WM-6000/WT-6000/SDR-6000/SDR-6000M PROFESSIONAL RADIO MICROPHONE SYSTEM IN THE UHF FREQUENCY RANGE

MANUAL

Designed and Manufactured by
ITEC Tontechnik und
Industrieelektronik GesmbH
8200 Laßnitzthal 300
Austria / Europe

ITEC®
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1. Introduction

1.1. Overview of system components

Transmitter	
WM-6000	UHF handheld transmitter with LCD display with channel and battery status display Operation with 2 batteries (1.5V / “AA”)
WT-6000	Pocket transmitter, operation with 2 batteries (1.5V / “AA“)
Receiver	
SDR-6000	UHF diversity receiver as a system component for installation in 19“ racks
SDR-6000M	UHF diversity receiver, as an open frame module for installation in mobile Loudspeaker systems
Accessories	
FB 71	Mounting bracket for the installation of one SDR-6000 in a 19“ rack
FB 72	Mounting bracket for the installation of two SDR-6000 in a 19“ rack

1.2. Features of the system

With the ITEC 6000 you have a modern and professional wireless microphone system in the UHF frequency range. The receivers (the module receiver as well as the 19“ built-in model) are true diversity receivers, which guarantee a long range and interference-free reception without short-term cancellations. An innovative “pilot tone” process offers reliable protection against interference from third-party transmitters and prevents switching noises when switching the transmitter on/off.

1.3. Usage instructions

Be careful, risk of electric shock

To avoid the risk of fire or electric shock, do not open the case and contact a qualified technician for repairs.

Acids

Do not expose the device to corrosive liquids, acids or harsh cleaning agents. The device may only be wiped with a dry cloth.

Hearing damage

High sound pressures can cause hearing damage! Never stand directly in front of an operational box. Avoid reaction coupling

Risk of electric shock

Protect power cords from being walked on or kinked, especially at the plug, appliance receptacles, or the point where they exit from the equipment.

Danger of explosion

Always dispose of used batteries in accordance with the applicable disposal regulations. Never throw batteries into fire (risk of explosion).

Avoid water in the immediate vicinity

To reduce the risk of fire or electric shock, do not expose the device to rain or moisture. The device must not be exposed to dripping or splashing liquid. Objects such as vases may not be placed on it.

1.4. System components

These instructions cover all available components of the radio series 6000. Read the details relevant to you carefully. Thank you.
There are various additions to the radio system. We will be happy to send you detailed documents upon request.

1.5. Basic knowledge of wireless microphones

The following explanations give you an insight into how radio systems work

1.6. Working frequency, channel and band

A wireless microphone system is a professional device that transmits sound by sending and receiving radio waves.The system uses a transmitter and a receiver at the same time. The transmitter and receiver must use the same frequency, referred to here as the working frequency. Adjustable frequencies in the system: Transmitter and receiver can be set to 100 different frequencies. Each selected working frequency is called a channel. Many neighboring frequencies form a frequency range that we call BAND.
You can set the working frequency (channel) in two ways: manual and automatic. If you make a manual selection of the working frequency, the transmitter and receiver must have the same frequency.
When working automatically, the receiver scans all channels and selects a free channel as the working frequency. The automatically selected working frequency (channel) must then be transferred to the transmitter via IR synchronization.

1.7. Disorders

A wireless microphone system transmits the sound using radio waves. Therefore, disruptions are possible. In each working environment, there are many radio wave signals from other devices such as television station, radar station, broadcast station, wireless intercom such as digital television station, mobile Internet (LTE-800), mobile phone, radio, remote control, etc., each transmitting their own signals at different frequencies. In normal conditions, the systems will not interfere with each other. However, if the frequency of another radio system is too close to the reception frequency of your own receiver, this can lead to interference. Other digital devices in the immediate vicinity of the recipient, e.g. E.g. DVD, computer, laptop, smartphone often generate a very broadband interference field when in use. Although these signals are weak, the radiation often covers a very broad band.
The reception frequency of the wireless microphone system can be affected by such broadband interference! If such digital devices (interferers) are located too close to the wireless microphone system, these digital devices can interfere with operation (interference signal/noise).

Multi-channel operation:

Many wireless microphones are often used at the same time in an event. This is easily possible today, but the operating frequencies must be carefully selected. When using several working frequencies at the same time, additional mixed signals are always created (= mathematical multiples of the selected working frequencies). These mixed signals can coincidentally fall exactly on an operating frequency of a specific receiver. Then this receiver is disturbed. High-quality systems use complex filters and state-of-the-art circuits to largely prevent mixed signals and interference. This system is particularly well protected against the LTE-800 band (mobile Internet for smartphones).

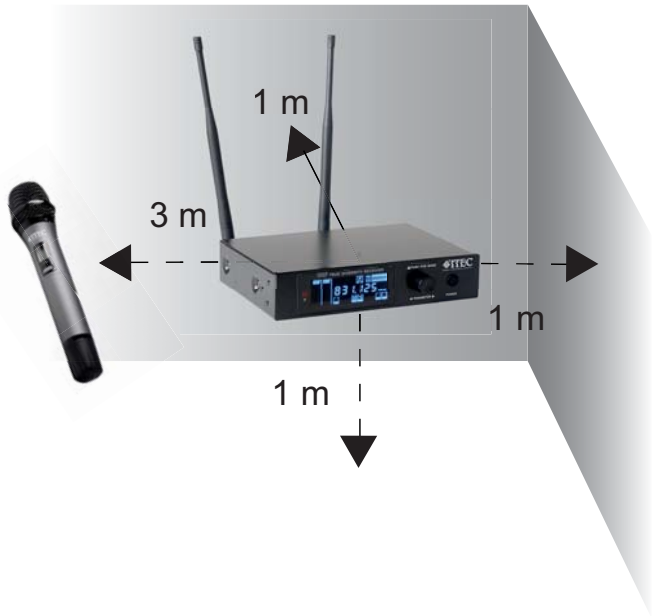
Squelch circuit:
There is also a squelch circuit in the receiver. If the signal is very weak or disturbed, the system is automatically switched off. The squelch is factory set to a reasonable value that works well for almost all situations. If the squelch is set too low, the receiver may receive weaker signals. The reception distance is large, but the interference suppression is weaker. An intrinsically weaker interference signal (interference signal) could then also be output via the receiver. If the squelch is set too high, the receiver‘s immunity to interference will be stronger, but the range will be shorter. The microphone would then have to be close to the receiver so that there is enough signal for reception and output.
The 6000 features an ID validation function in a unique design. The receiver only accepts the transmitter that is synchronized and therefore authorized. Other stations will not be activated, even if they are tuned to the correct frequency! Every time a successful sync and authorization occurs, the last authorization is deleted. This special function has proven itself well in many multi-channel systems.

1.3. General assembly instructions

1.3.1. Positioning of the receiver

Take the receiver out of the packaging and mount the 2 receiver antennas. Align antennas vertically. There should be as direct a radio connection as possible between the microphone and receiver. Please pay attention to short distances!

For best results, the receiver must be placed at least 1 m above the ground and 1 m away from walls or metal surfaces. In this way, disruptive reflections of the radio signal can be avoided. Please do not install the receiver in a steel cabinet (...unless you mount the antennas outside!) Keep the antennas far away from possible sources of interference (e.g.: motors, fluorescent tubes, automobiles, computers, etc.). Wireless microphones should be at least 3 m away from the receiver and, if multiple wireless microphones are used, a distance of 30 cm from each other.



1.3.2. Assembly of the receivers in the 19“ rack

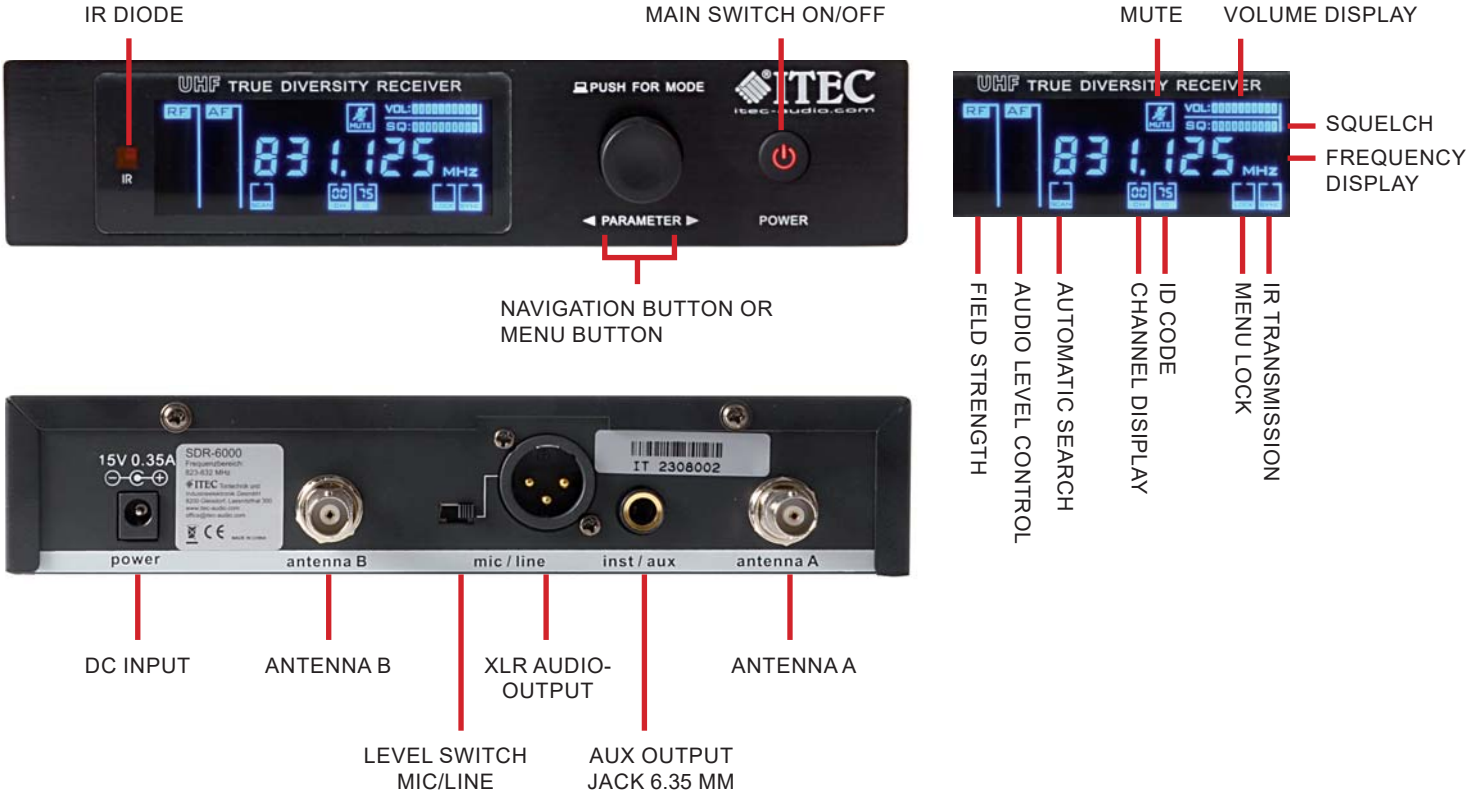
Installation of a receiver with mounting bracket set FB 71

Installation of 2 receivers with mounting bracket set FB 72

In case of rack installation, the use of external antennas is recommended

2. Receiver

2.1. Diversity Receiver ITEC SDR-6000



Setting order (sequence of functional levels):
VOL (Audio Volume)
SQ (squelch = squelch)
SCAN (SCAN = automatic search)
CH (channel)
LOCK (menu lock function)
SYNC (infrared transmission of the frequency to the transmitter)

Each time you press the navigation button you go to a function level.
After selecting the desired function level, turn the navigation button left or right to set the respective parameters.

VOL: IIII (Audio Volume):
By pressing the navigation button you first go to the desired function level! Only now are the settings available. If you turn the navigation button to the left, the number of visible bars is reduced...> The volume becomes lower!
If you turn the navigation button to the right, the number of visible bars increases...> The volume increases!

SQ IIII (squelch = squelch)
By pressing the navigation button you first go to the desired function level! Only now are the settings available. If you turn the navigation button to the left, the number of visible bars is reduced...> The threshold becomes sharper and therefore the radio range is also reduced!
If you turn the navigation button to the right, the number of visible bars increases...> The threshold becomes more generous and therefore the radio range also increases!

SCAN (SCAN = automatic search)
By pressing the navigation button you first go to the desired function level! Only now are the settings available. If you turn the navigation button to the left, the automatic search takes place in the direction of lower frequencies; if you turn the navigation button to the right, the automatic search takes place in the direction of higher frequencies.

CH (channel)
By pressing the navigation button you first go to the desired function level! Only now are the settings available. If you turn the navigation button to the left, the channel changes towards lower frequencies. If you turn the navigation button to the right, the channel changes towards higher frequencies

LOCK (menu lock function)
By pressing the navigation button you first go to the desired function level! Only now are the settings available. If you turn the navigation button to the right, the menu is locked (the character changes to locked!)
If the lock is active, only the volume can be changed!
If you go to this function level again, turn the navigation key to the left... the menu will be locked again (the lock symbol disappears from the display!)

SYNC (infrared transmission of the frequency to the transmitter)
By pressing the navigation button you first go to the desired function level! Only now are the settings available. As soon as you turn the navigation button left or right, the frequency setting is transferred to the transmitter

The included power supply model HB-E012-135080 is an integral part of this wireless system.
The SDR-6000 radio receiver may only be used with this power supply.

In the event of loss or defect, please contact us or one of our authorized specialist dealers.

3. Hand-held microphone

3.1 ITEC WM-6000

3.1.1 Insert batteries

Take down the rotating end of the case and you will have access to the battery compartment. Insert two AA size alkaline batteries according to the correct polarity markings

Note: Old batteries are special waste and must be disposed of accordingly. Some batteries (mainly cheap products) may leak in case of longer storage, which may lead to corrosion and destruction of the battery contacts. Use high-quality alkaline batteries from brand manufacturers; these also have a longer service life.

3.1.2 Turn on the handheld microphone

To turn on the microphone, press the on/off switch for a few seconds. The display lights up, briefly shows “ON” and then the working frequency, battery capacity and other information. When using, pay attention to the battery capacity display on the display. When the battery is empty, the LCD backlight flashes. This means that there is still about 10 minutes of remaining capacity. Please replace the battery in time, otherwise the microphone will turn off automatically. To turn off the microphone, press and hold the on/off switch. The display shows “OFF” and goes out.

3.1.3 Adjust Volume (Audio gain trimmer)

You can adjust the volume on the handheld microphone to suit different situations.

4. Poket transmitter

4.1. ITEC WT-6000

4.1.1 Insert batteries

Fold down the bottom housing cover and you have access to the battery compartment. Insert two AA size alkaline batteries according to the correct polarity markings.

4.1.2 ON/OFF switch/mute

Press the power button to turn the bodypack transmitter on or off. When the bodypack transmitter is activated, the indicator light will light up, the LCD backlight will turn on for a while and then turn off automatically. When using, pay attention to the battery capacity display. When the battery is empty, the LCD backlight flashes. This means that the performance is still sufficient for around 10 minutes. Please replace the battery in time, otherwise the microphone will turn off automatically. If the bodypack transmitter is switched on, you can also use the mute function. Briefly press and release the main switch so that you can turn mute on or off. When mute is enabled, “Mute” will flash on the LCD screen.

4.1.3 Setting the transmission power (RF power)

With the bodypack transmitter, you can set the transmit power (RF) to L or H to adapt to different situations. H (high power) is used for long range. L (lower power) is used in close range and test operations.
When making the setting, open the battery compartment first. You can see the switch for the transmission power at the top right of the battery compartment.

4.1.4 GT and MT audio level adjustment

The pocket transmitter has 2 independent inputs plus controls for line/guitar (GT) and for microphones (MT). This allows you to optimally adapt the device for different applications.
The line-in/guitar input uses pin 2 of the TA4M mini-XLR connector. Adjust the desired sensitivity using the GT controller. The microphone input uses pin 3 of the mini XLR connector TA4M. Adjust the desired sensitivity using the MT controller.

5. Installation module

5.1. Receiver module ITEC SDR-6000M

5.1.1 Change channel/frequency

1. Press the ▲(up) or ▼(down) button until “FREQ” appears at the bottom.
2. Hold down the “SET” button until the “FREQ” display flashes, indicating readiness indicates change.
3. By briefly pressing the ▲(up) or ▼(down) button, you change the channel by one at a time Step. For a quick change, hold down the ▲(up) or ▼(down) button longer. The frequency also changes along with the channel (according to the list).
4. To save the new channel, press the SET button, or the entry will continue after approx. 5 Seconds saved automatically.

5.1.2 Channel synchronization from receiver to transmitter

Place the infrared window of the transmitter (handheld microphone or bodypack transmitter) in a direct, opposite position to the IR window of the receiver. The recommended distance is 10-30 cm

5.1.3 Changing the channel from receiver to transmitter

1. Press the “SYNC” button on the receiver.
2. The channel display is transferred from the receiver‘s LCD display to the transmitter. Both are thus synchronized.

If synchronization did not occur, first check whether the transmitter is turned on. If necessary, reduce the distance between the transmitter and receiver and check again whether the positioning of the IR sensor windows is correct.

5.1.4 SQUELCH (SQ) setting (squelch)

If interference occurs, reduce the receiver sensitivity. With lower sensitivity, the susceptibility to interference is automatically reduced, but so is the volume and thus the range.

To set the squelch:

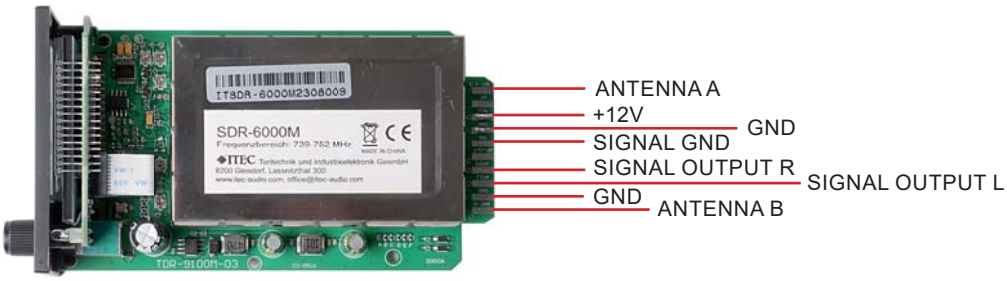
1. Press the ▲(up) or ▼(down) button until you get to the (SQ) page.
2. Hold down the “SET” button until the “SQ” display flashes, indicating that you are ready to make a change displays.
3. Press the ▲(up) or ▼(down) button to select a new level between 1 and 10.
4. After selecting the new level, press the SET button or wait 5 seconds for the automatic storage.
5. Since increasing the squelch level also reduces the reception range, it is recommended to use the to choose the lowest level that can eliminate the interference. If this still causes the problem is not fixed, it means that this frequency is not suitable. Set the squelch back to the preset value and use the search function to get a clear, to find an interference-free channel.

5.1.5 ID Set coding

1. Press the ▲(up) or ▼(down) button until you get to the ID page.
2. Hold down the “SET” button until the “ID” display flashes, indicating that you are ready to make a change displays.
3. Press the ▲(up) or ▼(down) button and select the status off/on (= Id OFF / Id ON).
4. After selecting the ID setting, press the SET button or wait 5 seconds until the automatic storage.

To avoid disruptions, we recommend using the ID function (Id ON).

Pin assignment



6. Appendix: Frequency list

AUT	BE	BG	HU	FR	CZ	SK	DK	EE	FI	IT	LV	NO

739~752MHz ±50kHz/75kHz											
CH	Frequency	CH	Frequency	CH	Frequency	CH	Frequency	CH	Frequency	CH	Frequency
1	739.050	18	741.600	35	744.150	52	745.650	69	747.300	86	749.850
2	739.200	19	741.750	36	744.300	53	745.725	70	747.450	87	750.000
3	739.350	20	741.900	37	744.450	54	745.800	71	747.600	88	750.150
4	739.500	21	742.050	38	744.600	55	745.875	72	747.750	89	750.300
5	739.650	22	742.200	39	744.675	56	745.950	73	747.900	90	750.450
6	739.800	23	742.350	40	744.750	57	746.025	74	748.050	91	750.600
7	739.950	24	742.500	41	744.825	58	746.100	75	748.200	92	750.750
8	740.100	25	742.650	42	744.900	59	746.175	76	748.350	93	750.900
9	740.250	26	742.800	43	744.975	60	746.250	77	748.500	94	751.050
10	740.400	27	742.950	44	745.050	61	746.325	78	748.650	95	751.200
11	740.550	28	743.100	45	745.125	62	746.400	79	748.800	96	751.350
12	740.700	29	743.250	46	745.200	63	746.475	80	748.950	97	751.500
13	740.850	30	743.400	47	745.275	64	746.550	81	749.100	98	751.650
14	741.000	31	743.550	48	745.350	65	746.700	82	749.250	99	751.800
15	741.150	32	743.700	49	745.425	66	746.850	83	749.400	100	751.950
16	741.300	33	743.850	50	745.500	67	747.000	84	749.550		
17	741.450	34	744.000	51	745.575	68	747.150	85	749.700		

FR	LT	MT	NO

823-832MHz											
CH	Frequency	CH	Frequency	CH	Frequency	CH	Frequency	CH	Frequency	CH	Frequency
1	823.700	18	824.975	35	826.250	52	827.525	69	828.800	86	830.075
2	823.775	19	825.050	36	826.325	53	827.600	70	828.875	87	830.150
3	823.850	20	825.125	37	826.400	54	827.675	71	828.950	88	830.225
4	823.925	21	825.200	38	826.475	55	827.750	72	829.025	89	830.300
5	824.000	22	825.275	39	826.550	56	827.825	73	829.100	90	830.375
6	824.075	23	825.350	40	826.625	57	827.900	74	829.175	91	830.450
7	824.150	24	825.425	41	826.700	58	827.975	75	829.250	92	830.525
8	824.225	25	825.500	42	826.775	59	828.050	76	829.325	93	830.600
9	824.300	26	825.575	43	826.850	60	828.125	77	829.400	94	830.675
10	824.375	27	825.650	44	826.925	61	828.200	78	829.475	95	830.750
11	824.450	28	825.725	45	827.000	62	828.275	79	829.550	96	830.825
12	824.525	29	825.800	46	827.075	63	828.350	80	829.625	97	830.900
13	824.600	30	825.875	47	827.150	64	828.425	81	829.700	98	830.975
14	824.675	31	825.950	48	827.225	65	828.500	82	829.775	99	831.050
15	824.750	32	826.025	49	827.300	66	828.575	83	829.850	100	831.125
16	824.825	33	826.100	50	827.375	67	828.650	84	829.925		
17	824.900	34	826.175	51	827.450	68	828.725	85	830.000		

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CE EG Konformitätserklärung
Declaration of Conformity

Dokument-Nr./ Document-No.	045-23
Hersteller/ Manufacturer	ITEC Tontechnik und Industrieelektronik GesmbH
Anschrift/ Adress:	8200 Lassnitzthal 300, Austria

Erklären in alleiniger Verantwortung, dass das Produkt
Declare in exclusive responsibility that the product

Produktbezeichnung/ Product name:	UHF Drahtlosmikrofone UHF Wireless microphones
Type/ Type:	ITEC WM-6000, ITEC WT-6000 ITEC SDR-6000, ITEC SDR-6000M

auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt:
to which this declaration relates in conformity with the following standards:

Richtlinie / Directive
LVD Directive 2014/35/EU
RED 2014/53/EU

Normen / Generic standards

EMC:	EN 301 489-1: V2.2.3 (2019-11)
	EN 301 489-9: V2.1.1 (209-04)
Radio Spectrum:	EN 300 422-1 V 2.1.2 (2017-01)
Safety:	EN 60065: 2014
	EN IEC 62368-1:2020+A11:2020
Health:	EN IEC 62479: 2010
	EN 50663:2017

ING. ROMANO HAMMER JUN.
Name/Name

Geschäftsführer / Managing Director
Stellung/Position

2023-10-23
Datum/Date

Unterschrift/Signature

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, beinhaltet jedoch keine Zusicherung von Eigenschaften. Die Sicherheitsshinweise der mitgelieferten Produktdokumentation sind zu beachten.

This declaration certifies compliance with the above mentioned directives but does not include a property assurance.
The safety notes given in the product documentations, which are part of the supply, must be observed.

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ITEC UHF RADIO MICROPHONE SYSTEM - SPECIFICATIONS

GENERAL FEATURES OF THE SYSTEM	
Maximum Frequency Deviation	± 40 kHz
Frequency Response	40 Hz – 18 kHz
Harmonic Distortion	< 0.5 % @ 1 kHz
Signal-to-Noise Ratio	> 110 dB
WM-6000 HAND-HELD MICROPHONE	
Power supply	2 batteries, alkaline “AA“ 1.5 V
Transmitting power	9 mW
Operating time	approx. 10 - 12 hours with one battery charge
Dimensions, weight	L=250 mm, diam.=50 mm, weight= ca. 400 g
WT-6000 POCKET TRANSMITTER	
Power supply	2 batteries, alkaline “AA“ 1.5 V
Transmitting power	9 mW
Operating time	approx. 10 - 12 hours with one battery charge
Dimensions, weight	90 mm x 70 mm x 25 mm, weight= ca. 80 g
SDR-6000 DIVERSITY RECEIVER, ½ 19“	
Power supply	12 V DC (PSU 230 V AC / 12 V DC included)
Dimensions, weight	210 mm x 44 mm x 180 mm, (1/2 19“, 1 U), weight= 0.82 kg
SDR-6000M RECEIVER MODULE	
Power supply	12 V DC , power consumption approx. 220 mA
Dimensions, weight	70 mm x 35 mm x 148 mm (W x H x D), weight=110 g

All information without guarantee. Subject to technical changes.

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