# WL-BELL

# Intelligent Outdoor Speaker unit for QWTIME Master Clocks


**WESTERSTRAND URFABRIK AB**

P.O. Box 133
SE-545 23 TÖREBODA

Tel. +46 506 48000
Fax. +46 50648051

Internet:: http://www.westerstrand.se
E-mail: info@westerstrand.se

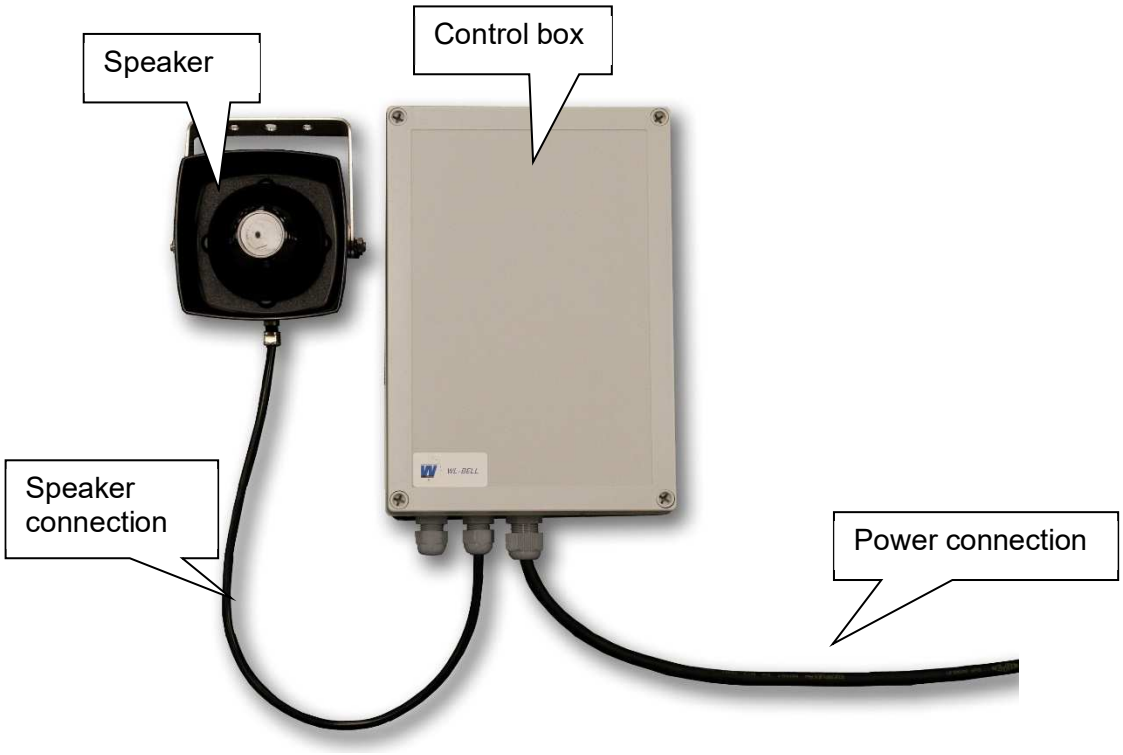
# Table of contents

# WL-BELL

## General description

Westerstrand WL-BELL is a part of Westerstrand Wireless Clock System for flexible installations. WL-BELL is a fully automatic sound generator with built in audio player, amplifier and external loudspeaker. The device has built in microcontroller and UHF receiver. It is fed from mains using an external ad/dc power supply (wall adapter).
WL-BELL can be used in schools for class change, in industries for break signalling or for sending out general messages or melodies. The unit is delivered with a SD memory card containing 16 pre-programmed sounds including bells, ringtones, and melodies. The customer can easily add or replace the sounds on the card.
WL-BELL is controlled from a Master Clock in the QWTIMEIII product range. It is possible to create up to 8 zones with different break times and/or other messages. Start time, zone and melody number is programmed in the Master Clock and is sent wireless to the unit prior to the play.
Alternatively, if the wireless feature is not supported by the Master Clock, the device can be connected via wire.

WL-BELL for outdoor use supports several ways of power supply. It comes with a plug for connection to 230V, but it is also possible to use fixed installation. A third option is DC power.




**WESTERSTRAND URFABRIK AB**
P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se

# Work mode

WL-BELL has four work modes; wireless (default), wired with serial communication, wired with closing contact, and play instantly when powered on. The work mode used is determined by a 4-pin DIP switch accessible from inside the control box. In wired use, the unit may have a continuous power supply via an AC adapter or only receive power, from the main clock, when it is time to play a melody.

**1. Wireless communication**. Start time, zone and melody number are sent wireless from the main clock. Volume and zone are set via the +/- buttons inside the control box.

**2. Wired communication**. Start time, zone and melody number are sent by wire (RS485) from the main clock. Volume and zone are set via the +/- buttons

**3. Wired, closing contact**. Play melody when a closed contact is detected.
Melody and volume are selected with the buttons.

**4. Wired, play instantly** when powered on. Play melody immediately when the power is turned on.
Melody and volume are selected with the buttons.

# User Interface

To facilitate configuration WL-BELL has 3 buttons and four LEDs that are used to set volume, zone, select melody (wired) and pre-listen a melody.
The LEDs are marked as follows:
**Status**
**Volume**
**Melody**
**Zone**

### Unlock buttons

The buttons are locked by default to prevent unauthorized people from changing the settings.
To unlock the buttons, the P button must be pressed for at least 2 seconds. Depending on how long the button is pressed different menus are entered. The status LED normally lights up steadily, but when a menu is open it flashes once / second.

Remark: To leave a menu without saving press – button for at least 3 seconds.

### Setting the volume

Press P 2-3 seconds: The STATUS LED flashes once / second and the VOLUME LED lights up.
Briefly press P. Now the last played melody starts, and it is repeated to facilitate the volume setting.
Select volume with + and -. Each press of the button will increase / decrease the volume one step. Accept and save the current volume setting by pressing press P for at least 3 seconds. The unit is now back in running mode.

### Select melody

Press P 4-5 seconds: Melody mode opens. The STATUS LED flashes once / second and the MELODY LED lights up. Briefly press -. Now melody no. 1 is played. To play the next song, press + once. Now melody no. 2 is played and so on. The playback can be interrupted by a brief press on the P button.
To save a selection press P for at least 3 seconds.
To leave the menu without saving press – button for at least 3 seconds.

### Select zone

Press 6-7 seconds: Zone mode opens. The STATUS LED flashes once / second and the ZONE LED lights up.
Briefly press P. Now the ZONE LED flashes once every 4 seconds to indicate zone 1.
Press P again. Now the LED flashes twice every 4 seconds to indicate zone 2.
Etc.
To save a selection press P for at least 3 seconds.

### Remark

To facilitate the control of receiving messages from the Master Clock, via air or wire, the STATUS LED flashes twice each time the device has received an approved message.

# Installation

Before the WL-BELL is mounted on the wall some settings must be done.
To make the settings, the control box cover must be removed. See photo under section 4, connection.

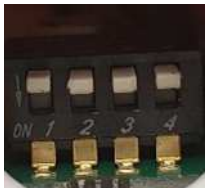
### 1. Work Mode

Choose work mode, by setting the DIP-switches in correct position. Factory default is wireless. The DIP switch is accessible from inside the control box. Please note that the DIP-switch is only read directly after power up.

DIP switch

OFF

ON




| **Work Mode** | DIP 1 | DIP 2 | DIP 3 | DIP 4 | Remark |
|---|---|---|---|---|---|
| 1. Wireless communication | OFF | OFF | OFF | OFF | |
| 2. Wired communication RS485 | ON | OFF | OFF | OFF | |
| 3. Wired, closing contact | OFF | ON | OFF | ON | |
| 4. Wired, play instantly | ON | ON | OFF | OFF | Play instantly when powered on. |

Remark: Switch power OFF/ON if the DIP switch is changed.

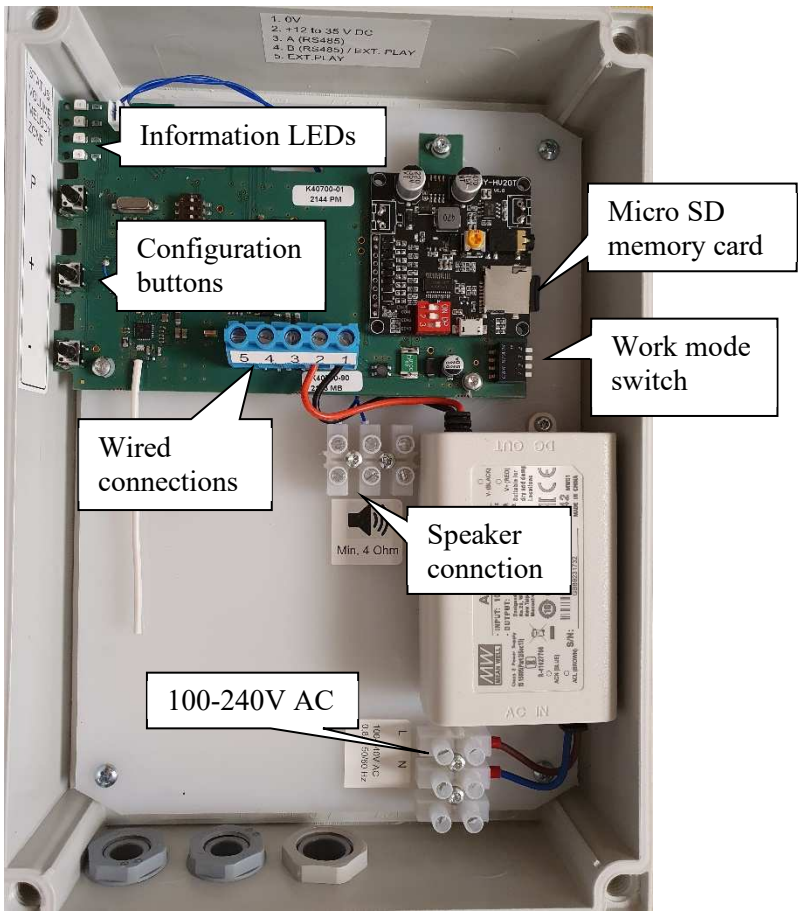
### 2. Melody selection

The unit is delivered with a SD memory card containing 16 pre-programmed sounds. The SD-card is accessible from inside the control box.
In wired work mode the selection of melody is done using the configuration buttons on the left side of the pc-board. In wireless mode the selection is done in the Master Clock.

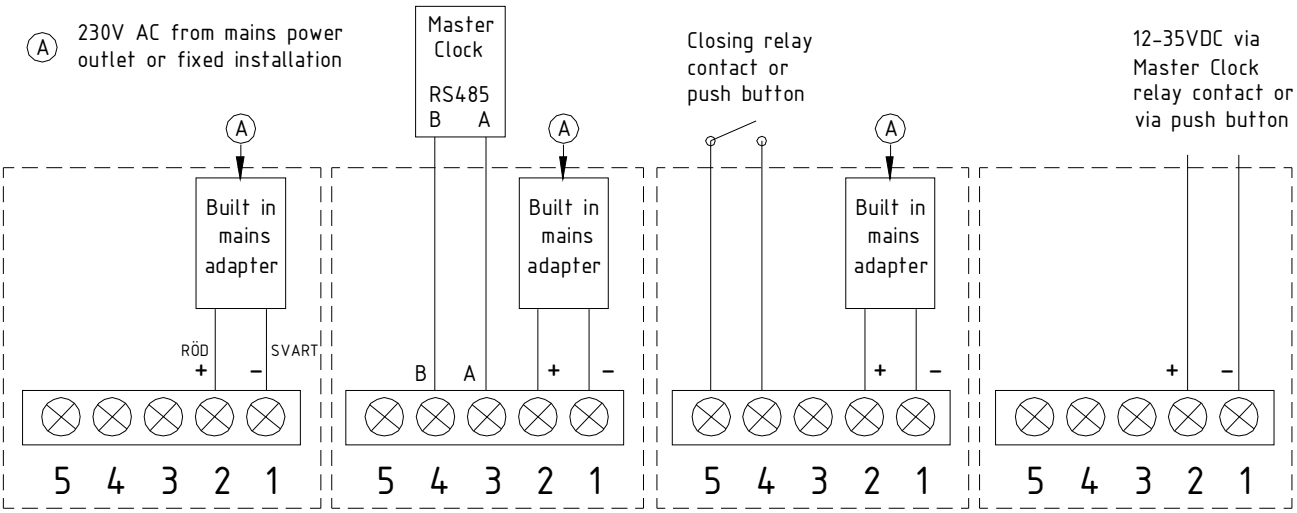
### 3. Mechanical Installation

Mount the unit on the wall using the four mounting holes and suitable screws (screws are not included).

## 4. Connection




1. Wireless
2. Wired via RS485
3. Wired via closing contact
4. Wired, play when powered




**WESTERSTRAND URFABRIK AB**
P.O. Box 133
SE-545 23 TÖREBODA
Tel. +46 506 48000
Fax. +46 50648051
Internet:: http://www.westerstrand.se
E-mail: info@westerstrand.se

**Connection 230V**
NOTE! When connecting 230V, the following applies:

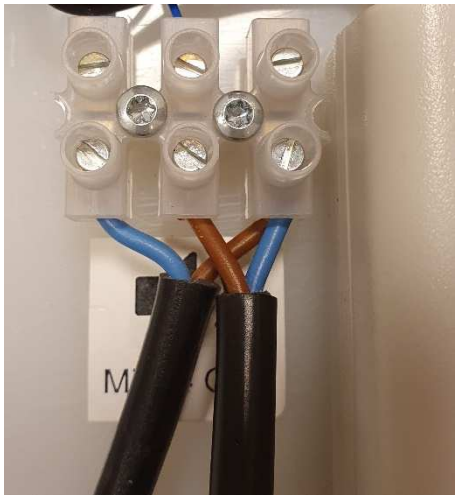
- For fixed connection: connection to the mains supply must be made via an easily accessible separate control switch (2-pin, 3mm contact gap)

- For plug connection: The wall socket must be close to the control box and be easily accessible.

**Connecting speakers**
The speaker, which is packed separately, comes with a fixed connection cable of 0.6 meters. Use this if the speaker is mounted near the control box. If a longer distance is needed between the box and the speaker, the cable can be spliced. Up to 50 meters is allowed with a cable dimension of 1.5 mm2.
The speaker has an impedance of 4 Ohm and can, if necessary, be connected in series with another speaker. The series connection can either be made directly in the internal connection terminal, see below, or in an external connection box. Parallel connection is not allowed because the impedance will be too low.

Connection of one speaker


Connection of two, series-connected speakers



**WESTERSTRAND URFABRIK AB**
P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se

# SD memory card

The enclosed SD memory card contains16 pre-programmed sounds including bells, ringtones and melodies. The audio files are in mp3 format.

New sounds/melodies can be added by the user.

On the SD memory the sounds/melodies are numbered in the following way:

Melody no. 1: 00001.mp3
Melody no. 2: 00002.mp3
Melody no. 3: 00003.mp3
Etc..

To create a new melody, do the following:
1) Rename the file to the wished melody number.
2) Save the file on the SD memory card.

Example:
Assume that you have an audio file you want to use. The name is School Bell.mp3 and you want to use it as melody no. 10.
- Rename the file to 00010.mp3
- Save the file on the SD card.

### Default melodies

00001.mp3 = 1 Melody 1_4 sec.mp3
00002.mp3 = 2 Melody 1_8 sec.mp3
00003.mp3 = 3 Melody 2_4 sec.mp3
00004.mp3 = 4 Melody 2_8 sec.mp3
00005.mp3 = 5 Melody 3_8 sec.mp3
00006.mp3 = 6 Melody 4_4 sec.mp3
00007.mp3 = 7 Melody 4_8 sec.mp3
00008.mp3 = 8 Melody 5_3 sec.mp3
00009.mp3 = 9 Melody 5_7 sec.mp3
00010.mp3 = 10 Melody 6_3 sec.mp3
00011.mp3 = 11 Melody 6_7 sec.mp3
00012.mp3 = 12 Melody 7_3 sec.mp3
00013.mp3 = 13 Melody 7_8 sec.mp3
00014.mp3 = 14 Melody 8_6 sec.mp3
00015.mp3 = 15 Melody 9_4 sec.mp3
00016.mp3 = 16 Melody 9_8 sec.mp3

**WESTERSTRAND URFABRIK AB**
P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se

# Technical data

Article number: 123393-00

## Control box

### MP3 player

| | |
|---|---|
| Number of selectable melodies: | 16 |
| Volume setting: | 31 levels |
| Number of selectable zones: | 8 |
| Memory card: | SDHC micro 8GB (included) |

### UHF-receiver

| | |
|---|---|
| Frequency: | 869.525 MHz |
| Sensitivity: | 1µV (-107 dBm) |
| Modulation: | FSK +/- 25 kHz |

### Power supply

| | |
|---|---|
| Option 1: | Via internal mains adapter |
| Option 2: | Via extern 12 – 35V DC |

Connection:

| | |
|---|---|
| 230V: | Via enclosed mains plug or fixed installation |
| Speaker: | 2-pole screw-connector |

| | |
|---|---|
| Mechanical dimensions control box: | (H x B x D) 255 mm x 180 mm x 75 mm |
| Weight: | 0,7 kg |
| Color: | Grey |
| Temperatur range: | -20 to +55 °C |
| Protection class: | IP66 |

## Speaker

| | |
|---|---|
| Max. power: | 25 W |
| Rated power (RMS): | 12 W |
| Nominal impedance: | 4 Ω |
| Frequency range: | 700-15000 Hz |
| Sensitivity: | 107 dB/W/m |
| Radiation angle, horizontal: | 90° |
| Radiation angle, vertical: | 90° |
| Protection class: | IP66, weatherproof |
| Admiss. ambient temp: | -20 to +50 °C |
| Dimensions: | 106 x 106 x 88 mm |
| Weight: | 1,1 kg |
| Included, fixed connection cable: | 0,6 m. Can be extended up to 50 m if needed. Extension cable: 2 x 1,5 $mm^2$ |

**WESTERSTRAND URFABRIK AB**

P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se

# Master Clock

## Configuration

To activate the wireless play function in a QWTIMEIII Master Clock the protocol PLAY must be selected in the serial port setup menu. The Master Clock must also have software version QW3-A308 or later.

Procedure

| | |
|---|---|
| MON 12 MAR 2018<br>09:07:00 LTw | Select function using ↓ . |
| SPEC.-FUNCTIONS | Accept with YES.<br>Press NO until wished function is shown. |
| SPEC.-FUNCTIONS<br>SETUP | Accept with YES. |
| SETUP<br>SERIAL PORT | Press NO until wished input/output is shown.<br>Accept with YES. |
| RS232 PLAY LT<br>9600 8N1 | Choose, by using the arrows, protocol PLAY, baudrate 9600 and data format 8N1. Accept with YES. |
| SETUP<br>SERIAL PORT | Return to running mode press ←. |
| SPEC.-FUNCTIONS<br>SETUP | ← |
| SPEC.-FUNCTIONS | ← |
| MON 12 MAR 2018<br>09:07:00 LTw | |

**WESTERSTRAND URFABRIK AB**

P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se

# Week Program, example 1

Example: Melody no. 1 shall be played in zone 1, Monday – Friday at 09.00.

| | |
|---|---|
| MON 12 MAR 2018<br>09:07:00 LTw | Select function using ↑↓. |
| WEEK PROGRAM | Enter programming mode using YES. |
| WEEK PROGRAM<br>**NEW** GROUP A | Select new program using YES. |
| WEEK PROGRAM<br>NEW GROUP **A** | Select group of programs using ↑↓, accept using YES. |
| **ZONE 1** MEL 01<br>------- 08:00:00 | Select Zone using ↑↓. Move to the right using →. |
| ZONE 1 **MEL 01**<br>------- 08:00:00 | Choose melody number using ↑↓. |
| ZONE 1 MEL 01<br>**MTWTF--** 08:00:00 | State the days the program shall function using ↑↓.<br>Move to the right using →. |
| ZONE 1 MEL 01<br>MTWTF-- **09:00:00** | State the time of the program using ↑↓.<br>Move to the right using →.<br>Accept using YES.<br>If the program is approved the text “Program saved” is displayed quickly. |
| ZONE 1 MEL 01<br>MTWTF-- **09:00:00** | Continue with the next program or leave programming by pressing ← several times. |
| WEEK PROGRAM | |
| MON 12 MAR 2018<br>09:07:00 LTw | |

**WESTERSTRAND URFABRIK AB**
P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se

# Week Program, example 2

Example: Melody no. 1 shall be played in all zones, Monday – Friday at 09.00.

| | |
|---|---|
| MON 12 MAR 2018<br>09:07:00 LTw | Select function using ↑↓. |
| WEEK PROGRAM | Enter programming mode using YES. |
| WEEK PROGRAM<br>**NEW** GROUP A | Select new program using YES. |
| WEEK PROGRAM<br>NEW GROUP **A** | Select group of programs using ↑↓, accept using YES. |
| **ZONE ALL** MEL 01<br>------- 08:00:00 | Select Zone ALL using ↑↓. Move to the right using →. |
| ZONE ALL **MEL 01**<br>------- 08:00:00 | Choose melody number using ↑↓. |
| ZONE ALL MEL 01<br>**MTWTF--** 08:00:00 | State the days the program shall function using ↑↓.<br>Move to the right using →. |
| ZONE ALL MEL 01<br>MTWTF-- **09:00:00** | State the time of the program using ↑↓.<br>Move to the right using →.<br>Accept using YES.<br>If the program is approved the text “Program saved” is displayed quickly. |
| ZONE ALL MEL 01<br>MTWTF-- **09:00:00** | Continue with the next program or leave programming by pressing ← several times. |
| WEEK PROGRAM | |
| MON 12 MAR 2018<br>09:07:00 LTw | |

**WESTERSTRAND URFABRIK AB**
P.O. Box 133 Tel. +46 506 48000 Internet:: http://www.westerstrand.se
SE-545 23 TÖREBODA Fax. +46 50648051 E-mail: info@westerstrand.se