univox IR 1411 IR System Infrared Communications System User Guide

Contents

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Specifications

- Modulation: IR Light
- Wavelength Carrier Frequency: Not specified
- Pre-emphasis Audio Frequency response: Not specified
- Total Harmonic Distortion: Not specified
- Signal-to-noise Ratio: Not specified
- Input 1 (XLR): Balanced
- Input 2 (Line 1/Line 2): Unbalanced
- Input 3 (RCA IN): Unbalanced
- Output connection: RF Out
- RF Output Voltage: Not specified
- Output Impedance: Not specified
- IR LEDs Radiating Power: Not specified
- Coverage: 730 m2
- Supply Voltage: Not specified
- Power Supply Input: DC
- Power Connection: PSU
- Weight: Not specified
- Dimensions: Not specified
- Color: Black

Installation Guidelines

1. Select an appropriate mounting location, above 2 m in height, angled towards the audience.

2. Ensure a direct line of sight from the transmitter to the audience for optimal performance.
3. For advanced setups, contact Univox support.

Connecting Multiple Units
IR 1411 can drive up to 4 additional IR 1211 emitters with a max of 30m of cable between each unit through the RF IN (1) and RF OUT (2) connections. Each unit requires individual power from a PSU.

Introduction

- Thank you for choosing a Univox® product. We hope you will be satisfied!
  Univox® IR-System is a compact IR system for small to medium-sized venues consisting of a transmitter, pocket receiver,s and optional extenders. The sleek low-profile design is ideal for installation in boardrooms, houses of worship, cinema/theatres, courtrooms, nursing homes, auditoriums, classrooms, etc.
- The main unit IR 1411 is a powerful 2 W IR transmitter featuring an all-in-one modulator and 72-diode emitter for high performance and large coverage of up to 730 m² with a single transmitter. If a larger area is needed, or if the signal needs to be transmitted to separate rooms, the IR 1211 emitter unit can easily be daisy-chained with BNC cables.
- IR 1411 works in conjunction with Univox® IRR-1 pocket receivers. Powered by a rechargeable Lithium Polymer battery, the lightweight receiver is to be worn around the neck, pendant-style (with supplied lanyard), or clipped on a pocket. The unit is easy to operate – select the channel frequency and adjust the volume with the intuitive slide volume control. Univox® IRR-1 receiver can be used with Univox NL-100 neck induction loop to supplement personal hearing aids with a telecoil /T-switch setting, as well as with EM-101 single-side earphones or GTA-HP1 headphones for non-hearing aid users.
- Univox® IR-System provides wireless assistive listening with supreme audio quality. With single mono- dual-channel stereo operation on 2,3 and 2,8 MHz carrier frequencies, the unit is ideal for applications where information security and overspill control are of importance.
- Please read this user guide carefully before installation and use of this product.

Included in the package IR 1411

- Univox® IR 1411 transmitter
- Power supply unit
- Wall/ceiling mounting kit
- Twin 3.5 mm mono to stereo cable
- Phoenix screw terminal

Included in the package IR 1211

- Univox® IR 1211 emitter
- Power supply unit
- Wall/ceiling mounting kit

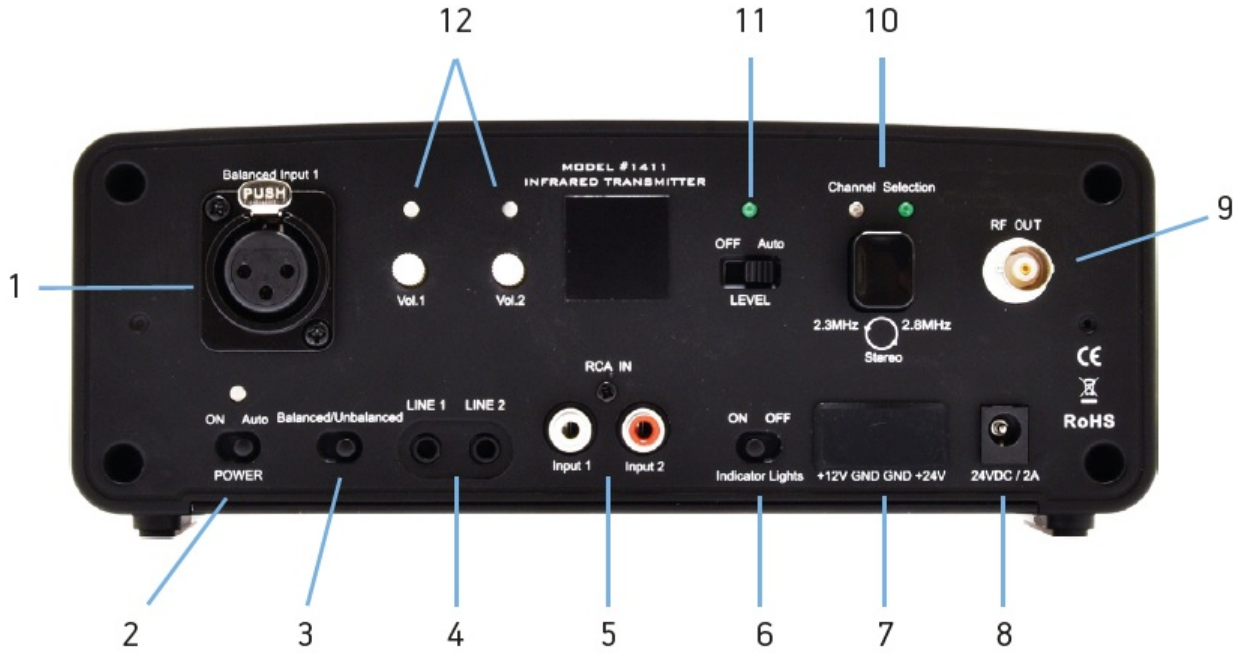
Included in the package IRR-1

- Univox® IRR-1 receiver

- Micro-USB cable
- Lanyard

Product overview IR 1411

1. XLR – Balanced Line input
2. Power Save-mode switch
3. Balanced/unbalanced switch
4. 3.5 mm – Line 1 & 2 – Unbalanced line input
5. RCA – Line 1 & 2 – Unbalanced line input
6. Indicator Lights switch – ”ON/OFF”
7. Header DC input
8. DC power supply input – 24 VDC
9. RF Out – BNC jack
10. Channel/Frequency Selection toggle switch
11. Automatic Level Control (ALC) switch – ”OFF/Auto”
12. Volume controls



Input

1. XLR – Balanced Line input
2. **Power Save-mode swit**ch

   ”ON” – unit is transmitting with or without input signal. LED indicates red.

   “Auto” – Power save mode activated – transmitting only if the input signal is present. LED indicates amber.
3. **Balanced/unbalanced switch**

   Select between balanced XLR (1) or unbalanced 3.5 mm/RCA (4, 5) inputs
4. **4-5. 3,5 mm/RCA – LINE/Input 1 & 2 – Unbalanced line inputs**

   LINE 1/Input 1 – Controlled by Vol 1 volume control

   LINE 2/Input 2 – Controlled by Vol 2 volume control

Note: With Auto Level activated the Volume level controls are disabled.

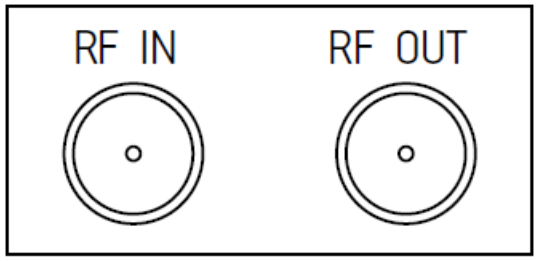
5. **Indicator Lights switch – ”ON/OFF”**
6. **Header DC input**

   24 VDC – Connection of external 24 VDC supply voltage.

   Note: Do not connect external 24 VDC (7) if the unit is powered by a PSU (8). Connecting external power and power adapter simultaneously will cause the unit to short-circuit.
7. DC power supply input

   Note: Use Univox® supplied power adapter only.
8. **RF Out – BNC jack**

   RF IN Modulated RF signal output to expansion units or additional emitter units, IR1211. Emitter units can be daisy chained through the “RF out” jacks on the primary, and the “RF In” jack on the secondary units by using BNC cables. Once the units are connected and powered no additional settings are needed.



9. **Channel/Frequency Selection toggle switch**

   Select the transmission frequency by pressing the button repeatedly.

   2.3 MHz – Left LED indicates amber

   2.8 MHz – The right LED indicates green

   Stereo transmission, 2.3 MHz Left and 2.8 MHz right – both LEDs, amber and green indicates
10. **Automatic Level Control (ALC) switch – ”OFF/Auto”**

    “OFF” – ALC disabled – LED off. Use level volume controls (12) to adjust the input level. “Auto” – ALC enabled – LED indicates green. The unit is equipped with automatic adjustment of the audio level – recommended setting.
11. **Volume controls**

    Input level adjustment if Automatic level control (11) is disabled. Volume 1 – XLR or Line/Input No.1

    Volume 2 – Line/Input No.2

    Indicator LED’s for each input:

    Green – nominal audio signal strength

    Amber – approaching audio signal clipping. Indicators light up when the input signal level is 6 dB below clipping.

    Red – audio signal clipping input, approaching distortion. Adjust the input level so the LED flickers red occasionally, indicating audio peaks.

Placement

The unit is supplied with a universal mounting kit allowing for easy and quick installation. Select an appropriate mounting location, considering the shape and size of the room, to ensure optimal coverage. Recommended placement for best performance is above 2 m height, slightly angled (10-30 degrees) toward the listening audience. Make sure the transmitter has a direct line of sight to the audience. For advanced situations, please contact Univox support.

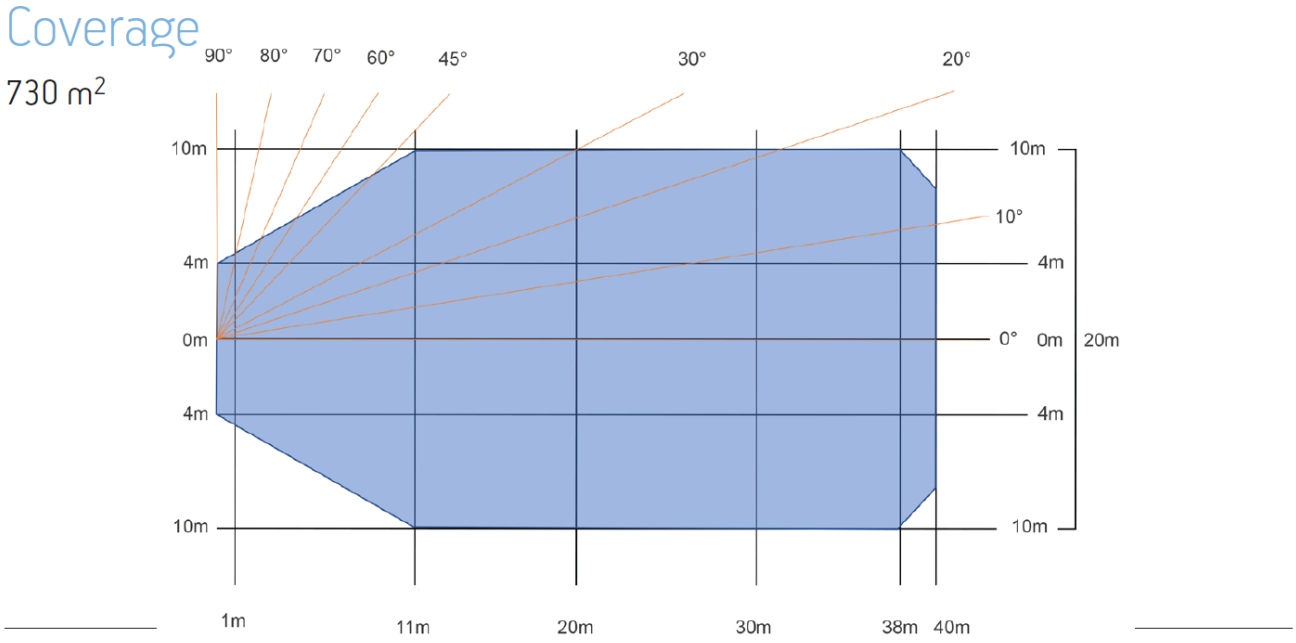
Operating Instructions

1. Connect the primary audio source to a suitable input:
   - Balanced: XLR Input (1).
   - Unbalanced: 3.5 mm – Line 1 and 2 (4) or RCA – Input 1 and 2 (5)

     Set balanced/unbalanced switch (3) accordingly.
2. Connect the supplied power adapter to the DC supply input (8) and set the Power switch to “ON”. The red LED indicates a power connection.
3. Set Audio Level Control (ALC) switch (11) to “Auto” – green LED is lit. Input level will be adjusted automatically – recommended setting.

   Note: Setting the switch in the “OFF” position will disable ALC – the green LED is off. The audio level for each input must be adjusted manually by Volume Controls Vol 1 and 2 (12). Adjust the input level so both LEDs flicker red occasionally, indicating audio peaks.
4. Set the carrier frequency by pressing the Channel Selection Switch (10) repeatedly. The recommended setting for assistive listening mode is Stereo (2.3 and 2.8 MHz transmission) – both amber and green LED indicates.

   Note: Make sure both transmitter and receiver are set to the same channel frequency.



Technical data IR 1411

Modulation	FM, + 35 kHz nominal + 50 kHz peak
IR Light Wavelength	870 nm
Carrier Frequency	2.3 MHz, 2.8 MHz or Stereo: 2.3 MHz (Left) and 2.8 MHz (Right)
Pre-emphasis	50 µS
Audio Frequency response	40 Hz - 8 kHz (±3 dB)
Total Harmonic Distortion	< 1%
Signal-to-noise Ratio	75 dB
Input 1 (XLR)	Balanced XLR Impedance: >50 Ω / >2 kΩ Sensitivity: -17 dBu (100 mVrms) to 6 dBu (1.5 Vrms)
Input 2 (Line 1/Line 2)	Unbalanced Line, Stereo Input. Two 3.5 mm connectors
Input 3 (RCA IN)	Unbalanced Line, Stereo Input. Two (RCA) Phono connectors Sensitivity: -14 dBu (140 mVrms) to 14 dBu (4 Vrms) Impedance: 10 kΩ
Indicators	Green LED: nominal range of audio level Red LED: audio peak indicator, approaching audio distortion
Output connection	BNC x 1
RF Output Voltage	Approx. 750 mVrms (2 Vpp)
Output Impedance	Approx. 50 Ω
IR LEDs	72 diodes
Radiating Power	Approx. 2 W
Coverage	Up to approx. 730 m^2 (6458 ft^2)
Supply Voltage	19 VDC min - 28 VDC max
Power Supply Input	100-240 VAC 50/60 Hz
Power Connection	2.5 mm DC jack (or 4-Pin Phoenix connector)
Weight	450 g (1 lb); Power Supply: 360 g (0.8 lb)
Dimensions	(W) 210 x (D) 70 x (H) 80 mm (8.3" x 2.8" x 3.1")
Color	Black

Product overview IR 1211

- RF IN – BNC input
- RF OUT – BNC output
- Power switch ON/Auto
- Indicator light switch
- 12-24 V
- 24 VDC / 2 A power input

1. **RF IN – BNC input**

   Daisy-chain signal input, to be connected from IR 1411

2. **RF OUT – BNC output**

   Daisy-chain signal output, to be connected to the next IR 1211

3. **Power switch**

   ”ON” – unit is transmitting with or without input signal. LED indicates red.

   “Auto” – Power save mode activated – transmitting only if the input signal is present. LED indicates amber.

4. **Indicator light switch**

   Sets the power indicator LED ON/OFF

5. **Power supply input**

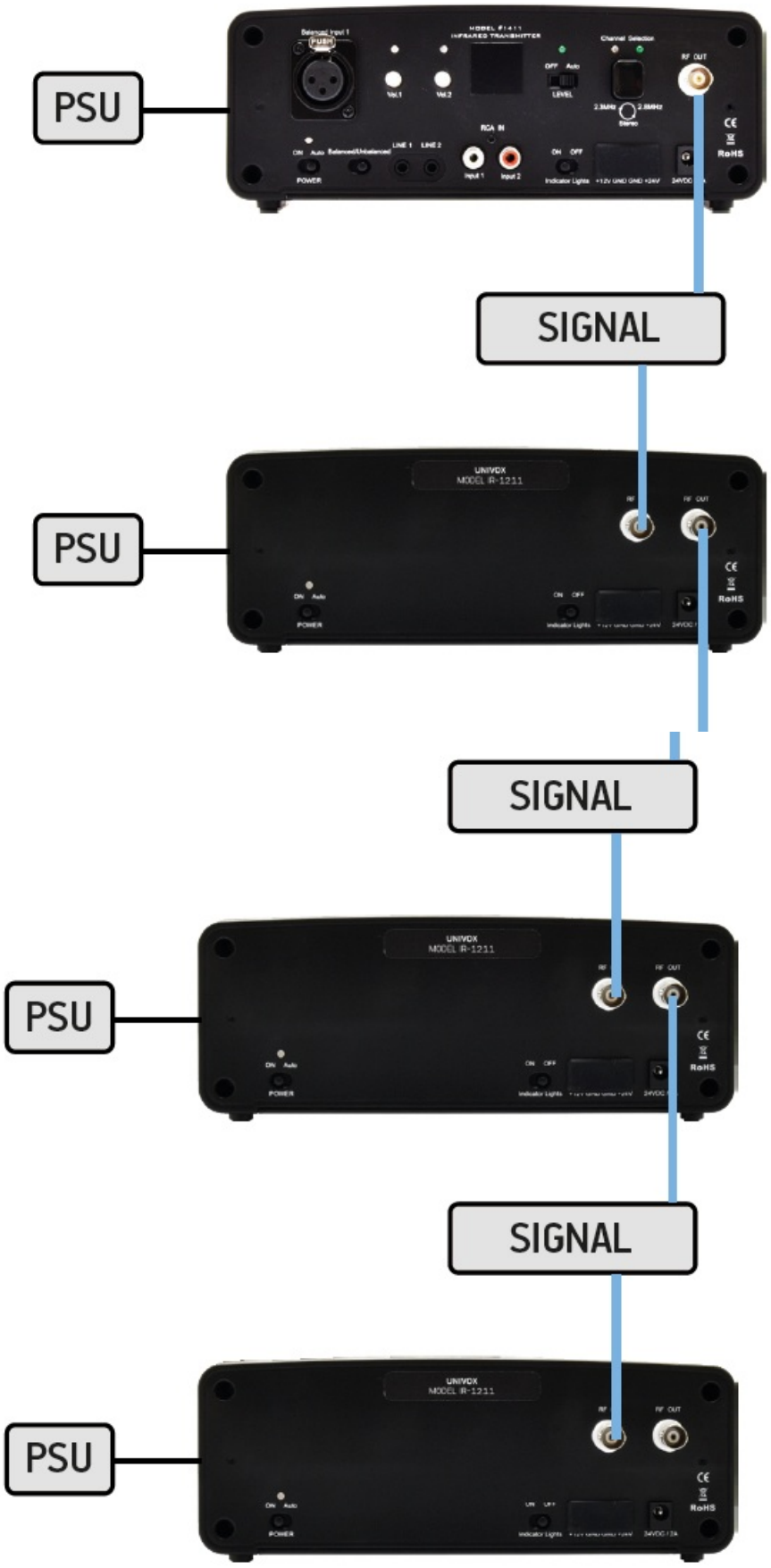
   12- 24 VDC power input Phoenix terminal connection.

6. **Power supply input**

   24 VDC PSU input

Connecting multiple units

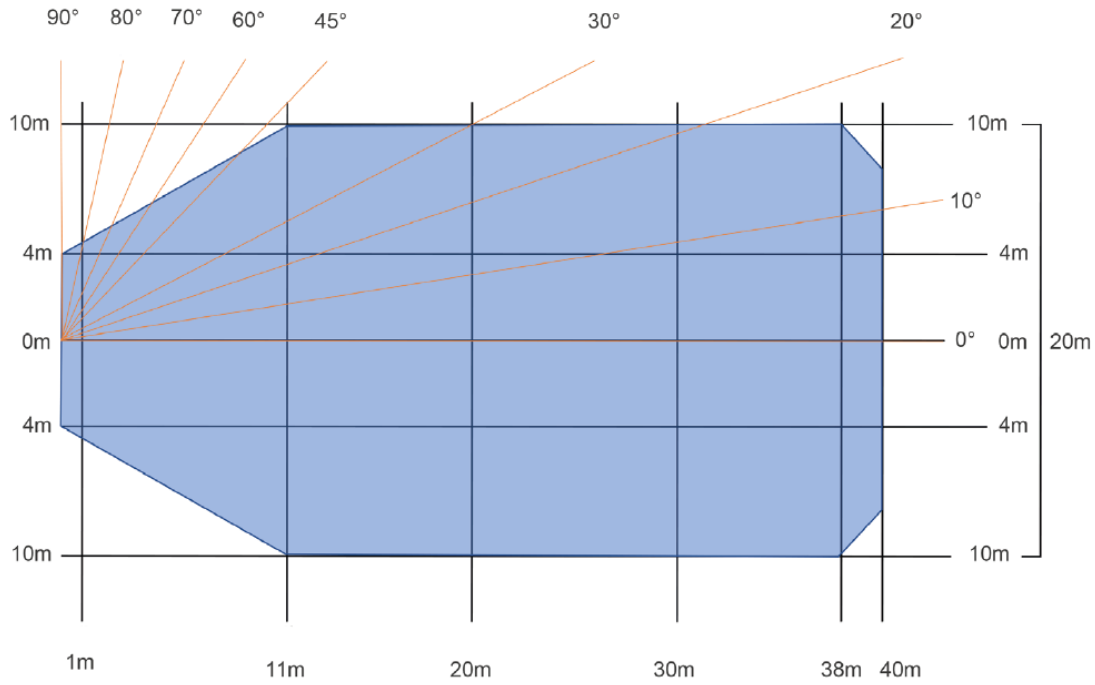
IR 1411 can drive 4 additional IR 1211 emitters with a max 30 m of RG58U cable between each unit through the RF IN (1.) input and RF OUT (2.) output. Each unit needs to be individually powered by a PSU.



Placement

The unit is supplied with a universal mounting kit allowing for easy and quick installation. Select an appropriate mounting location, considering the shape and size of the room, to ensure optimal coverage. Recommended placement for best performance is above 2 m height, slightly angled (10-30 degrees) toward the listening audience. Make sure the transmitter has a direct line of sight to the audience. For advanced situations, please contact Univox support.

Coverage IR 1211



Technical data IR 1211

Modulation	FM
IR Light Wavelength	870 nm
Modulated AF input	50 mV - 3 V/5 Ω
Carrier frequency response	94 kHz - 4 MHz
Input connection	BNC 50 Ω
Output connection	BNC 50 Ω
Threshold for auto on/off	50 mV
Supply voltage (nominal)	24 VDC
Supply voltage (minimum)	19 VDC
Supply voltage (maximum)	28 VDC
LED qty	72
Optical power	> 1.5 W
Range	up to approximately 730 m^2 (free field)
Power supply input	100-240 VAC 50/60 Hz
Power supply output	24 VDC @ 2 A
Power connection	2.5 mm DC jack (or 2-pin Phoenix connector)
Power supply wattage	48 W
Weight	450 g
Dimensions	210 x 70 x 80 mm (8.3" x 2.8" x 3.1")
Color	Black
Part no	650302

Product overview IRR-1

1. Channel selection switch
2. Lanyard clip
3. Squelch on/off switch
4. Micro USB charging port
5. Charging LED
6. Power on/off LED
7. 3.5 mm output jack
8. Volume control wheel
9. Belt clip

Channel selection switch
The receiver operates on 2.3 MHz and/or 2.8 MHz frequency. Select between 2.3 MHz and 2.8 MHz for mono, or ”S” for both 2.3/2.8 MHz stereo operation.

Lanyard clip
Attach the lanyard to wear the unit around your neck – recommended for best performance (free field).

Squelch/off switch
Slide the switch to activate/deactivate the squelch function. When activated, the receiver audio output will be muted whenever the signal from the transmitter/emitter is turned off, or if the level is too weak to be received.

Micro USB charging port.
Connect a micro USB cable to charge the internal battery. Charging time for a full charge is approximately 4 hours.

Charging LED

Indicates red during battery charging. Switches off automatically when the battery is fully charged.

Power on/off LED
Indicates green when the receiver is on. The receiver's "On/Off" switch is located internally. The unit is automatically turned on when a 3.5 mm plug is inserted into the output jack (9) and switched off once it is removed.

3.5 mm output jack
Connect Univox® NL-100 neck induction loop to supplement personal hearing aids with a telecoil or T-switch setting. EM-101 single-sided earphones or GTA-HP1 stereo headphones can also be used.

Volume control wheel
Adjust the listening level by rotating the volume thumb wheel.

Belt clip
Secure the unit in your pocket or clothes. The unit operates optimally when there is a free line of sight to the transmitter.

Operating Instructions

1. Insert Earphone or Neck Loop 3.5mm plug into the receiver's headphone output jack (7).
2. A green LED (6) indicates once the plug has been connected properly and the unit is switched ON.
3. Place the receiver around the neck at chest height (pendant style) by using the lanyard (2), or attach it to a pocket using the clip on the back of the unit (9), with the front facing away from the body.
   Note: Keep the receiver in the line of sight of the transmitter/emitter and do not place it in a pocket, as this will interrupt the reception and the receiver will not work properly.
4. Select a channel by sliding the Channel selection switch (1). Choose between 2.3MHz or 2.8MHz for Mono operation or "S" for dual-channel, 2.3/2.8MHz Stereo operation. For most applications and especially when using the Neck Loop, a Stereo mode setting is recommended. Make sure that the receiver and transmitter are set to the same channel frequency.
5. Adjust the volume to a comfortable listening level by rotating the Volume wheel (8).
6. Disconnect the earphones/neck loop when not in use to avoid unnecessary drain on the battery and prolong the battery life.

Technical data IRR-1

Modulation	FM, 1 kHz ± 75 kHz
IR Light Wavelength	850 nm
Carrier Frequency	2.3 MHz, 2.8 MHz
	or Stereo: 2.3 MHz (Left) and 2.8 MHz (Right)
Audio Frequency response	XLR in: 160 Hz-13 kHz (±3 dB)
	RCA in: 20 Hz-13 kHz (±3 dB)
Total Harmonic Distortion	< 1%
Signal-to-noise Ratio	< 55 dB
Battery	3.7 V Lithium Polymer 500 mAh
Operating time	Approx. 8 hours
Charging time	< 4 hours
Power connection	USB (micro-USB to USB-A)
Indicators	Green LED: Power on
	Red LED: Charging
Output	3.5 mm
Weight	58 g incl. battery
Size	45 x 12 x 82 mm
Color	Black
Part no	650301

Troubleshooting

IR 1411/1211 Transmitter has no power

- Verify that the power supply is connected properly, (red/amber LED on the transmitter should be lit, depending on the mode selected).
- Check the power adapter function, (green LED=ON). Replace if faulty.

No audio or poor audio quality (distortion)

- Check the input signal connection.
- Verify that the balanced/unbalanced switch setting is the signal level and input connected. If connecting XLR, verify that the signal source connected to the XLR input is balanced.
- Check the Audio Level Control (ALC) switch setting, (green LED=ON). If disabled, (ALC switch=OFF), the input level should be adjusted by Vol1 and Vol2 level controls.
- Check and adjust the audio level, if necessary. The Volume Control LEDs are indicating red occasionally if the unit is transmitting correctly.
- Make sure the transmitter and receiver are operating at the same channel/frequency,(for best performance Stereo setting is highly recommended). Verify that both amber and green LED at the transmitter are lit, and the receiver channel switch is set in S-mode (Stereo).
- Make sure the receivers are in the line of sight and range of the transmitter and the IR light is not blocked in any way.

Audio Level indicators are not lit.

- Make sure the Indicator Light switch is in the “ON” position
- Verify that the audio input is connected properly.
- Check that the balanced/unbalanced switch settings by the signal level and an input connected.

Troubleshooting
IRR-1 The receiver has no power

- Make sure the receiver is fully charged. Verify that the 3.5mm plug is inserted properly into the headphone jack and the ON LED is illuminated. Note: IRR-1 receiver is equipped with a rechargeable, non-removable Li-Polymer battery. In case of battery failure do not attempt to replace or repair it. Please contact your local distributor for further instructions.

No audio or poor audio quality (distortion)

- Check the volume control setting. Make sure the receiver is kept in the line of sight and range of the transmitter/emitter and that the 3.5mm plug is properly inserted into the headphone jack.
- Check the transmitter operation and make sure that the transmitter and receiver are operating at the same channel/frequency. If Neck Loop is connected verify that the Stereo channel transmission is selected.
- Check the Squelch setting – if enabled, the audio output will be muted whenever the signal from the transmitter/emitter is off or the level is too low.

The Installation Guide is based on the information available at the time of printing and is subject to change without notice.

Maintenance
Under normal circumstances, the product does not need any special maintenance.
Should the unit become dirty, wipe it with a clean damp cloth. Do not use solvents or strong detergents.

Warranty The product is covered by 2 years warranty.

The equipment should be installed following the instructions contained within this document. The product warranty doesn’t cover failure caused by tampering, carelessness, improper handling, or maintenance.
Use only the power adapter supplied with the unit.

Service
In case of failure, if the product does not work properly after the troubleshooting has been performed, please contact your local distributor for further instructions.
Refer all servicing to qualified service personnel only. If the product is sent to Bo Edin AB, please enclose a filled Service Form, at www.univox.eu/support.

Safety

 The installer is responsible for installing the product in a way that may not cause risk of fire, electrical malfunctions, or danger for the user. Do not cover the unit or the power adapter. Only operate the unit in a well-ventilated, dry environment.

Do not remove any covers as there is a risk of electric shock. Please observe that the product warranty doesn’t include faults caused by tampering with the product, carelessness, incorrect connection/mounting, or maintenance. Never connect external power simultaneously as the power supply unit is connected.
Bo Edin AB shall not be held responsible or liable for interference to radio or TV equipment, and/for any direct, incident, al or consequential damages or losses to any person or entity if the equipment has been installed by unqualified personnel and/or if installation instructions stated in the product Installation Guide have not been strictly followed.

Environment
To prevent possible harm to the environment and human health, please dispose of the product responsibly by following statutory disposal regulations.

FAQS

- **Q: Can I connect external power to the unit?**
  A: Do not connect external power if the unit is already powered by a PSU. Connecting both simultaneously may cause a short circuit.
- **Q: What is the recommended placement for best performance?**
  A: Above 2 m height, slightly angled towards the audience for optimal coverage.

Documents / Resources

	univox IR 1411 IR System Infrared Communications System [pdf] User Guide IR 1411 650300, IR 1211 650302, IRR-1 650301, IR 1411 IR System Infrared Communications System, IR 1411, IR System Infrared Communications System, Infrared Communications System, Communications System

References

- User Manual