WIRELESS SERIES

USER MANUAL

FOR THE

WS 19

SINGLE CHANNEL WIRELESS BELTPACK

!!! Preliminairy !!!

CONTENTS

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 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

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.

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.

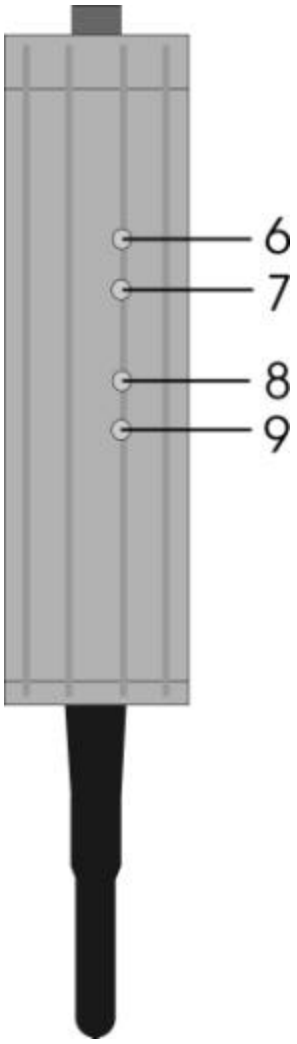
5.0 SIDE PANEL CONNECTORS

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.

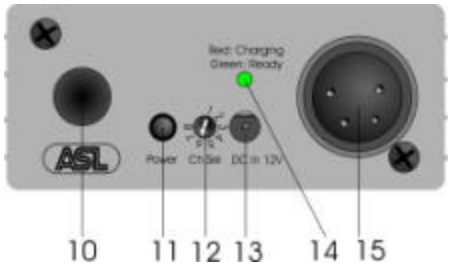
7 TONE VOLUME
This trimmer adjusts the level of the tones that the WS 19 produces in case of a low battery Warning.

8 BUZZER VOLUME trimmer
This trimmer adjusts the volume of the internal buzzer, which is located behind the front panel.
The buzzer is activated if you press the CALL button of the WS 19 (3) or a ALL 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 a trimmer on the side panel
To increase mic gain turn clockwise.
To decrease mic gain turn counterclockwise.



5.0 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 channe l is selected on which the beltpack 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 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.

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 -

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 beltpacks 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 correctly.

C) turn the sidetone trimmers counter clock wise.

SIDETONE ADJUSTMENT

Turn down the OWN VOICE volume trimmer at the side panel of the beltpack. (clockwise)
Switch on the TALK function of the beltpack (TALK button).
Talk in the microphone and listen to yur own voice, you might hear a small delay i 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 beltpack is connected.
Adjust the trimmer so that the level of you 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.

BELTPACK SETTINGS

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

Connect a headset to the beltpack and insert fully charged batteries.
When the beltpack 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 beltpack 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 beltpack has connection with the base station.

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 beltpack on the same frequency and therefore on one TX/RX unit of a base station.
Every beltpack will be able to listen to the base station, but only one of the listening beltpacks can talk at a time and have a full duplex connection. The other beltpacks will not be able to CALL or TALK.
In this mode it is usefull not to adjust the sidetone trimmer on the base station, turr it fully counter clockwise.
Read the next chapter about communication modes carefully.

COMMUNICATION MODES

This system is designed to offer a maximum of 8 wireless, full duplex, beltpacks. Each beltpack may be a single channel beltpack WS 19 or a dual channel beltpack WS 29.

Each beltpack needs to be assigned to a unique channel. On this channel the communication between the beltpack 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 beltpack. A WS 19 beltpack will always be connected to it own channel at the base station, a WS 29 beltpack will be assigned to two channels on the base station.

FULL DUPLEX

A connection of one WS 19 on eg. Channel 1 will be accomplished by selecting channel 1 on the beltpack 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 beltpack can adjust his own voice at the beltpack with the designated trimmer.

HALF DUPLEX

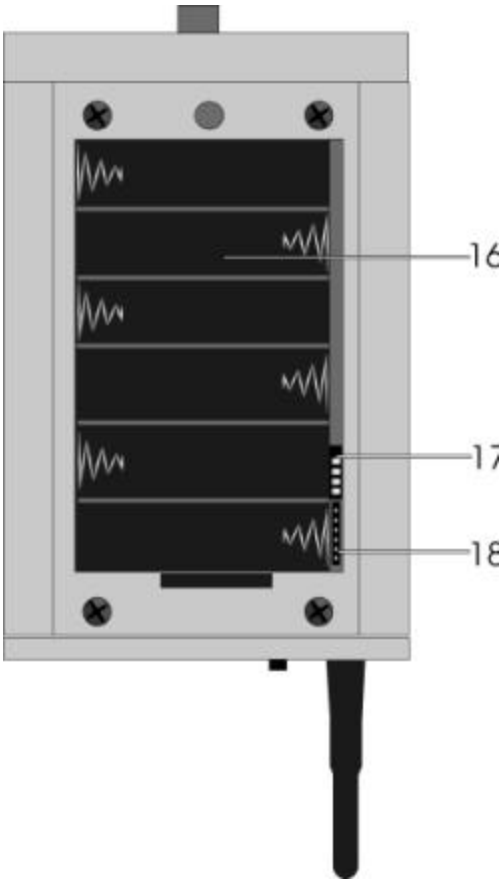
A connection of several WS 19 beltpacks on eg. Channel 1 to a TX/RX unit of a base station (also channel 1 selected) is a half duplex connection.
This means that all the beltpacks can listen to the same TX/RX unit of the base station. Only one beltpack can TALK to the base station. The beltpack that selects TALK mode will occupy the connection and the TALK function of all other listening beltpacks is disabled.
The same for sending CALL signals, only one beltpack 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 beltpacks are using the same TX/RX unit of a base station (listening to the same signal), and one of the beltpacks is talking to the base station, the listening beltpack will not be able to hear the talking beltpack.
This effect is caused by the adjusted sidetone that prevents the microphone signal of a beltpack to be heard by him self, and therefore also heard by other beltpacks 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 beltpack talks to the base he will hear his own voice in his headset with a delay of 24 mS. The other listening beltpacks will not notice this delay.
By adjusting the OWN VOICE trimmer at the beltpack the effect can be made less.



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 Dip switch

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 PARTY LINE, TECHNICAL CONCEPT

ASL's WIRELESS Series offers a complete two way ('full duplex') communications system.
Users of the system are connected via a 'party line'. base stations (with built-in power supply), beltpacks and power supplies are interconnected via standard microphone cable. One wire is used as an audio line, one as a power line and the screen of the cable functions as earth/return.

Current drive is used for signal transfer. Each station utilizes a current amplifier to amplify the microphone signal and place it on the common audio line where, due to the constant line impedance (situated in the power supply between XLR pin 3 and 1), a signal voltage is developed which can be further amplified and sent to the headphones.

This principle has three advantages:
- the use of a single audio line allows several stations to talk and listen simultaneously.
- due to the high bridging impedance offered by each station, the number of stations 'on line' has no influence on the level of the communications signal.
- power and audio to the intercom stations use the same cable.

The Call signal is also sent as a current on the audio line. It develops a DC potential over the line impedance which will be sensed by each station and interpreted as a Call signal.

9.0 WARRANTY

This unit is warranted by ASL Intercom to the original end-user purchaser against defects in workmanship and materials in it's manufacture for a period of one year from date of shipment to the end-user.

Faults arising from misuse, unauthorized modifications or accidents are not covered by this warranty. If the unit is faulty it should be sent in it's original packing, to the supplier or your local ASL dealer, with shipping prepaid. A note must be included stating the faults found and a copy of the original suppliers invoice.

THIS PRODUCT WAS DESIGNED, DEVELOPED AND MANUFACTURED BY:

ASL Intercom
UTRECHT, HOLLAND.
http://www.asl-inter.com

10.0 TECHNICAL SPECIFICATIONS WS 19

POWER CONSUMPTION

current (at 9 V DC)	200 mA quiescent
	280 mA signaling
	450 mA at max. output + signaling

MIC. PREAMP

mic. impedance	200 ohms
gain	40 dB - 70 dB
presence filter	+6 dB at 5 kHz
frequency response	200 Hz - 12 kHz (-3 dB)
V electret mic	+9 V DC

HEADPHONES DRIVER AMP

max. load	200 ohms
max. output level	4 V rms (200 ohms)
max. output power	0.16 W rms (each headset can)

BUZZER

max. SPL	90 dBA

DIMENSIONS AND WEIGHT

width	88 mm
height	49 mm
depth	141 mm
weight	650 grams

GENERAL SYSTEM SPECIFICATIONS

dynamic range	80 dB
Transceiver frequency	2400 – 2483.5 MHz
Transmit Power	10 mW E.I.R.P.
Number of channels	8
Channel separation	4.4 MHz
supply voltage	+7,2 V DC (4.2 V to 9 V)

Note : 0dBu = 775 mV into open circuit

ASL reserves the right to alter specifications without further notice.