

## Description

# Westerstrand Wireless Clock System

# FSK Repeater

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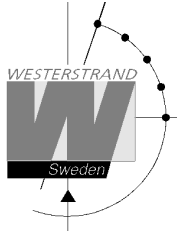
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## 1 General

The Repeater (slave transmitter) is a part of Westerstands system for wireless transmission of time, a fully automatic system for control of analogue and digital clocks. The repeater is built with a receiver and a transmitter. The repeater receives a time message from the main transmitter, amplifies it and then sends it out again.

To prevent collision between time messages in the air so-called time multiplex is used, ie. main transmitter sends out its message in 01 seconds, 11, 21, 31, etc. The first repeater sends in seconds 02, 12, 22, etc. Next repeater sends in seconds 03, 13, 23, etc.

Each repeater is individually addressed by means of a switch (DIP switch).

The output power is selectable in three steps; 25 mW (+14dBm), 100 mW (+20dBm), 500 mW (+27dBm).

The antenna is of type half wave monopole whip.

## 2 Installation

### 2.1 Mounting

As the antenna is omni-directional mount, if possible, the transmitter in the middle of the area to be covered and with the whip antenna vertical (upward). Place the transmitter away from metal to secure a good radio communication.

### 2.2 Start up

Set the desired address on the repeater. The factory setting is repeater no. 1. Note that two repeaters should not be set to the same address because they may interfere with each other. Connect the power adapter to 230V AC.

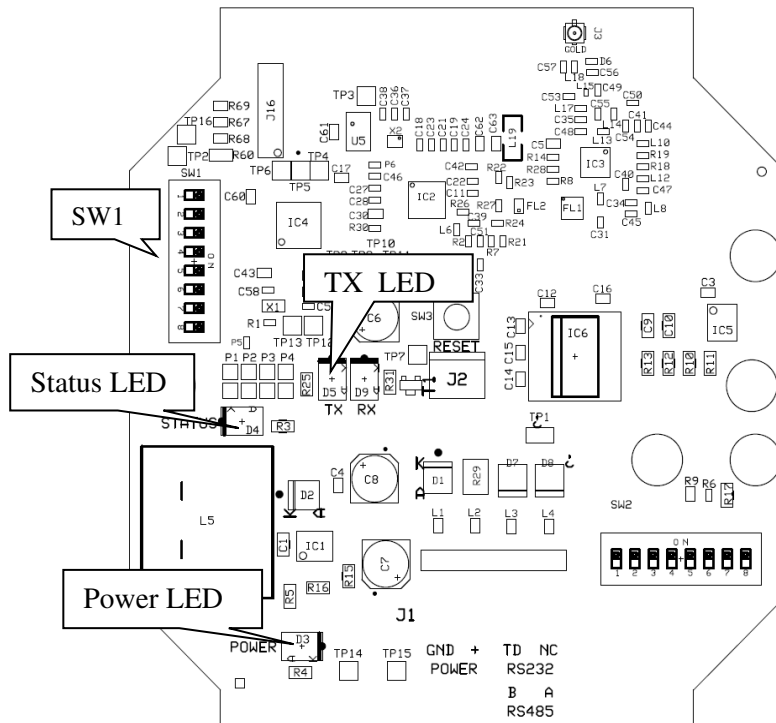
Check the following:

- The green POWER LED lights up.
- The green STATUS diode flashes every two seconds.
- The yellow TX diode flashes every 10 seconds.

If the STATUS diode flashes fast (5 times / s), the repeater is not receiving a signal from the main transmitter. Wait a minute to see if the reception is getting started. If not, try to move the repeater to another position.

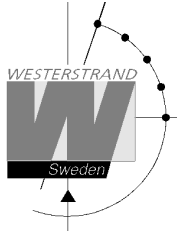
### 3 Settings

#### 3.1 Settings for WL-repeater with K40660-01



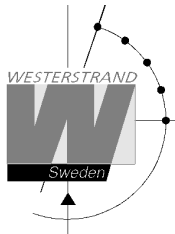
DIP SW1 Repeater address and output power						
Repeater no.	Address: DIP 1 - 3			Power: DIP 5 - 6		
	1	2	3	5	6	
1 *	OFF	OFF	OFF	500 mW *	OFF	OFF
2	ON	OFF	OFF	100 mW	ON	OFF
3	OFF	ON	OFF	25 mW	ON	ON
4	ON	ON	OFF			
5	OFF	OFF	ON			
6	ON	OFF	ON			
7	OFF	ON	ON			
8	ON	ON	ON			

\* Default. (Please note that SW1 DIP-switch 4, 7 and 8 is not used and must be in OFF position.)

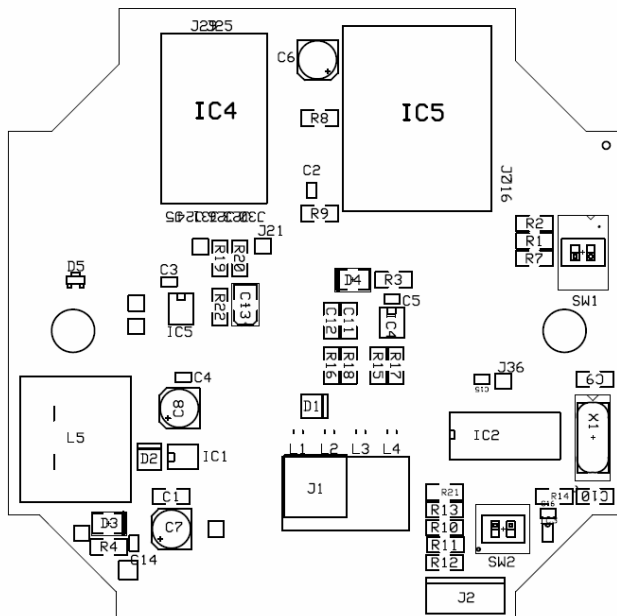


### 3.2 LED indication for WL-repeater with K40660-01

		LED indication	
<i>LED</i>	<i>Remark</i>		
POWER	Power indication	Green = Power OK	Black = No power
STATUS	Sync. status	Green LED flashes slowly, once every two seconds = The repeater is synchronised from the Master Clock and is transmitting time messages every 10 <sup>th</sup> second.	Green LED flashes rapidly, 5 times per second = The repeater is not synchronised from the Master Clock and is not transmitting.
TX	Transmit data	Normal mode = a yellow blink every 10 <sup>th</sup> second	Black = No transmission.



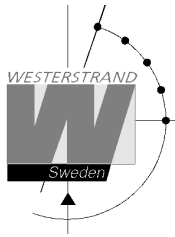
### 3.3 Settings for WL-repeater with K40438-00



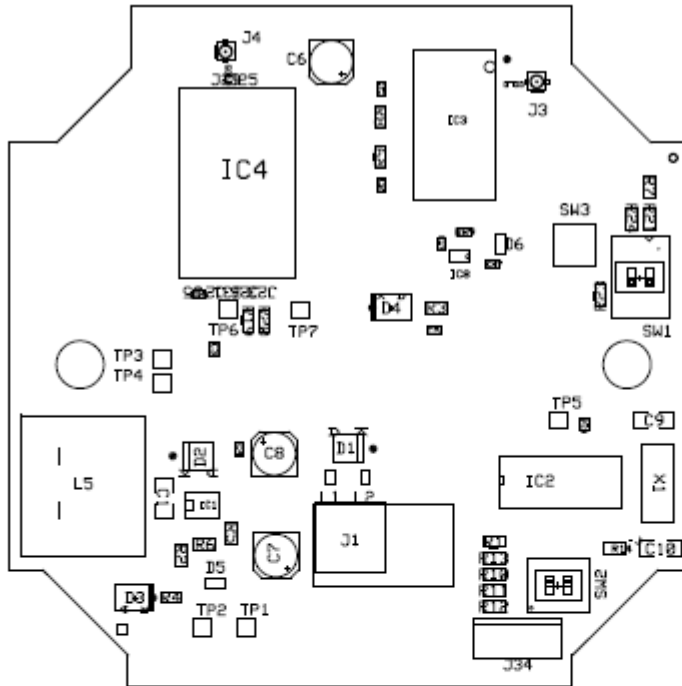
SW1	Sändareffekt					
	25mW		100mW		500mW *	
OFF/ON	1	2	1	2	1	2
ON	X	X	X			
OFF				X	X	X

\* 500 mW is factory default

Repeater no.	SW2							
	OFF/ON							
	1	2	3	4	5	6	7	8
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
7	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
8	ON	ON	ON	OFF	OFF	OFF	OFF	OFF



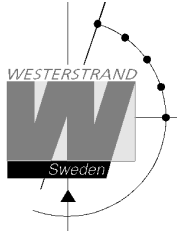
### 3.4 Settings for WL-repeater with K40585-00



SW1	Output Power					
	25mW		100mW		500mW *	
OFF/ON	1	2	1	2	1	2
ON	X	X	X			
OFF				X	X	X

\* 500mW is factory default

Repeater no.	SW2							
	OFF/ON							
	1	2	3	4	5	6	7	8
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
7	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
8	ON	ON	ON	OFF	OFF	OFF	OFF	OFF



## Technical data

Operating frequency	869.525 MHz
Conducted RF power	Selectable, 25 mW (+14dBm), 100 mW (+20dBm), 500 mW (+27dBm).
Modulation	FSK (Frequency Shift Keying)
Transmission range	
Indoor	100 – 200 m
Outdoor	1000 m
Power supply	230V AC via mains adapter
Temperature range	-20° C to +50° C
Protection class	IP55
Size	110 x 110 x 65 mm
Standards	Radio: EN 300 220 EMC: EN 301 489

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