

WZ

A small full portable transmitter with internal UHF receiver and High dynamics audio processing.

Description of the WZ and product specifications.

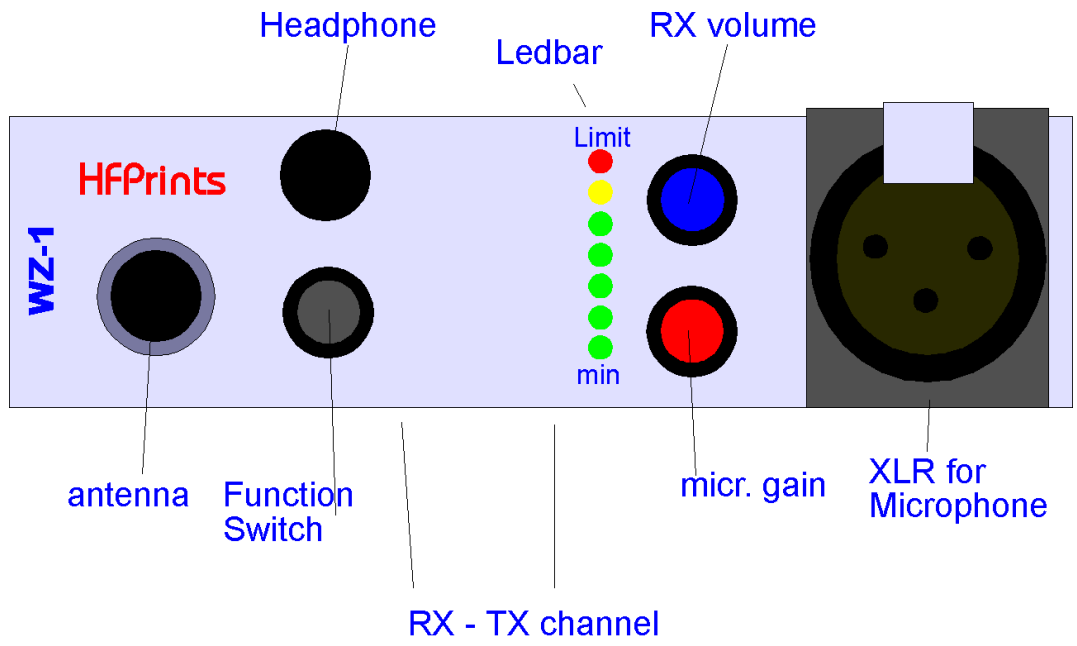
WZ is despite its small size a full operational transmitter with a build in UHF receiver. WZ can transmit on VHF and receive on UHF at the same time. This combination makes it very useful for reporters in the field to interact with the radio studio.

For best possible signal to noise ratio, WZ's transmitter is suited with a high dynamics equivalent to Sennheiser's HiDyn signal processing.

WZ1 & WZ2 explained.

On **WZ1**'s front there is a multifunction control switch, a led bar, an adjustable microphone input, an adjustable headphone output and an antenna connector.

WZ1's front drawing



WZ 1 front

Antenna: A TNC connector for use with an EFD (Procom) antenna. It is important that this type of antenna is used for proper operation.

Function switch: Switch to operate some important functions of the WZ.

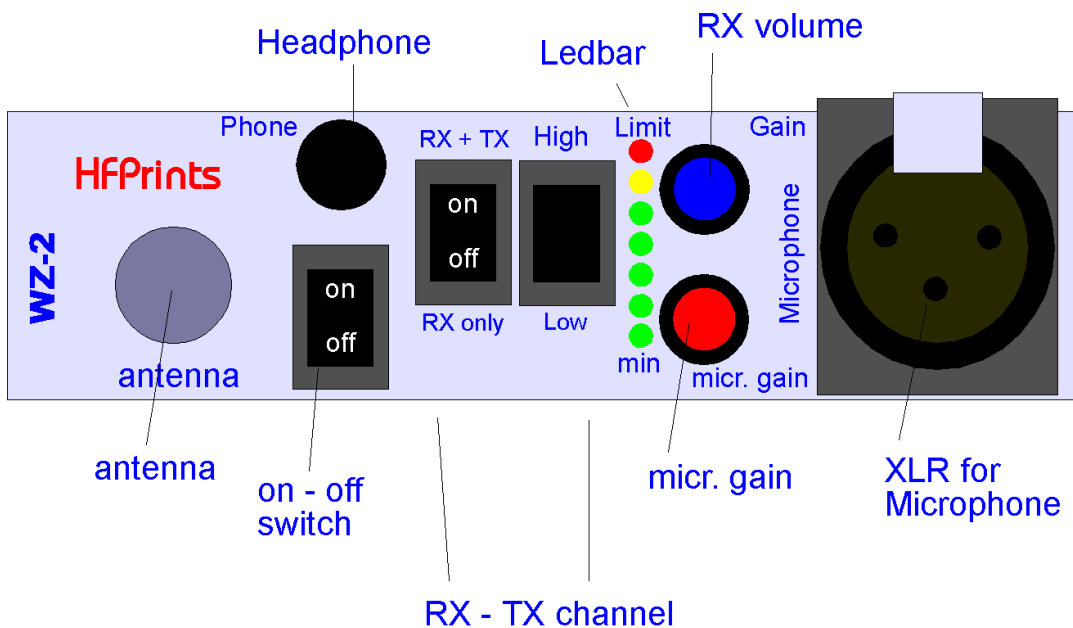
Turning it clockwise sets these functions:

- 1 - Off.
- 2 - Receiver only, led bar indicates battery status.
- 3 - Receiver and transmitter, transmitter on low power, on, led bar indicates battery status.
- 4 - Receiver and transmitter, transmitter on low power, led bar indicates audio level.
- 5 - Receiver and Transmitter, led bar indicates battery level, transmitter on high power,
- 6 - Receiver and transmitter, transmitter on high power, led bar indicates audio level.

WZ-2

No multifunction switch, but toggle switches on front panel.

WZ2's front drawing



WZ-2 does not differ much from the WZ-1, only the way to control it is different. Not a multifunction control switch but 3 toggle switches are used to control the functions instead.

Before operation set all toggle switches in the off position and start from there.

On - off switch: Off shuts down the WZ completely. On position sets the WZ to standby, ready to operate. Front's led bar indicates battery level (after a few seconds, microprocessor has to start up first). Internal UHF receiver is active and volume control can be adjusted to your needs.

Transmitter: Now switch from RX only to RX + TX to set transmitter on air. Note that there is a small delay of about one second before transmitter's output power is active.

Transmitting power: High / low toggle switch set transmitter's power to high or low level.

Low power is used when you are near a receiver, it prevents interference with other receivers and the battery will last longer. High power gives a higher transmitting output. In combination with a CLB200*, output power is dynamic controlled. If you are near to a CLB200*, WZ's transmitting power is low. If you walk away from the CLB200*, WZ's output power will increase up to WZ's rated output power at the frequency range used. This extra function will not only save you energy, but also prevents interference with other users.

* HF prints CLB200 with internal UHF transmitter

Led bar. WZ's front led bar is used to indicate two levels, battery status and audio level.

Audio indication: yellow led indicates maximum microphone input level; red led indicates that internal audio limiter is active. Note: in led bar battery level indication, red led is still used for internal audio limiter activity.

In RX only mode, led bar indication is used for battery level.

In RX/TX low power mode (Low), led bar indication is used for audio level.

In RX/TX high power mode (High) led bar indication is used for battery level.

Led bar indication for battery level (from bottom to top)

- Led 1; low battery, switch the battery for a full one.
- Led 2; battery is 5 - 15% of its capacity. Change the battery within 10 minutes. (WZ will beep)
- Led 3; battery is 15 - 50% of its capacity.
- Led 4; battery is 50 - 70% of its capacity.
- Led 5; battery is 70 - 90% of its capacity.
- Led 6; battery is 90-100% of its capacity.
- Led 7; no battery function, indicates when the audio limiter is active.

Led bar indication for audio level (from bottom to top)

- Led 1; no or very soft audio -18 dB or lower
- Led 2; audio - 12 dB
- Led 3; audio - 8 dB
- Led 4; audio - 5 dB
- Led 5; audio - 2 dB
- Led 6; audio - 0 dB
- Led 7; audio limiter is active

Other functions explained for WZ1 & WZ2.

- TX channel** Transmitter channel switch; sets transmitter to the required channel (16 channels preprogrammed) and the corresponding frequency. Channels can only be changed when the transmitter is in off position, set your WZ to RX only, than change the channel and turn back to TX RX mode.
- Micr. Gain** Adjustable gain level; set's microphones gain. To set the right level, adjust with normal speech until the yellow led on the audio led bar is flashing. Note: gain control is limited; it is not possible to switch off the microphone completely.
- Head room; the internal power supply limits the audio headroom to 12dB. If your audio gain is set to high, your limit led will flash frequently. A to large audio gain can cause clipping, if this occurs, than change the gain to a lower level.
- XLR micr.** A 3 pole female XLR connection is available for use with dynamic microphones. WZ does not support phantom power. If an optional 5 or 7 pin XLR is installed, this is a male version. Input impedance is 1000 Ohms.
- General note** It is your responsibility, only to use empty frequency channels and / or discuss frequency plans with other users on the same location. Try to make an agreement to avoid interference or other problems.

XLR connector pinning			
XLR Pin number	XLR 3	XLR5	XLR7
1	Ground	Ground	Ground
2	+ microphone symmetric	+ microphone symmetric	+ microphone symmetric
3	- microphone symmetric	- microphone symmetric	- microphone symmetric
4		headphones symmetric	headphones symmetric
5		headphones symmetric	headphones symmetric
6			PTT* contact (WZ 2 only) is parallel to the RX_TX switch.
7			PTT contact* (WZ 2 only) This switch must be set to RX.

*For French models, PTT is for program or talkback mode

Headphones To control the audio of the receiver there is a 3.5 mm jack connector just above the switch function. This 3.5 mm jack will accept any mono headset or earpiece with an impedance of > 32 Ohm, or (preferred) > 64 ohms.

RX channel Receiver channel switch; sets receiver to the required channel (16 channels preprogrammed) and the corresponding frequency.

RX volume Adjustable audio level for the internal receiver to headphones output (it does not adjust microphones audio level to headphones output, that remains 6dB softer than receiver's audio level).

Note; If receiver is in mute because there is no receiver signal is available or internal receiver is switched off; WZ's headphones output and microphones audio connection to headphones output are also muted.

Note: microphone and headphone volume cannot be turned off completely, microphones audio will always be present, headphones audio will be present as long the receiver is not in mute. This functionality is to prevent that microphones audio is turned off accidentally.

Beeps A beep in receivers audio is an alert that the battery gets low on level, replace within 10 – 15 minutes.

Microphone audio on headset;

on order, it is possible to ask for an audio loop through between the headset's microphone and headphones. Audio level can be preset internally only.

Charging the battery:

As a standard accessory, WZ is delivered with an Mascot Battery charger.

This Mascot charger is a self-operating charger, it will measure battery's state before starting the charging cycle. During this charging cycle, a red led is signaling, when it turns green the battery is fully loaded.

WZ's battery is a modern Li-ion type that can be charged whenever is needed, you don't have to unload the battery before recharging it. When the battery is charged inside the WZ, it is possible to use the battery charger as an external power supply during charging.

Note for changing battery:

WZ1

First turn WZ off, then replace battery.

WZ2:

Set RX/TX switch to RX, then switch WZ off.

Replace battery, then switch on again and set RX/TX switch to TX

Specifications WZ-1 and WZ-2 reporter transmitter

General

Power		internal battery	7,6v 3300 mA/h	replacable
Power consumption	RX	200 mA	useful > 9 hrs	typical 10 hrs
	RX – TX low	500 mA	useful > 5 hrs	typical 6 hrs
	RX – TX high	800 mA	useful > 3,5 a 4 hrs	
Charging battery 0 – 100%		3 hours	for 3300 m Ah battery	
Antenna connector		TNC		
Audio connector		XLR		
Case		108 x 170 x 30 mm		
Led bar		7 led	battery + audio	
HF + audio specifications				
Number of channels		16		
Frequency range	VHF	181 – 223		
Switching bandwidth		30 MHz	40 MHz optional	
Frequency step		25 – 100 kHz	programmable.	
Frequency deviation		40 kHz		
Power low		300 to 500 mW		
Power high		2 to 2,2 W		
De-emphases		50 μ s		
Distortion		0,3 % typical	0,7 % max	
Microphone sensitivity		5 mV	typical	
Audio		100 Hz – 15 kHz mono	+/- 1 dB (50Hz = -3dB)	
Signal to noise ratio	microphone 5mV	> 76 dB	80 dB typical	
Headroom		16 dB		
Talkback receiver:				
Number of channels		16		
Frequency range		410 - 470 MHz	415/430 440/458 or 455/470	
Switching bandwidth		15 MHz		
Frequency step PLL		12,5 kHz		
Sensitivity for 20dB Sinad		< 0,5 μ V	typical 0,35 μ V	
Audio		100 Hz – 3 kHz		
Signal to noise		45 dB	unweight	
De-emphasis		750 μ s		
Frequency deviation		3 kHz		
Audio headphone		8V	symmetric	

Notes for experienced RF engineers only :

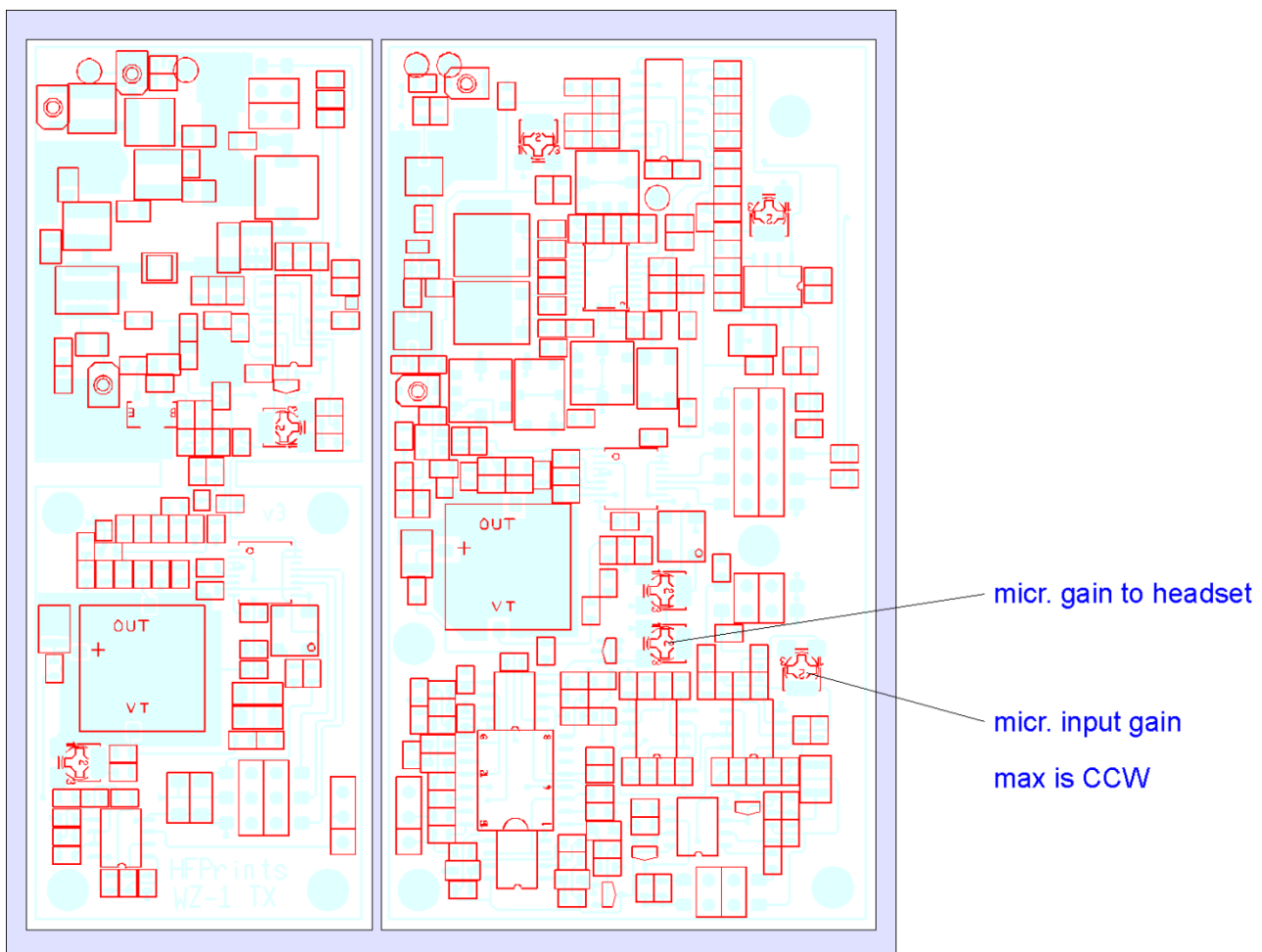
To optimise WZ to your needs, it is possible to adjust microphones gain and microphones signal to your headset level. Adjusting microphones gain can be required as its adjustment range on front is limited from 5-50mv. The set level range is for optimum signal to noise ratio, but when you need more gain it can be adjusted to a higher level.

Note: microphone input adjustment is set counterclockwise for more gain.

WZ has an internal connection from microphones input to the headset output. This level can be adjusted internally, but its maximum output level is 6dB less than the output level from the UHF receiver. Note: output adjustment is set counterclockwise for a higher level.

Open the WZ, remove all 3 hexagon bolts from WZ's front, and then slightly pull WZ's front from the aluminum case. Now you can change settings as required. Figure 3 shows the right adjustment positions. When done, smoothly replace the WZ back in its case, check if all levels are correct now, if yes, then screw the hexagon bolts back in to the front.

Figure 3: Inside WZ1



All other set points, do not touch !!



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