PSSW Wireless safety-edge controller 343192—Technical Manual

INTRODUCTION

System description

The PSSW system is designed for installation with a safety edge in powered door or gate installations. This system allows for wireless safety edge – control panel connection.
To install this system, you must follow the advice included in this manual and take the requirements of the applicable normative into account.

Normative requirements

The directives applicable to this system are:

- 98/37/EC Machines Directive
- 73/23/EEC Low Voltage Directive
- 2004/108/EC Electromagnetic Compatibility Directive
- R&TTE 1999/5/EC Radio and telecommunication terminal equipment Directive

Below are some of the requirements of the applicable harmonised standards:
In accordance with the European low voltage directive, you are informed of the following requirements: · For permanently connected equipment, an easily accessible connection device must be incorporated into the cabling. · This equipment must be installed in a vertical position and firmly fixed to the structure of the building. · This equipment may only be handled by a specialized installer, by maintenance staff or by a properly instructed operator. · The instructions for use of this equipment must always remain in the possession of the user. · Terminals with a maximum section of 3.8mm² must be used to connect the cables.

- The frequency of the PSSW system does not interfere in any way with the 868 MHz remote control systems. However a signal centred at 868,9MHz may cause a delay on the reaction of the system.

- Always connect the powered door or gate structure and metal parts to an earthing connection.

-Do not share the power and signal supply.

The PSSW system is in line with the Machines Directive under EN 954-1, Category 2.

Tapeswitch Limited declares herewith that the product , PSSW/TX, PSSW/RX, complies with the requirements of the 1999/5/ CEE R&TTE Directive, 89/336/EEC Directive on electromagnetic compatibility and 73/23/EEC on low voltage and its subsequent amendment 93/68/EEC, insofar as the product is used correctly.

This device **complies with Part 15 of the FCC Rules.** 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.

TECHNICAL FEATURES PSSW/TX RADIO TRANSMITTER

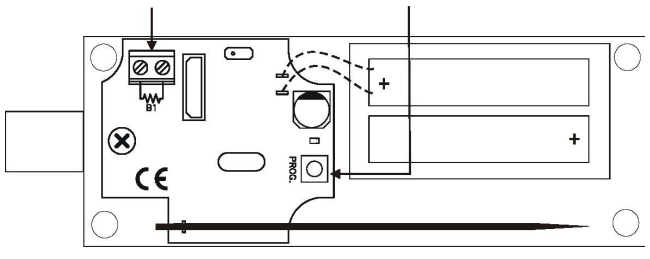
PSSW/TX	
Operating frequency	868.90MHz
Power supply	3V DC (2 x 1.5V LR6 AA)
Op. consumption	12mA
Radiated power	< 25mW
Op. temperature	-20ºC - +55ºC
Seal	IP66
Dimensions	160 x 53 x 20mm
Range (guaranteed)	10m
Battery life	2 years
Minimum time between two or more PSSW/TX activations (for complying with the R&TTE Directive)	7 min

TECHNICAL FEATURES PSSW/RX RADIO RECEIVER

PSSW/RX	
Frequency	868.90MHz
Memory	6 off PSSW/TX (3 on relay 1, 3 on relay 2)
Number of relays	2 relays
Power supply	12/24V AC/DC
Power supply range	9-35V DC 8-28V AC
Relay contacts	1A
Consumption: idle/op.	18mA/80mA
Self-test input	2 off 0/12/24V AC/DC inputs with selectable polarity
Power	< 25mW
Op. temperature	-20ºC to +85ºC
Seal	IP54 (with IP65 cable seals)
Box size	82 x 190 x 40mm
Range (guaranteed)	10 metres

PSSW/TX

Sensing edge Programming button



CE FC TÜV certified EN 12453:2000 5.1.1.6

INSTALLATION AND CONNECTION

PSSW/TX

Fix the back of the box to the powered door or gate. Install the transmitter following the technical manual and avoid placing metallic surfaces between the receiver and the transmitter. Pass the cables through the bottom of the transmitter. Connect a Tapeswitch 8K2 safety sensing edge directly to terminal B1 and ensure that the safety edge keeps totally waterproof. Fix the front of the transmitter to the back with the screws supplied for the purpose.

Operation

The receiver checks that all the programmed sensing edges are working properly. If a sensing edge is activated or if there is an error in its operation, the receiver activates the output relay.

Programming the PSSW/TX

If the receiver is in programming mode (see MANUAL PROGRAMMING), press the programming button on the transmitter to program it into the receiver.

Transmitter battery low indicator (PSSW/TX)

If the battery of a transmitter programmed into the receiver becomes low, it will give out 4 short signals every 20 seconds. If there is more than one transmitter programmed, the safety sensing edge must be activated to check whether the receiver then makes these 4 short signals. If this is the case, the transmitter connected to the activated safety sensing edge will be the one with the low battery. Both batteries must be changed.

Changing the battery

Remove the box cover. The batteries are positioned on the back of the cover. Replace the two used batteries with new ones, taking into account the polarity indicated by the connector. **Check that the new batteries support the same temperature range as those they are replacing.**

PSSW/RX

Fix the back of the box to the wall, using the wall plugs and screws supplied.

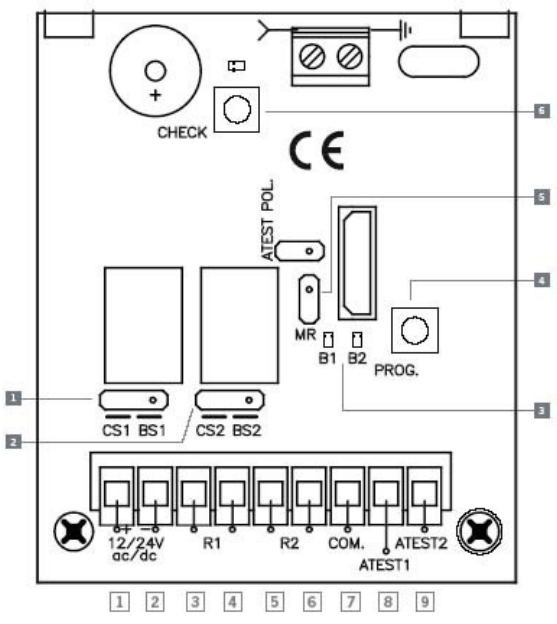
Install the receiver, close to the powered door or gate and avoid metal surfaces between the receiver and the transmitter. Pass the cables through the bottom of the receiver. Connect the power cables to the terminals of the printed circuit, following the indications of the connections diagram. Fix the front of the receiver to the back with the screws supplied for the purpose.

Connections

1- Power supply 12/24V AC/DC: (+)
2- Power supply 12/24V AC/DC (-)
3,4- Output R1: The PSSW/RX can present two types of output to the powered door or gate control panel to indicate that the sensing edge is not activated. If the jumper on the PSSW/RX is in position CS1 a closed contact will be present between connections 3 and 4 when the sensing edges programmed to that output are all clear. This contact will open if any sensing edge is activated or fails thee auto test. If the jumper is in position BS1, a resistance of 8K2 will be present between connections 3 and 4 when the sensing edges programmed to that output are all clear. This connection will be open-circuit if any sensing edge programmed to this output is activated or fails to auto test.
5,6- Output R2: As above but using jumper positions CS2 or BS2
7- COM: Common connection safety self test (-). See AUTOTEST FUNCTION
8- ATEST1: Self-test connection for Output R1 AUTOTEST FUNCTION
9- ATEST2: Self-test connection for Output R2. AUTOTEST FUNCTION.

PSSW /RX	In operation	In programming
Relay 1 LED	Normally off. Indicates the status of the relay output. If R1 is not connected, on.	On. Indicates the channel to be programmed.
Relay 2 LED	Normally off. Indicates the status of the relay output. If R2 is not connected, on.	On. Indicates the channel to be programmed.

PSSW/RX



❶ Selector Bridge R1
❷ Selector Bridge R2
❸ Relay-activated Indicator Lights
❹ Programming Button
❺ Total Reset Bridge MR
❻ Check Button and LED

OPERATION

The receiver checks that all the programmed sensing edges are working properly. If a sensing edge is activated or if there is an error in its operation, the receiver activates the output relay.

MANUAL PROGRAMMING

PSSW/RX makes it possible to store 6 s and/or PSSW/TXs (3 on Relay 1 and 3 on Relay 2). Press the receiver programming PROG button for one second; a sound signal will be heard. The receiver will go into programming the first relay. If the programming button is kept pressed, the receiver will go into programming the second relay, moving cyclically from one relay to another. Once the programming relay has been chosen for the transmitter you want to start using, send the programming code by pressing the transmitter programming button. Every time a transmitter is programmed, the receiver will emit a sound signal for 0.5s. If 10 seconds pass without programming, the receiver will go out of programming mode, emitting two 1s sound signals. If, when programming a transmitter, the receiver's memory is full, it will emit 7 sound signals lasting 0.5s and come out of programming.

Note: For correct operation of the system, a transmitter has to be programmed in one receiver only.

PSSW/TX replacement: In case you need to replace a PSSW/TX, it is necessary to reset the system (see TOTAL RESET on next page) and reprogram all PSSW/TXs used in the installation.

SYSTEM CHECK

This function has to be used to check the operation and range of all the devices once the installation has been carried out.
Press the receiver's CHECK button for at least 1 second to enter check mode. The indicator light will come on and four beeps will be heard. Perform a complete powered door or gate opening and closing manoeuvre. During the system check a beep will be heard every 1,5 seconds.

***C*orrect operation of the system**

If no other acoustic signal is heard on completing the manoeuvre, the system is operating correctly. Either press the CHECK button again or wait 5 minutes and the PSSW/RX will exit checking automatically, indicating with two beeps that the check has been correct. The check indicator light will go out.

Detection of sensing edge failure

If the communication with a PSSW/TX fails during checking, or the communication is deficient (for instance, too many communication retries or poor coverage), the PSSW/RX emits three consecutive beeps, indicating that an error has occurred. Halt the powered door or gate manoeuvre and press the safety sensing edge installed to detect what has failed.

- If a single beep is heard on pressing a sensing edge, this means that the sensing edge is correct.

- If three consecutive beeps are heard on pressing the sensing edge, this means that the sensing edge has failed. In this event, it is recommended changing the orientation of the transmitting-receiving aerials or installing a powered aerial to ensure the desired range.

On exiting check mode, seven consecutive beeps will be heard and the indicator light will flash continuously. Perform another system check until the result is correct.

SIGNAL COVERAGE

After pressing one of the installed sensing edges, continuous flashes, ranging from 1 to 5, indicate the signal coverage for this band at the time

Number of check LED flashes	Coverage	Result of check
1	Very weak	Safety edge failure
2	Weak	OK
3	Normal	OK
4	Good	OK
5	Very good	OK

TOTAL RESET

In programming mode, keep the programming PROG button pressed down and make a bridge with the "MR" reset jumper for 3s. The receiver will emit 10 warning sound signals and then more at a faster frequency, indicating that the operation has been carried out. The receiver will stay in programming mode. If 10 seconds elapse without programming, or if you press the programming button quickly, the receiver will go out of programming mode, emitting two 1s sound signals.

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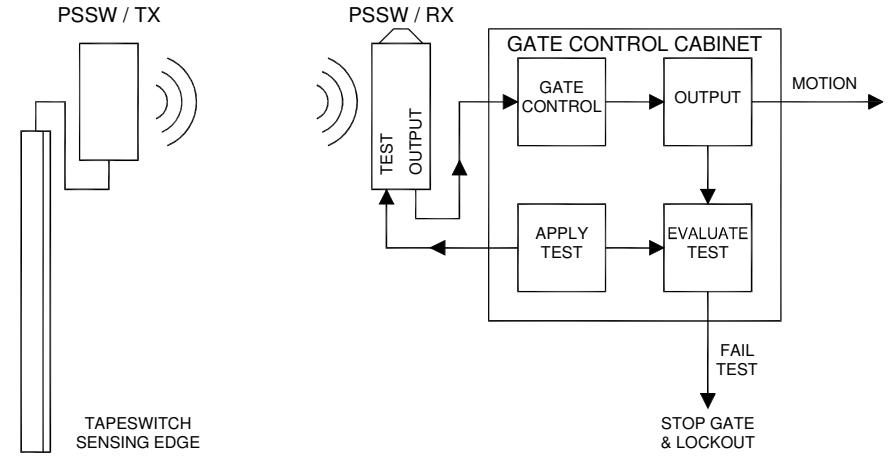
AUTO-TEST DESCRIPTION

Before starting operations, the gate/door control panel must check that the entire safety system is working correctly.



In order to comply with Type 2 of safety standard EN12453 (the safety standard for the use of powered doors), an automatic test of the output(s) of the PSSW should be applied and checked by the gate/door control unit before every operation. If the outputs fail to respond, the operation of the gate/door should be prevented until the situation is corrected. The auto-test can be applied by a signal connected to ATEST1 (for output R1) and/or ATEST2 for (output R2). Only apply the auto-test for outputs that are being used. . The PSSW/RX can deal with positive- or negative-polarity auto-test signals applied by the gate control cabinet.

With no jumper in the ATEST POL position, the applied auto-test signal should normally be at 0V and go to +12/24V for at least 2s before returning to 0V. With a jumper in the ATEST POL position, the applied auto-test signal should normally be at +12/24V and go to 0V for at least 2s before returning to +12/24V. The COM connection for ATEST1 and ATEST2 (pin 7) must be connected to the common of the control unit applying the auto-test.

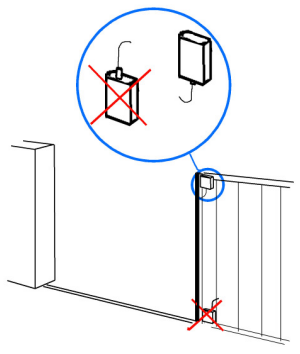
Applying the auto-test signal should cause the relevant output to change state and this should be checked.

With no jumper in ATEST POL and no auto-test signal applied, EN12453 will not be fully complied with.

	Auto-test output in standby	**Auto-test output activated**	**Polarity type**	**Jumper ATEST POL**	**ATEST1**	**ATEST2**
Connection to equipment with autotest	0V	12/24V	Positive	OFF	Connected	Connected
	12/24V	0V	Negative	ON	Connected	Connected
Connection to equipment without autotest				OFF	Not connected	Not connected

- *N.B.: Only connect the auto-test output to be used.
- ** Where the auto-test is not used, the system is not checked at the start of the operation, which means that safety standard EN 12453 regarding the use of a powered door or gate, is in some cases, not complied with.

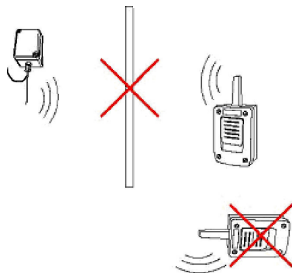
INSTALLATION ADVICE



Install the equipment so that the cable gland is at the bottom. In installations that could possibly have range problems between the transmitter and receiver, ensure that the antenna hangs vertically from the hole in the cable gland.

Do not fit the equipment at ground level.

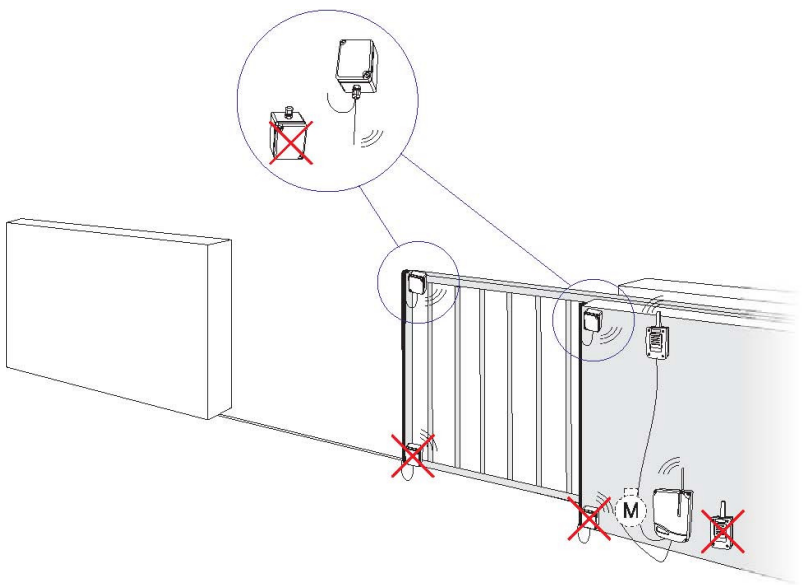
Do not place metal surfaces between the transmitter and the receiver



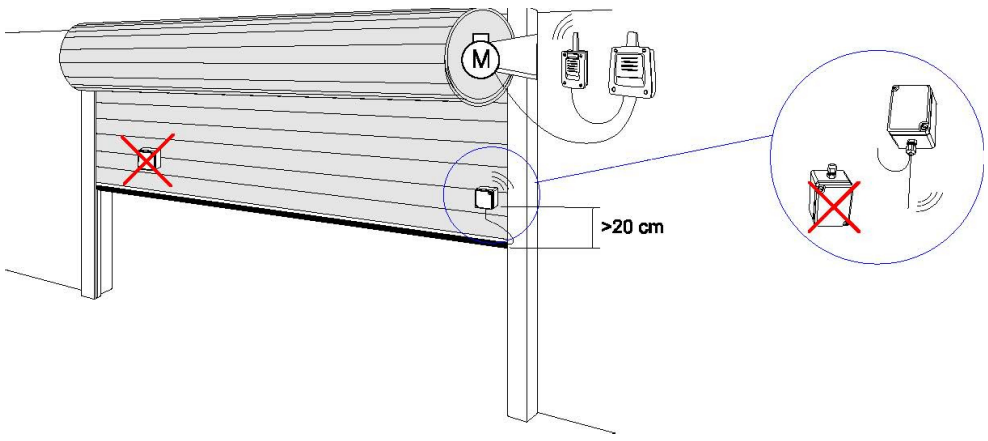
The transmitter and receiver antennae must be parallel to each other for optimum signal reception

Once the system has been installed, check that it works correctly by enabling the safety edge on the ends of the powered gate.

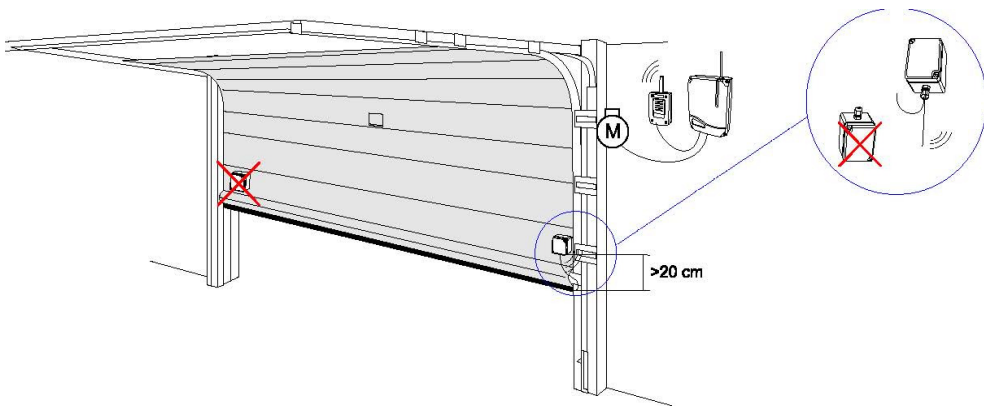
Installation on one-leafed sliding powered door or gate with control panel and PSSW/RX.



Installation on roller powered door or gate with control panel and PSSW/RX.



Installation on horizontal sectional powered door or gate with control panel and PSSW/RX



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