

WIRELESS SERIES

USER MANUAL

FOR THE

WS 19

SINGLE CHANNEL WIRELESS BELTPACK



CONTENTS

1.0	GENERAL DESCRIPTION.....	3
2.0	UNPACKING.....	3
3.0	INSTALLATION.....	3
4.0	FRONT PANEL CONTROLS.....	4
5.0	SIDE PANEL CONTROLS.....	5
6.0	REAR PANEL CONNECTORS	6
7.0	INTERIOR.....	7
8.0	SETTING UP A CONNECTION.....	8
9.0	COMMUNICATION MODES.....	9
10.0	GPRINCIPLES OF OPERATION.....	10
11.0	PARTYLINE TECHNICAL CONCEPT.....	11
12.0	WARANTY.....	11
13.0	TECHNICAL SPECIFICATIONS.....	11

1.0 GENERAL DESCRIPTION

The WS 19 is a portable single channel wireless user station housed in a strong aluminum case.

On the front panel are a Volume (listen level) control, a Talk and a Call button with LED indicators.

Special attention has been paid to the intelligibility of speech. By applying low noise/high speed op-amps, a speech presence filter and a specially developed amplifier, communication is very comfortable even in environments with a very high background noise level.

The unique ASL CALL system provides both a flashing red LED and a very distinctive and characteristic sound signal. Smooth operation is guaranteed with the CALL button. A momentary push makes the red LED flash, whilst holding the button for two seconds it will activate the CALL sound signal. The volume of the sound signal (buzzer) can be adjusted at the side panel.

2.0 UNPACKING

The shipping carton contains the parts listed below:

- The WS 19
- User manual
- 6 NiMh rechargeable Batteries

If any are missing, contact your dealer.

ASL has taken great care to ensure this product reaches you in flawless condition. After unpacking the unit please inspect for any physical damage to the unit, and retain the shipping carton and relevant packing materials for use should the unit need returning.

If any damage has occurred, please notify your dealer immediately so that a written claim can be initiated. Please also refer to the guarantee section of this manual.

3.0 INSTALLATION

The supplied batteries are empty, insert them in the beltpack and charge them before use. The charge LED must be green for the batteries to be fully charged.

This WS 19 will form part of an existing or new intercom system in combination with a WS 200 or WS 400 base station. There are no separate power connections, the necessary DC voltages are derived from the internal batteries which can be charged by the internal battery charger.

Adjust the channel select switch to match the selected channel on the base station. After switching on the unit with the power switch at the rear panel, the unit should have contact with the base station. To check this simply push the CALL or TALK button and the LED's should indicate a normal functioning beltpack.

4.0 FRONT PANEL CONTROLS

1 VOLUME control knob

This knob adjusts the listen level for the headset.

2 TALK button

This push button activates the headset microphone, the bright green LED (5) indicates if the microphone is switched on. The beltpack must be in reach of the base station for the microphone to be switched on.

If you lose your connection to the main station then the TALK function will be switched off until you are within reach again. You will notice that the Led is off and you will, not hear your own voice. Once within reach, the functions are restored automatically.

3 CALL button

This push button activates the call system. A momentary push will send a call signal to all stations connected to the intercom channel and the call LED (4) will start flashing.

Press and hold the button for 2 seconds will activate the call buzzer.

After the CALL button is released the LED's will continue to flash for further 2 seconds.

The beltpack must be in reach of the base station for sending or receiving a CALL signal.



5.0 SIDE PANEL CONNECTORS

6 TONE VOLUME

This trimmer adjusts the level of the tones that the WS 19 produces in case of a low battery warning and at start up.

7 OWN VOICE trimmer

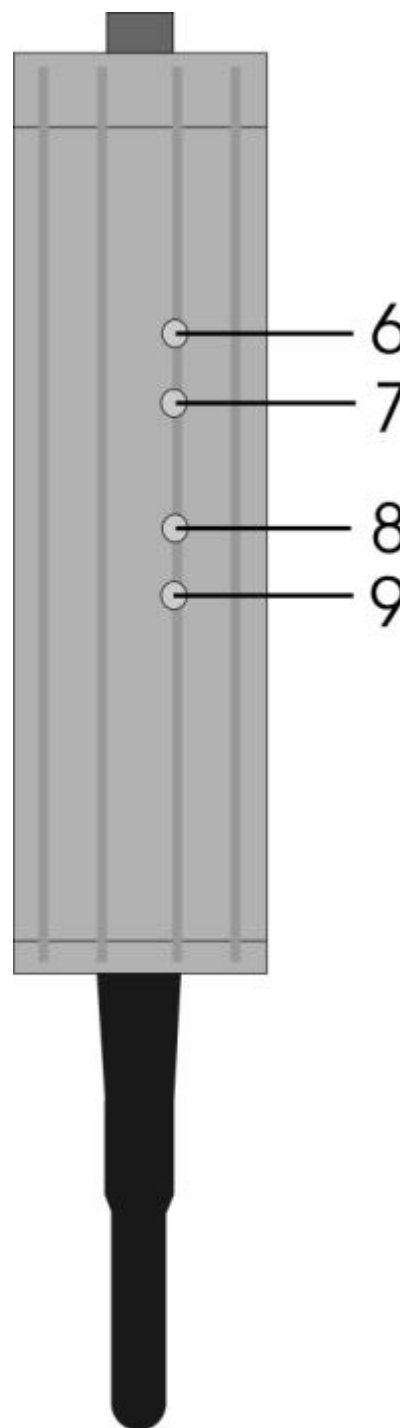
This trimmer adjusts the level of your own voice as you hear it in your headset. The operating area is between fully clockwise and minimum level. Adjusting this signal does not affect the level of your voice as it is heard by other stations.

8 BUZZER VOLUME trimmer

This trimmer adjusts the volume of the internal buzzer. The buzzer is activated if you press the CALL button of the WS 19 (3) or a CALL button of any other station (on the channel to which the WS 19 is connected), longer than 2 seconds.

9 MIC GAIN

The mic gain can be adjusted by this trimmer. To increase mic gain turn counterclockwise. To decrease mic gain turn clockwise.



6.0 REAR PANEL CONNECTORS

10 Antenna

This small antenna is chosen to be very flexible and non-removable. For optimum performance keep the antenna clear from obstacles.

11 POWER on/off switch

This switch switches the unit on and off.

12 CHANNEL SELECT switch

With this switch the channel is selected on which the belt-pack will communicate with the base station. The selected channel must match the channel set at the base station.

13 DC INPUT connector

Apply a DC voltage of 12 Volts DC to this connector to charge the internal batteries. The sleeve is negative and the inner contact is positive. The charger may be of the regulated or unregulated type.

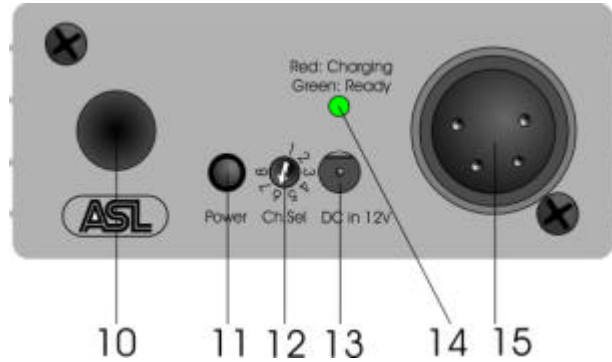
The LED indicator (14) will be lit red when the unit is charging the batteries, and it will be lit green when the batteries are fully charged.

The unit may be operating when the batteries are being charged. Please always make sure that the led is lit when you apply a charger, if the led is not lit then the charger does not work.

14 Battery charger status LED

This LED indicates the status of the battery charger. The LED is lit red when the external adaptor is connected and the batteries are being charged.

The LED is green lit when the external adaptor is connected and the batteries are fully charged.



15 HEADSET CONNECTOR

An XLR-4 type connector for the connection of the headset. This must have a can impedance of 200 ohms (or greater), or each minimum 400 ohms when in parallel. The mic may be of the dynamic or electret type.

Pin assignments:

1. Shield mic. (GND)
2. mic. +
3. phones +
4. phones -

16 Battery compartment

This compartment will hold 6 penlight batteries of the AA type.

The supplied rechargeable NiMH batteries are the preferred types for the maximum duration. Please take special attention in your choice of batteries! The WS 19 uses a high discharge current that the batteries need to sustain over the whole lifespan. Batteries that can only supply a high current for a short time will be exhausted very quickly.

When the batteries reach the end of their capacity the beltpack will warn you with 4 short tones, the interval of the tones will shorten when the batteries wear out.

17 Dipswitch

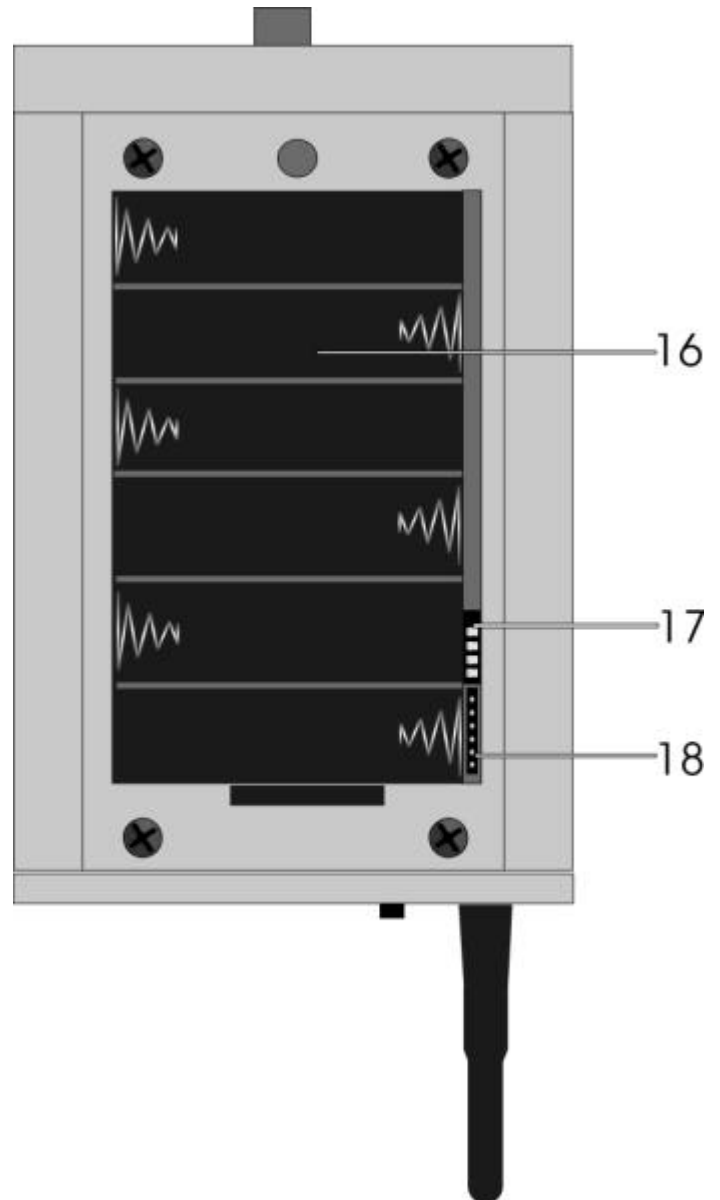
This dipswitch controls four functions of the WS 19, these are:

- A Talk function only momentary
- B Talk function disabled.
- C Buzzer function disabled.
- D Battery save mode.

The dipswitches are turned on by sliding them towards the side panel of the beltpack, they are turned off when slid to the battery compartment.

18 Service connector.

This connector is to be used **only** for factory service. Do not connect anything to it and do not short circuit any of the pins.



8.0 SETTING UP A CONNECTION

8.1 BASE STATION SETTINGS

A) The base station must be set up properly according to the user manual. Give each TX/RX unit of the base station its own channel by rotating the Channel select switch.

Try to avoid concurrent channels to be physically next to each other, eg. In a setting of two WS 400's try to set them in this order : 2, 4, 6, 8, 1, 3, 5, 7

If you use a WS 200 with only two beltacks use channels 1 and 6.

B) Connect the base station to the partyline intercom or 4 wire system and make sure the interface mode switch at the back is set accordingly.

C) turn the sidetone trimmers counter clock wise.

8.2 BELTPACK SETTINGS

Select with the channel select switch at the rear of the beltack the channel to match the WS 200 or WS 400 setting.

Connect a headset to the beltack and insert fully charged batteries.

When the beltack is switched on then a single short tone should be heard and both led's on the front panel of the unit will flash for half a second. This indicates that the beltack is functioning okay.

If you press the CALL or TALK button the led's on the front panel will be lit and the corresponding TX/RX unit of the base station will show a green ACTIVE led. This means that the beltack has connection with the base station.

8.3 SIDETONE ADJUSTMENT

Turn down the OWN VOICE volume trimmer at the side panel of the beltack. (clockwise)

Switch on the TALK function of the beltack (TALK button).

Talk in the microphone and listen to your own voice, you might hear a small delay in the signal.

Now turn down the volume of your own voice by adjusting the SIDE TONE trimmer at the base station of the TX/RX unit to which the beltack is connected.

Adjust the trimmer so that the level of your own voice is as low as possible.

Now turn up the volume of your own voice by adjusting the OWN VOICE trimmer to a level that you like.

8.4 FULL DUPLEX AND HALF DUPLEX USE

Although the system is designed to be used in full duplex use, there is a possibility to use the system in half duplex mode too.

Half duplex allows more than 1 beltack on the same frequency and therefore on one TX/RX unit of a base station.

Every beltack will be able to listen to the base station, but only one of the listening beltacks can talk at a time and have a full duplex connection. The other beltacks will not be able to CALL or TALK.

In this mode it is useful not to adjust the sidetone trimmer on the base station, turn it fully counter clockwise.

Read the next chapter about communication modes carefully.

9.0 COMMUNICATION MODES

This system is designed to offer a

maximum of 8 wireless, full duplex, beltacks. Each beltack may be a single channel beltack WS 19 or a dual channel beltack WS 29.

Each beltack needs to be assigned to a unique channel. On this channel the communication between the beltack and the base station will take place. If another base station is set to the same channel the communication will be garbled and will result in a none functioning connection.

The base station will automatically select the right mode for a WS 19 or WS 29 beltack. A WS 19 beltack will always be connected to its own channel at the base station, a WS 29 beltack will be assigned to two channels on the base station.

9.1 FULL DUPLEX

A connection of one WS 19 on eg. Channel 1 will be accomplished by selecting channel 1 on the beltack, and channel 1 on TX/RX unit 1 of the base station. The connection is a dedicated and full duplex connection. The sidetone needs to be adjusted at the front of the base station and the user of the beltack can adjust his own voice at the beltack with the designated trimmer.

9.2 HALF DUPLEX

A connection of several WS 19 beltacks on eg. Channel 1 to a TX/RX unit of a base station (also channel 1 selected) is a half duplex connection. This means that all the beltacks can listen to the same TX/RX unit of the base station. Only one beltack can TALK to the base station.

The beltack that selects TALK mode will occupy the connection and the TALK function of all other listening

beltacks is disabled. The same for sending CALL signals, only one beltack may send a call signal but all of them will receive it.

There is one major drawback to half duplex mode, this is due to the principle of the partyline concept.

In case of a very good adjusted sidetone trimmer at the base station this effect will be noticed :

When 2 or more beltacks are using the same TX/RX unit of a base station (listening to the same signal), and one of the beltacks is talking to the base station, the listening beltack will not be able to hear the talking beltack. This effect is caused by the adjusted sidetone that prevents the microphone signal of a beltack to be heard by himself, and therefore, also heard by other beltacks on the same TX/RX unit.

To solve this the sidetone trimmer of the TX/RX unit should be turned fully counter clockwise.

This has one disadvantage too, if a beltack talks to the base he will hear his own voice in his headset with a delay of 24 ms. The other listening beltacks will not notice this delay. By adjusting the OWN VOICE trimmer at the beltack the effect can be made less.

The wireless system uses the 2,4 GHz band which is freely available for WLAN (Wireless Local Area Networks).

The ASL-intercom system divides the available bandwidth into 16 overlapping parts, 8 of them are being used as upload channel from the beltpacks and the other 8 are being used as download channel to the beltpacks.

With the channel select switch you actually select an upload and download channel pair to be used for that beltpack. On every channel **only one** section of a base station may be working.

More than one beltpack on the same channel is possible as described in section 8.2.

10.1 HF FREQUENCIES

Due to the fact of the very high frequency the user must take precautions in placement.

The frequency of 2,4 GHz is known to have difficulty in penetrating concrete walls, steel walls and other obstructions.

Behind obstructions like these an "HF shadow" may occur where no communication is possible.

Another point of interest is that this frequency may have reflections more easily than lower frequencies. You might experience a dropout on a very specific spot in a building, moving the beltpack only a few inches can be enough to solve the problem.

Because of the use of the WLAN frequencies the units might experience interference from units like mobile telephones with bluetooth and computers with bluetooth or WLAN cards.

Try to change channels if you experience problems with these.

Another point of interest is placing the unit in a 19" rack. The user needs to pay special attention to the placement of the antenna, the antenna of the base station needs to have a "line of sight" to the antenna of the beltpack.

All objects that are within that path will make the connection less reliable.

This starts with the 19" rack itself, the maximum available distance behind the rack will be less than in front of the rack.

The base stations WS 200 and WS 400 are available in versions with the antenna connectors at the front or at the rear panel. Choose whatever version that is the most convenient to you.

All base stations are equipped with SMA connectors, female at the base station and male at the antenna.

If the antenna's are not to be directly connected to the front or the rear panel, the user must take care of the right type of cable to be used, it needs to be of the 50 ohm type. The 2,4GHz frequency experiences a big loss in any cable, e.g. a RG58 cable of 3 meters has a loss of 3 dB, so make sure that your cable is suited for this frequency and the cable is as short as possible. Make the cables in lengths that can be divided by 12cm. E.g. 24cm, 48cm, 120cm, 240cm.

