Connect the supplied microphone or instrument cable to the jack socket (4).
3. Switch on the beltpack transmitter by switching the On / Off switch (6) to the "On" position. The power on battery condition LED (5) is illuminated green when the battery has been inserted correctly and has full capacity. If the transmitter is properly working, one of the diversity LEDs of the NE 100 receiver should be illuminated.
4. Make sure that the mute switch (1) is switched to the "Off" position. The mute switch (1) is for muting the transmitter during pauses of speech. Please note that the microphone is still consuming power when it is muted.
5. When the battery capacity is too low for operation, the power on battery condition LED (5) will flash for around 1 hour before the transmitter switches off (LED (5) goes out).

3.3 Adjusting Input Gain

1. Switch on the NE 100 diversity receiver.
2. Switch the transmitter on by switching the On / Off switch (6) to the "On" position. Turn the gain control (3) to minimum sensitivity (fully counter clockwise).
3. If you have no suitable sound source, you can speak into the microphone at the maximum level you expect to use. We recommend you choose a "U", because a spoken "U" has a relatively good sine-shape. Turn the gain control (3) clockwise until the peak LED (2) does not illuminate or should only flash momentarily during the loudest passages.

Important:

There are various microphones available for the TS 100. As their characteristics vary, the sensitivity has to be re-adjusted with each change of microphone.

4. General Instructions for all Transmitters

4.1 Battery Change

- Switch the transmitter off before changing the battery (On / Off switch to the "Off" position).
- If you do not intend to use the transmitter for several weeks or months, please remove the battery as it can leak after some time and damage parts of the transmitter. Even "leak proof" batteries are no guarantee that they will not leak after some time. Failing to comply will render the warranty null and void.
- Different brands of batteries may vary in length of up to 2 - 3 mm. When you change the battery make sure there is a good contact and adjust the spring in the battery compartment if necessary.
- Clean the battery contacts from time to time. Use a soft cloth or cotton swab moistened with methylated spirits or alcohol.
- Please do not throw used battery packs away with your household rubbish, but take them to your local collection points.
- When using rechargeable batteries use conventional chargers.

4.2 Before the Soundcheck

1. Make sure that the transmitter and receiver are on the same frequency (refer to type plate).
2. Check the transmitter battery and replace or recharge it if necessary. Use fresh alkaline batteries only.
3. Check the performance area for dropouts (i.e. areas where poor reception is encountered). If you find any dropouts try to eliminate them by repositioning the antennae or the receiver.
4. Adjust the sensitivity of the receiver and belt-pack transmitter correctly to avoid distortions.
5. Try and avoid feedback, especially when you use omnidirectional microphones (e.g. MCE 50).

4.3 What to do about Feedback

 **Feedback is caused** when the microphone is too close to a loudspeaker.

We recommend:

- Reduce the volume of the sound system.
- Move away from the loudspeaker.
- Turn the microphone away from the loudspeaker.
- Use a microphone with a cardioid, hypercardioid or supercardioid polar pattern.

Caution:

Feedback can also be caused if the sensitivity has been adjusted too high. In this case the transmitter is no longer working in the linear range, but in the limiter range. Therefore, if the level of the input sound drops, the gain is increased and feedback can occur. Turning down the input sensitivity of the transmitter to the correct position will prevent this from happening.

5. Trouble Shooting

5.1 NE 100 Diversity Receiver

Problem	Possible Cause	Solution
No function	<ul style="list-style-type: none"> • Power supply is interrupted. Power supply unit is not connected to the mains and/or to the receiver 	<ul style="list-style-type: none"> • Connect the power supply unit to the mains and/or to the receiver
No reception	<ul style="list-style-type: none"> • Transmitter is not switched on • Transmitter works on a different frequency • Receiving antennae are not positioned correctly 	<ul style="list-style-type: none"> • Switch on the transmitter • Make sure that the transmitter and receiver are on the same frequency • Position the receiving antennae correctly
Distorted sound	<ul style="list-style-type: none"> • Input amplifier of the connected mixer is overloaded • Input sensitivity is too high (TS 100 only) 	<ul style="list-style-type: none"> • Use the reduction of the mixer or adjust the volume (5) • Reduce sensitivity

5.2 SEM 181, SDM 159, SDM 169, TS 100 Transmitters

Problem	Possible Cause	Solution
No function	<ul style="list-style-type: none"> • Transmitter and receiver have different frequencies • Insufficient battery voltage • Insufficient battery contact, battery inserted incorrectly 	<ul style="list-style-type: none"> • Make sure the transmitter and the receiver are on the same frequency • Replace the battery • Check the battery and insert it again
No RF on the receiver	<ul style="list-style-type: none"> • Transmission distance between transmitter and receiver is too far • Defective antenna (TS 100 only) 	<ul style="list-style-type: none"> • Reduce the distance between transmitter and receiver • Check the antenna and replace it, if necessary
Noise/chirping	<ul style="list-style-type: none"> • Interference from other transmitters • Two transmitters using the same frequency • Battery of the transmitter is too weak 	<ul style="list-style-type: none"> • Switch off the other transmitters • Avoid using two transmitters with the same frequency • Replace the battery
Power On battery condition LED	<ul style="list-style-type: none"> • Battery of the transmitter is too weak 	<ul style="list-style-type: none"> • Replace the battery

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6. Maintenance

■ **In the unlikely** event of equipment failure, the product should be returned to your beyerdynamic dealer. Failure to do so will render the guarantee null and void.

7. Licensing

■ **In most countries** around the world, wireless systems must be approved for use by the authorities and it may be necessary to obtain a licence to use it legally. Your local beyerdynamic dealer will be able to give you details on wireless system regulations for your area.

The components of the Opus 100 system are approved according to the directive 99/5/EEC under the CE 0682 ⓘ identification.

8. Versions

- Opus 100 V Set consisting of:**
NE 100 V VHF diversity receiver, TS 100 V VHF beltpack transmitter,
instrument cable and bag
- Opus 150 V Set consisting of:**
NE 100 V VHF diversity receiver, TS 100 V VHF beltpack transmitter,
MCE 60.100 clip-on microphone and bag
- Opus 154 V Set consisting of:**
NE 100 V VHF diversity receiver, TS 100 V VHF beltpack transmitter,
Opus 54.100 headset and bag
- Opus 159 V Set consisting of:**
NE 100 V VHF diversity receiver,
SDM 159 V VHF microphone and bag
- Opus 169 V Set consisting of:**
NE 100 V VHF diversity receiver,
SDM 169 V VHF microphone and bag
- Opus 181 V Set consisting of:**
NE 100 V VHF diversity receiver,
SEM 181 V VHF microphone and bag

**The a.m. VHF sets are available with different frequencies.
Transmitters and receiver are also individually available.**

- Opus 100 U Set consisting of:**
NE 100 U UHF diversity receiver, TS 100 U UHF beltpack transmitter,
instrument cable and bag
- Opus 150 U Set consisting of:**
NE 100 U UHF diversity receiver, TS 100 U UHF beltpack transmitter,
MCE 60.100 clip-on microphone and bag
- Opus 154 U Set consisting of:**
NE 100 U UHF diversity receiver, TS 100 U UHF beltpack transmitter,
Opus 54.100 headset and bag
- Opus 159 U Set consisting of:**
NE 100 U UHF diversity receiver,
SDM 159 U UHF microphone and bag
- Opus 169 U Set consisting of:**
NE 100 U UHF diversity receiver,
SDM 169 U UHF microphone and bag
- Opus 181 U Set consisting of:**
NE 100 U UHF diversity receiver,
SEM 181 U UHF microphone and bag

**The a.m. UHF sets are available with different frequencies.
Transmitters and receiver are also individually available.**

9. Optional Accessories

NE 100 Diversity Receiver

19"-Option

ZTE 100/200 Shelf for 19"-rack mounting of one NE 100 receiver Order # 457.051

SDM 159, SDM 169 and SEM 181 Microphones

Microphone clamp

MKV 11 Microphone clamp Order # 407.232

Pop shields / Wind shields

PS 20/40 Pop shield for SDM 159, SDM 169, colour: charcoal-grey . . . Order # 437.972

PS 81* Pop shield for SEM 181, colour: charcoal-grey Order # 407.593

Stands

GST 400 Microphone stand, 3/8", height 0.90 - 1.65 m,
with G 400 boom Order # 421.294

GST 500 Microphone stand, 3/8", height 0.80 - 1.60 m,
with G 500 telescopic boom Order # 406.252

*other colours available

10. Technical Specifications

NE 100 V / NE 100 U Diversity Receiver

Frequency range

NE 100 V (VHF) 1 frequency between 174 - 236 MHz

NE 100 U (UHF) 1 frequency between 798 - 862 MHz

Nominal deviation 35 kHz

Frequency response 50 - 15,000 Hz

T.H.D. < 1% (30 kHz) (transmitter and receiver)

Noise reduction LN compander

S/N ratio

at RF-level 70 dBm > 100 dB(A)

at RF-level 85 dBm > 90 dB(A)

RF-bandwidth < 200 kHz

Audio output 3-pin XLR, balanced

Temperature range +10° to 55°C

Power supply external Power Supply Unit (11 - 15 V, 200 mA) DC/AC

Dimensions (W x H x D) 226 x 39 x 115 mm

Weight 650 g

