Riedel Acrobat Digital Wireless Intercom system

Acrobat WB-2 Wireless Beltpack



This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions. (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Federal Communications Commission (FCC) Statement

Manual Requirements according 15.19 / RSS-210

Changes or modifications made to this equipment not expressly approved by Riedel Communications may void the FCC authorization to operate this equipment.

Manual Requirements according 15.105

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Manual / Label requirements according ICES-003

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

RF Exposure Information according 2.1091 / 2.1093 / OET bulletin 65

Radiofrequency radiation exposure Information:

The radiated output power of the device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized.



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Content

1	Safety Information	5
1.1	Explanations of Symbols	
1.1.1		
1.1.2	=	
1.1.3	Caution	5
1.1.4	Hint	5
1.2	Service	6
1.3	Voltage	6
1.4	Environment	6
1.5	Battery Safety	6
1.6	Disposal	6
2	Introduction	7
2.1	General	-
2.2	Terminology	
2.3	Supported headsets	
2.4	Restrictions	
3	User Elements	Q
3.1	User Elements Top	
3.1.1	·	
3.1.2		
3.1.3		
3.1.4		
3.1.5	· · · · · · · · · · · · · · · · · · ·	
3.1.6	, ,	
3.1.7	, , ,	
3.1.8	,	
3.1.9		
3.2	User Elements Bottom	
3.2.1	Power switch	14
3.2.2	Power contacts	14
3.2.3	Headset Connector (4-pole male XLR)	14
3.2.4	Ethernet Connector	15
3.2.5	DIP Switch Functions	
4	Service menu	16
4.1	Activation of service menu	
4.1.1	Prerequisites	16
4.1.2	Open service menu	16
4.2	Operation of service menu	
4.2.1	`	
4.2.2	6	
4.2.3	Menu structure (Overview)	19
5	Tones and events	2 0
5.1	Tones	20
5.2	Events	
5.3	Troubleshooting	20
6	Service	21
7	NOTES	00
	141.71 F 3	



Document History

Revision	Comment	Date
3.28 Rev. 1.0	Initial revision for Riedel Acrobat Digital Wireless Intercom system - Version 3.28.x	01.07.2009
3.28 Rev. 1.1	Enhancements - Version 3.28.2	05.07.2009
3.28 Rev. 1.2	Enhancements - Version 3.28.3	23.07.2009
3.30 Rev. 1.0	Updated for Firmware Version 3.30	12.10.2009



1 **Safety Information**

1.1 Explanations of Symbols

The following tables are used to indicate hazards and provide cautionary information in relation to the handling and use of the equipment.

Danger

1.1.1 Danger





The highlighted line indicates the activity to prevent the danger.

1.1.2 Warning

Warning



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

The highlighted line indicates the activity to prevent the danger.

1.1.3 Caution

Caution



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

The highlighted line indicates the activity to prevent the danger.

1.1.4 Hint



This text is for generally information. It indicates the activity for ease of work or for better understanding.



1.2 Service

- All service has to be undertaken ONLY by qualified Riedel service personnel.
- There are no user serviceable parts inside the device.
- Never attempt to modify the equipment components for any reason.

Caution



All adjustments have been done at the factory before the shipment of the devices. No maintenance is required and no user serviceable parts are inside the module.

1.3 Voltage

- Ensure that the supply voltage available at the installation site meets the voltage range of the battery loader.
- When you remove a power cable never pull on the cable itself but on the connector. A damaged cable could lead to shocks or burns.

1.4 Environment

- Operating temperature of the system: -5°C 50°C.
- Never expose the device to any liquids.
- If the equipment has been exposed to a cold environment and transferred to a warm environment, condensation may
 form inside the housing. Wait at least 2 hours before applying any power to the equipment.

1.5 Battery Safety

The device is fitted with the following battery: Lithium-Ion battery Acrobat RB-2300, 7.2V, 2300mAh Use only the original Lithium-Ion battery or the replacement for VM-NP500/VM-N520

Warning



- · Risk of explosion if battery is replaced by any other incorrect type
- Do not short circuit
- Use specified charger only
- May explode it disposed in fire

Dispose of used batteries according to the instructions. Do not expose to high storage temperatures above 60°C (140°F).

1.6 Disposal

Disposal of old Electrical & Electric Equipment (Applicable throughout the European Union and other European countries with separate collection programs)



This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of this product please contact your local city office.



2 Introduction

2.1 General

Thank you for choosing a Riedel product.

This Manual describes the Installation, Configuration and Operation of the Acrobat WB-2 Wireless Beltpack for the Riedel Acrobat Digital Wireless Intercom system.

For further information about the Acrobat hardware please contact your local distributor or the Riedel headquarters in Wuppertal.

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2.2 Terminology

The term Beltpack is used as a synonym for a Acrobat WB-2 Wireless Beltpack. The term IWU (InterWorking Unit) is used as a synonym for a Acrobat CC-8 Cell Controller. The term Acrobat is used as a synonym for the whole Acrobat Digital Wireless Intercom system.

2.3 Supported headsets

- Riedel PRO Headset
- Riedel MAX Headset

2.4 Restrictions

In the current firmware version, the following features or functionalities which are mentioned in the documentation are restricted since they are not or only partially implemented:

no restrictions



3 User Elements

3.1 User Elements Top

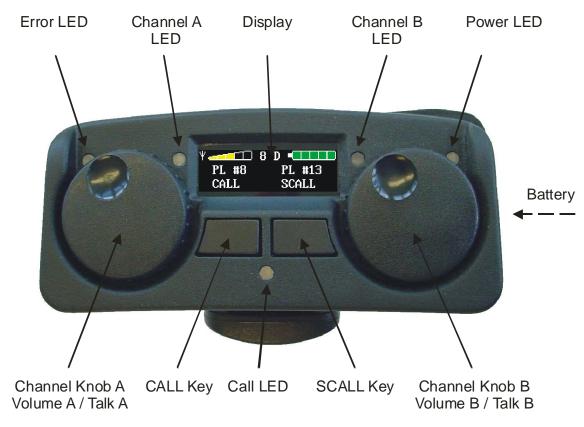


Figure 1:User Elements (Top)

3.1.1 Error LED (red)

The error LED indicates that the beltpack is outside the DECT coverage area. The partyline cannot be used in this case.

Color	Status
Red, flashing fast (0.5 sec ON, 0.5 sec OFF)	Partyline error occured
Off	Partyline works fine

3.1.2 Power LED (red)

The Power LED indicates that the beltpack is powered ON and also powered sufficiently.



Color	Status
Red, flashing (1.0 sec ON, 1.0 sec OFF)	Powered ON
Red, flashing (0.25 sec. ON, 0.25 sec. OFF), time remaining to automatic power off about 5 minutes	Powered On, battery low
Off	Insufficient powered

3.1.3 Call LED (orange)

The CALL LED lights orange when the CALL key is pressed and TALK is active. If an incoming call is received, the CALL LED blinks bright orange alternating with the green LED of the channel being called.



When the WB-2 is in side tone mode (DIP SW8 ON), this combination slashes faster than it does when the beltpack is being called.

Color	Status
Orange	Outgoing CALL
Orange, flashing	Incoming CALL
Orange, flashing fast	Side tone adjustment

3.1.4 Channel A/B LED (green)

This LED indicates that the TALK is active on the channel. The LED lights solid green when the channel is turned on.

Color	Status
Green	TALK active
Green 100% flashing	Incoming CALL to Channel



3.1.5 Display

3.1.5.1 Display elements during operation mode

For version 3.31.1, the display shows the following elements in operation mode.

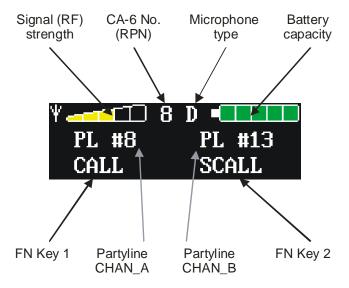


Figure 2: Display elements

Display Element	Description
Signal strength	Displays the current incoming signal (RF) strength which was received by the Cell Antenna CA-6 . Less than 5% are signaled by a none-colored RF symbol.
	₩
	₩
CA-6 No. (RPN)	Displays the RPN (Radio Part Number) of the CA-6 by which the WB-2 is communicating with.
Mic type	Displays the configured type of microphone (see setting of DIP switch #5 or service menu). "D" for Dynamic , "E" for Electret microphones
Battery capacity	Displays the current battery capacity in 20% steps. Less than 4% are signaled by a none-colored battery symbol (100% = 8.2 V 0% = 6.5V).
	81 - 100 % 61 - 80 %
	41 - 60 % 21 - 40 % 5 - 20 %
	0 - 4 %
FN Key 1	Soft labeling of the FN Key 1. In operation mode labeled with "CALL".
Partyline CHAN_A	Displays the name of the associated partyline of CHAN_A.
Partyline CHAN_B	Displays the name of the associated partyline of CHAN_B.
FN Key 2	Soft labeling of the FN Key 2. In operation mode labeled with "SCALL".



3.1.5.2 Other display messages (excerpt)

Display	Comment		
Bootloader 1	Power-On: Beltpack is loading the bootloader (boot1)		
Booting 2	Power-On: Beltpack is booting the bootloader (boot2)		
Booting Applic	Power-On: Beltpack is booting the Application		
Restart	During firmware updates or after changes in the service menu: Beltpack is rebooting		
Downl oadi ng Boot 2	During firmware updates: Beltpack is downloading the boot2 firmware image		
Downloading Applic	During firmware updates: Beltpack is downloading the application firmware image		
Flashing Dect	During firmware updates: Beltpack is flashing the DECT firmware image		
Error low batt. Please load accu	WB-2 has undergone a restart due to a low power condition		
Error No 2	The bootloader 2 couldn't be found		
Error no App	The application software could not be loaded		
Save settings and rebooting	After changing values in the service menu		

3.1.6 Channel Knob (dual purpose)

3.1.6.1 Volume Channel A/B

The channel volume knob levels the channel volume of the WB-2 (0-100%). Turn the knob clockwise to increase and counterclockwise to decrease the volume of the channel.

3.1.6.2 TALK Channel A/B (Auto / Momentary)

Pressing the left knob activates the TALK for channel A. This is indicated by the green Channel A LED.

Pressing the right knob activates the TALK for channel B. This is indicated by the green Channel B LED.

An active TALK key enables talking to the corresponding digital partyline channel. The TALK key can be set to auto or momentary mode by the DIP switch #1 for channel A and DIP switch #2 for channel B at the bottom side of the WB-2.



3.1.7 CALL Key

When TALK A or TALK B is active, pressing the CALL key

- sends a CALL signal to the related channel (A, B or A and B) of the partyline and
- activates the CALL LED until the CALL Key is released.

On all connected devices, the corresponding CALL signal will light up e.g. WB-2 - TALK LED (green) alternates blinking with the CALL LED (orange).

The CALL Key is also sent to the external user via the GPO interface.

3.1.8 SCALL Key

If TALK A or TALK B is active, pressing the SCALL key sends a command to close the GPI-out to the devices on the corresponding channel. The GPI signal can also be understood by an Artist/Performer system, if connected.



The function carried out by the SCALL key is not displayed on the WB-2.

3.1.9 Battery

The light and powerful rechargeable Lithium-Ion battery Acrobat RB-2300 allows the Acrobat Digital Wireless Beltpack 8 hours of operation.

The battery is located in the covered battery case at the right side of the WB-2.



Figure 3: Battery



3.2 User Elements Bottom

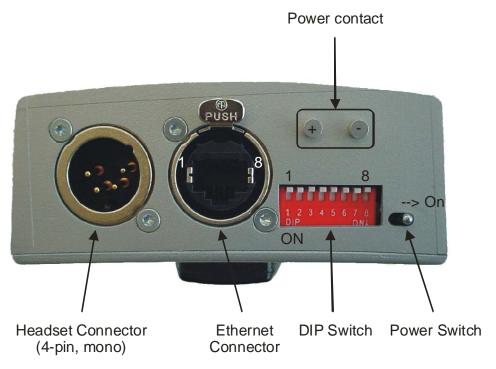


Figure 4: User Elements Bottom (WB-2 with bottom protective cover removed)

3.2.1 Power switch

The WB-2 may be switched OFF or ON using the Power switch.

3.2.2 Power contacts

The power contacts may be used to charge the battery in an optional battery charger.

3.2.3 Headset Connector (4-pole male XLR)

The headset connector is a 4-pole male XLR connector and supports mono headsets with electret (\sim 4.5V) or dynamic microphones, depending on the DIP switch setting.

Microphone type	DIP SW 5
Electret microphone	ON
Dynamic microphone	OFF





Pin	Signal
1	Microphone -
2	Microphone +
3	Speaker -
4	Speaker +

Figure 5: Headset 4-pole male XLR Connector

3.2.4 Ethernet Connector

For firmware updates and initial configuration the WB-2 has to be connected with the Cell Controller using the Ethernet connector (RJ45, 10/100 Mbit with auto negotiation).



Pin	Signal
1	Tx+
2	Tx-
3	Rx+
4	
5	
6	Rx-
7	
8	

Figure 6: MN-XSS card CONFIG port RJ-45pinout (8P8C)

3.2.5 DIP Switch Functions

SW	OFF	ON	Comment
1	Latched/Auto	Momentary	Switches between momentary and latched for TALK A. In OFF position a short press on the TALK A knob routes the microphone signal to Channel A. Another short press turns it off (Latched). If the knob is pressed and held for longer than 0.25 seconds it functions as momentary and the channel is closed as soon and the knob is released (Auto). When the DIP switch is in the ON position the channel is only open as long as the knob remains pressed (Momentary).
2	Latched/Auto	Momentary	Switches between momentary and latched/auto for TALK B.
3	Talk & listen	Listen only	Talking on channel A is blocked on this station
4	Talk & listen	Listen only	Talking on channel B is blocked on this station
5	Dynamic microphone	Electret microphone (Phantom power)	Headset microphone setting. Changing the DIP switch to ON lowers the audio amplification.
6	n/a	n/a	not used
7	OFF	Alert Tone Adjustment	In ON position the alert tone can be adjusted up or down using the Channel A knob. The CALL LED will blink to indicate that the DIP switch is ON. After the side tone has been adjusted, SW-7 must be returned to the OFF position. If the value has changed, the WB-2 undergoes a restart procedure.
8	OFF	Side Tone Adjustment	In ON position the side tone can be adjusted up or down using the Channel A knob. The CALL LED will blink to indicate that the DIP switch is ON. After the side tone has been adjusted, SW-8 must be returned to the OFF position! If the value has changed, the WB-2 undergoes a restart procedure.



4 Service menu

Besides the normal **operation mode** of the WB-2, a special **service mode** consisting of a **service menu** is available. If the WB-2 is in service mode, the following restrictions apply:

- The **display** of the **operation mode** is not available, instead the **service menu** will be displayed.
- The TALK functionality of both Channels is not available
- · After leaving the service mode with changes made, the WB-2 will undergone a reboot to activate the changes.

Overview of available functionalities in both modes.

Feature	Operation Mode	Service Mode
Listen to partyline	Yes	Yes
Incoming CALL	Yes	Yes
Outgoing CALL	Yes	No
TALK to partyline	Yes	No

4.1 Activation of service menu

4.1.1 Prerequisites



The activation of the service menu is NOT possible if a Channel is active. To use the service menu, all Channels have to be closed using the Channel Knobs A and/or B.

4.1.2 Open service menu

Pressing the **CALL** Key and the **SCALL** key **simultaneously** (or consecutively while keeping the other pressed) will open the main menu of the service menu.



If a TALK channel (A and/or B) is active accidentally, this procedure will initiate a CALL signal and a SCALL signal to the corresponding channels.



4.2 Operation of service menu

4.2.1 User elements (Navigation keys)

In service mode, the User elements of the WB-2 have other functionality than in normal operation mode.

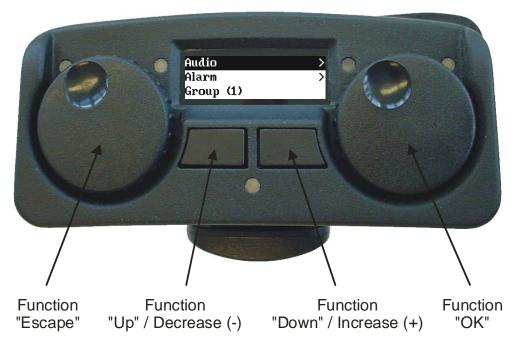


Figure 7: User Elements (Navigation Keys)

Element	Function
Channel Knob A	Escape (ESC)
CALL Key	Up (↑) or decrease (-) a value
SCALL Key	Down (↓) or increase (+) a value
Channel Knob B	OK / Enter

4.2.2 Navigation

The service menu is hierarchically organized and consists of three types of menu elements:

- main menu,
- several sub menus and
- configuration options with configuration values.

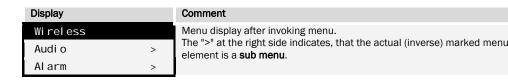
The service menu consists of two different action modes:

- selection mode and
- edit mode.



4.2.2.1 Initial screen

After stepping into the service menu, **selection mode** is active and the **first entry** in the main menu is **selected** (and therefore **marked inverse**).



4.2.2.2 Navigating

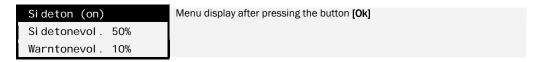
Use the buttons [Up] (CALL) and [Down] (SCALL) to navigate through the service menu.



Menu display after pressing the button [Down]. The ">" at the right side indicates, that the actual (inverse) marked menu element is a **sub menu**.

4.2.2.3 Stepping inside a sub menu

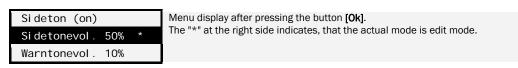
If a sub menu is selected (indicated by a ">" sign at the right side of the selected entry), use the button [Ok] to step inside this sub menu. This example shows the configuration options of the Audio menu.



4.2.2.4 Changing values of configuration options



To activate the modification of a configuration option you have to **switch** from selection mode to **edit mode**. This is accomplished by pressing the **[Ok]** button for a selected configuration option.



To change the value of a configuration option in edit mode, change the values using the **[Up]** and **[Down]** buttons once or consecutively. (Hint: Percentage values are changed in 5% steps)



To ${f save}$ the changed value of a configuration option, press the button ${f [OK]}.$

To discard the changes of a changed configuration option, press the button [Escape].

4.2.2.5 Exiting service menu

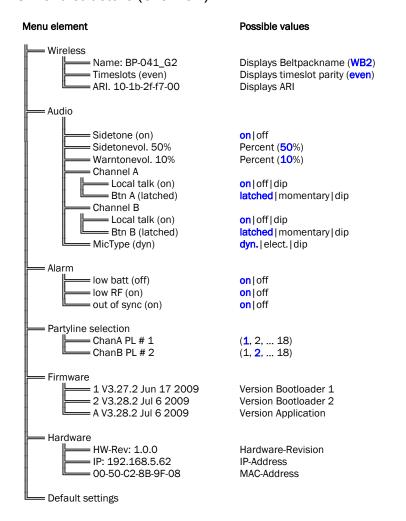
To exit the **edit mode** or exit the **menu** to the **upper menu** level - or if already in the main menu level - exit the **service menu completely** - use the **[Escape]** button once or consecutively.





Pressing the left button (labeled "No") will discard all changed value. Pressing the right button (labeled "Yes") will save all changed value.

4.2.3 Menu structure (Overview)





The Default settings are marked blue/bold.



5 Tones and events

5.1 Tones

To signal the user special events, some signal tones are generated at the WB-2.

Tone name	Tone type (*)	Description
Low battery	0.1 / 60.0 / 400	Low battery tone - the battery of the WB-2 is near its end (only some minutes left).
Low RF	0.2 / 60.0 / 800	Low RF tone - WB-2 is outside DECT coverage and/or Cell Controller not functional
Out of sync	0.1 / 3.0 / 800	Out of sync tone - the WB-2 is outside the coverage area of the CA-6
Alone in partyline	1/4/400	Alone in partyline tone - if inside a partyline only one Beltpack is assigned to that partyline

^{(*) =} Pulse time in seconds / Pause time in seconds / Frequency in Hz

5.2 Events

Coming soon.

5.3 Troubleshooting

Symptom	Reason
The POWER LED is flashing fast (0.25sec / 0.25 sec.) and	The battery is near its end (only some minutes left). Replace the
the display is switched off.	battery with a charged one.



6 Service

If you have any further questions, we offer comprehensive customer service options for this product including:

- Telephone service
- E-mail service
- Skype Service
- Fax service
- Configuration support
- Trainings
- Repairs

Your primary point of contact for any service issues is your local dealer.

In addition, Riedel Customer Service in Wuppertal, Germany is also available to assist you.

Telephone: +49 (0) 202 292 9400 (Monday - Friday, 8am – 5pm, Central European Time)

Fax: +49 (0) 202 292 9419

Skype: riedel.communications.service

Or use the contact form on our webpage: www.riedel.net

For repairs, please contact your local dealer. Your dealer will be able to help process your repair as fast as possible and/or arrange for the delivery of spare parts.

The address for repairs sent directly to Riedel Communications GmbH is:

Riedel Communications GmbH - Repairs -Uellendahler Str. 353 D-42109 Wuppertal Germany

Please add a completed repair form to all your repairs. The form can be found at the Riedel website \rightarrow download \rightarrow forms



7 NOTES



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