Wireless Tilt Sensor Transmitter for BOSCH 433MHz Alarms

1.0 General Information

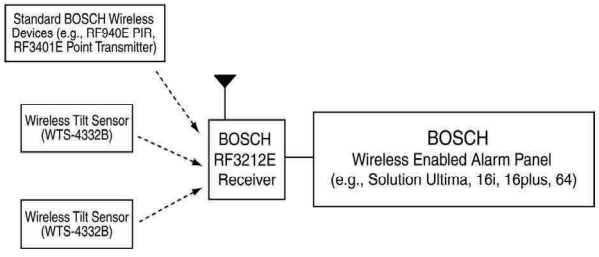
The **WTS-4332B** is a Wireless Tilt Sensor Transmitter which uses a combination of **patented** tilt detection and RF technology to protect objects from tampering. It extends the traditional alarm system beyond the physical boundary of the customer's premises.

The **WTS-4332B**:

- ⇨ **Detects** movement (tilt) from the protected equipment and transmits this to a **BOSCH** compatible receiver/alarm panel as an alarm condition.
- ⇨ **Is easy to use.** The WTS is programmed into the **BOSCH** panel in the same way as a standard wireless device (e.g., PIR, wireless reed) => **Nothing new to learn.**
- ⇨ **Protects** property such as boats, jetskis, farm bikes, building equipment, containers, machinery, protected stock etc from unwanted tampering.
- ⇨ Provides a **supervised** link from the protected equipment to the alarm panel.
- ⇨ Has a **reed switch** which can be used to generate a tamper condition and can also be used as an auxiliary tamper input.

The **WTS-4332B** operates in the same way as a standard **BOSCH** wireless device. It communicates with the BOSCH **RF3212E** receiver and any **BOSCH** compatible alarm panel as shown.

It transmits a supervision signal to the receiver once every 6 or 13 minutes (configurable) and will generate RF device supervision failure if supervisions are not received by the panel.



Wireless Tilt Sensor BOSCH - System Overview

2.0 Specifications

Parameter	Description
Dimensions (mm)	63w x 57d x 35h
Frequency	433.42MHz, AM
BOSCH compatible receivers	RF3212E
BOSCH compatible alarm panels	Solution 880 Ultima, Solution 16i, Solution 16plus, Solution 64
Maximum RF Power	Less than 10mW
Modulation	AM
Weight	90g (excluding bracket)
Operating temperature	0 deg C – 55 deg C
Recommended battery types	1 x ½AA 3.6V Lithium. Tadiran TL-5902; Saft LS 14250C or equivalent
Battery life	Approximately 3 years under normal use.
Operating range	300m in open air but actual range should be verified for each installation. Will be subject to many factors including transmitter location, receiver location, antenna, surrounding metal, environment.

3.0 Mounting

3.1 Mounting Considerations

a) The maximum range in open air is approx 400m however it is recommended to keep the operating range to less than 100m to ensure reliable performance.

b) Mounting the **WTS-4332B** on or near metal surfaces or surroundings will reduce its effective RF range.

c) Location of receiving antenna in proximity to metal will adversely affect performance.

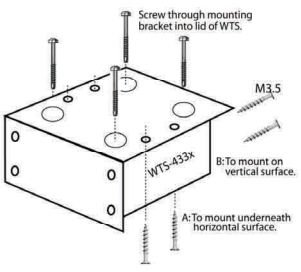
3.2 Mounting the Transmitter

a) The **WTS-4332B** can be installed +/- 45 degrees from the horizontal position. **Only mount in direction shown on label.**

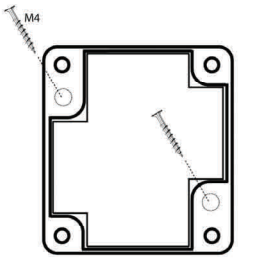
b) It is **self calibrating** so the precise mounting position is not critical and the device will work well (for example) on boats parked on a variable incline.

c) It should be mounted firmly to avoid false activations which can be caused by a loose mechanical coupling to the device being protected.

d) It should be mounted either underneath a horizontal surface (A) or on a vertical surface (B) using the optional bracket as shown , or on top of a horizontal surface (C) using two screws through the lower part of the enclosure.



MOUNTING WITH OPTIONAL MOUNTING BRACKET
A: Mount underneath horizontal surface.



MOUNTING USING MOUNTING HOLES IN BOX
C: Mount on top of horizontal surface

4.0 Battery Installation

Install battery observing polarity as shown. WTS powers up, LED flashes quickly for 2 seconds followed by a long flash to show recalibration has occurred. When transmitting RF messages, LED flashes once for each transmission (see 8.1 also).

IMPORTANT:

a) DIP switches and jumpers are only read during walk test. When walk test is finished, to change a setting, adjust the switch then remove the battery, wait 30 seconds and reinsert.

b) A Low Battery signal is transmitted when the battery voltage falls below a preset threshold (during RF transmission).

5.0 Walk Test

Walk test is used for testing an installation.

a) During walk test, all tilt transmissions are sent and standdown time is automatically set to zero (i.e., SW1-4/5 are ignored).

b) WTS remains in walk test for 90 seconds **however** timeout is automatically extended whilst tilt or reed alarm is detected.

c) Walk test can be permanently enabled (see 8.1) but use this mode with caution as battery life is greatly reduced. Note this mode is not retained by the WTS when the battery is removed.

6.0 Tilt Alarm

When an alarm condition occurs (i.e., the WTS is tilted beyond the Sensitivity Threshold), multiple alarm messages are transmitted at a random interval (to allow for interference and possible collisions).

After an alarm, the WTS waits for the Standdown Time then recalculates its new position. This is then used as the 'normal' position for the next alarm.

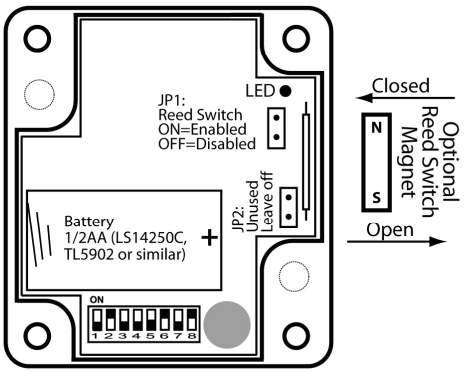
7.0 Reed Switch (Tamper) Alarm

This is a normally closed contact which will generate a Tamper alarm at the panel when open.

For this input to be valid:

a) Jumper JP1 must be installed; and
b) The reed switch must be closed at least once (to arm it) - the next open condition will cause an alarm.

Note that the magnet used must have the North and South poles parallel to the reed switch as shown.



8.0 Switch Settings - SW1 (defaults shown with '*')

8.1 LED

If SW1-1 is off, LED is only active during walk test. If SW1-1 is on, LED is always active (but battery life will be reduced).

SW1-1	LED Status
Off*	LED only active during powerup and walk test (uses more power).
On	LED active all the time.
Off->On	To permanently enable walk test, install battery with SW1-1 off then turn on within 4 secs from powerup. **Caution:** This mode of operation greatly reduces battery life.

8.2 Sensitivity

The user can adjust how **sensitive** the WTS is to tilt. Most sensitivity would be used for a garaged boat or trailer with no exposure to wind and animals and for which the smallest movement should trigger an alarm. Least sensitivity should be used for devices which may be bumped in normal use and for which a significant tilt is required to activate the alarm.

SW1-3	SW1-2	Sensitivity
Off	Off	4 (Most)
Off*	On*	3
On	Off	2
On	On	1 (Least)

8.3 Standdown Time

To conserve battery life, after an alarm transmission the WTS disables further transmissions for the **Standdown Time**. This is necessary for objects which are stationary when being protected but which move when in normal use and would drain the battery through constant alarm transmissions.

SW1-5	SW1-4	Standdown Time (Mins)
Off*	Off*	0
Off	On	2
On	Off	4
On	On	8

8.4 Supervision Time

The WTS sends a periodic supervision message to the receiver. This message contains battery and alarm status.

SW1-6	Supervision Time (Mins)
Off	6
On*	13

8.5 Alarm Messages

Sets number of transmissions for each alarm message (supervision messages are always transmitted 4 times). In poor signal areas or high security, set to maximum.

SW1-8	SW1-7	Alarm Messages
Off	Off	2
Off	On	4
On*	Off*	8
On	On	16

9.0 Programming your Control/Communicator Panel

The WTS-4332B is programmed into any compatible **BOSCH** alarm panel in the same way as any other wireless device. See your panel's reference guide for details.

This product is designed and manufactured in New Zealand and is distributed by Connect Security Products.

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