

# Installation and operating instructions

## Rolling Code radio system RS 868 & RS 433





## Warning notes

- **Installation, adjustment and maintenance may only be carried out by trained personnel!**
- **Carrying out works at the receiver is only admissible after the power supply has been turned off!**
- Only turn on the power supply again after another check!
- Never 230V Switch line voltage to the low voltage power supply (24V)!
- If not observed, immediate destruction, no guarantee!
- With DC supply, the polarity must be observed!
- A proper operation is only given, when these installation instructions are strictly followed.
- Protect the transmitters against heat and wetness and don't expose them to direct solar radiation for a longer period of time.
- Used batteries may not be disposed of in the usual household waste, but have to be brought to a collecting point.



### Safety

- Store transmitters and batteries out of children's reach (risk of suffocation through small parts, risk of injury through unintended operation of the gate facility).
- If the battery is swallowed by a child, please call a doctor immediately.
- Don't use the transmitter in explosion hazardous areas and also in areas, where the usage of radio systems (e.g. mobile phones,...) is forbidden.
- The Tousek transmitters may only be used for devices and facilities, where no danger for persons or things arises from a malfunction of transmitter or receiver, or where this risk is covered by other safety devices.
- The remote controlling of devices and plants with an increased accident risk (e.g. crane facilities) is forbidden!
- For safe operation the local valid safety regulations for the plant have to be kept!
- The owner/user has to be informed that facilities with an increased accident risk may only be operated at direct intervisibility.

### Assembly

- Installation in dry rooms only!
- For a differing installation, an according protective housing (e.g. IP65) has to be foreseen.



radio system RS 868 & RS 433

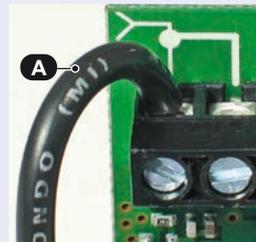
- The radio receivers are self-learning, i.e. the transmitter code has to be memorized in the receiver.
- Furthermore the transmitter code is altered each time a command is emitted (Rolling Code).
- Due to this continuous alteration of the code, each code can be used only one time and so an abuse through scanning is debarred.
- The system permits to store up to 85 buttons, or with an extensible memory module even up to 341 buttons.
- Moreover there exists the possibility to delete single memorized transmitter channels as well as the complete receiver memory.



Antenna

- Connect the delivered antenna (A), a 8,5cm or 17cm long piece of wire, with the antenna-pole input of the device.
- **Don't change the length of this wire piece!** (Decrease of transmission range)
- For improving the reception, an antenna FK is optionally available.

Antenna FK 868 / FK 433 (optional)



Technical data

Receiver	RS 868	RS 433	Transmitter	RS 868	RS 433
frequency of receiver	868,3 MHz	433,92 MHz	frequency	868,3 MHz	433,92 MHz
sensitivity	1 µV		tolerance zone	+/-10 ppm	+/-75 kHz
Lokale Oszillator Emission	<57dBm		Bandweite	>25 KHz	
intermediate frequency	10,7 kHz	500 kHz	radiated power	-3±1dBm	-10±7dBm
impedance antenna input	50 Ω		modulation	FSK	AM/ASK
operating temperature	-20°C up to +60 °C		average current consumption	15 mA	28 mA
relay output	potential free		operating temperature	-10°C up to +55°C	

Transmitter RS 868 & RS 433-TXR-M	Transmitter RS 868 & RS 433-TXR-B	Transmitter RS 868 & RS 433-TXR	bracket for transmitter RS 868 & RS 433-TXR
2- or 4-channels	2- or 4-channels incl. bracket	1-, 2- or 4-channels optional bracket	

Transmitter RS 433-12	Radio code key pad TORCODY for RS 868 & RS 433	Radio wall transmitter RS 868 WTN	Radio wall transmitter RS 433-WT
12-channels	4-channels	1- or 2-channels	2- or 4-channels

### 3. Overview - receivers RS 868

### Rolling code radio system RS 868

type	connection voltage	number of channels	Dimensions in mm (L x W x H) *) without socket	protection class	max. contact load	Connection slot for programming device				article code
						with terminals in housing IP23	with terminals in housing IP54	with 11-pole plug-in socket	extensible with memory module	
Rolling Code RS 868-K	12 or 24V AC/DC	1	90 x 60 x 20	IP23	24V/10mA	•			•	13280010
Rolling Code RS 868-K2.2	12 or 24V AC/DC	2	90 x 60 x 20	IP23	24V/10mA	•			•	13280260
Rolling Code RS 868-SO24	24V AC/DC	1	80 <sup>*)</sup> x 78 x 35	IP20	230V/60W	•		•	•	13280030
Rolling Code RS 868-SO230	230V AC	1	80 <sup>*)</sup> x 78 x 35	IP20	230V/60W	•		•	•	13280040
Rolling Code RS 868-230V1	230V AC	1	127 x 84 x 43	IP54	24V/10mA	•	•		•	13280080
Rolling Code RS 868-230V4	230V AC	4	127 x 84 x 43	IP54	24V/10mA	•	•		•	13280050
Rolling Code RS 868-STN 1	12V DC	1	53 x 53	IP00			•	•	•	13280060
Rolling Code RS 868-STN 2.2	12V DC	2	53 x 53	IP00			•	•	•	13280250
Rolling Code RS 868-GTZ	24V DC	1	45 x 60	IP00			•		•	13280230

### Overview - receivers RS 433

### Rolling code radio system RS 433

type	connection voltage	number of channels	Dimensions in mm (L x W x H) *) without socket	protection class	max. contact load	Connection slot for programming device				article code
						with terminals in housing IP23	with terminals in housing IP54	with 11-pole plug-in socket	extensible with memory module	
Rolling Code RS 433-K	12 or 24V AC/DC	1	90 x 60 x 20	IP23	24V/10mA	•			•	13270040
Rolling Code RS 433-K2.2	12 or 24V AC/DC	2	90 x 60 x 20	IP23	24V/10mA	•			•	13270460
Rolling Code RS 433-SO24	24V AC/DC	1	80 <sup>*)</sup> x 78 x 35	IP20	230V/60W	•		•	•	13270030
Rolling Code RS 433-SO230	230V AC	1	80 <sup>*)</sup> x 78 x 35	IP20	230V/60W	•		•	•	13270020
Rolling Code RS 433-230V1	230V AC	1	127 x 84 x 43	IP54	48V/28W	•	•		•	13270180
Rolling Code RS 433-12/24V4	12 od. 24V AC/DC	4	127 x 84 x 43	IP54	48V/28W	•	•		•	13270150
Rolling Code RS 433-230V4	230V AC	4	127 x 84 x 43	IP54	48V/28W	•	•		•	13270120
Rolling Code RS 433-STN 1	12V DC	1	53 x 53	IP00					•	13270210
Rolling Code RS 433-STN 2.2	12V DC	2	53 x 53	IP00					•	13270450

type

article code

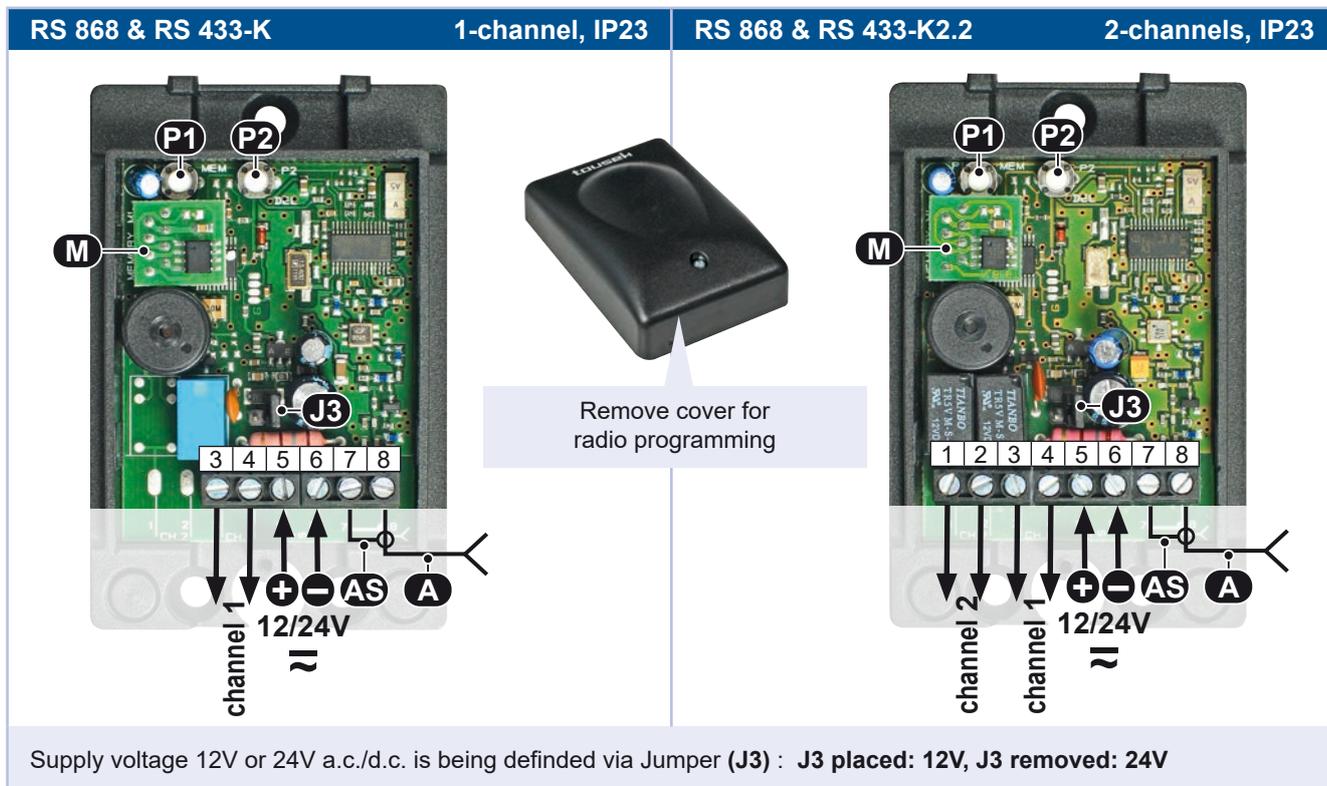
#### Accessories

memory module	for increasing the receiver capacity (max. 256 transmitters)	13270110
PROG RS433/868	programming device for deleting a transmitter code from the receiver memory without transmitter	13170040
additional receiver channel	for radio receiver RS 433-230V1 and RS 868-230V1	13270250
antenna FK 868	868 MHz, incl. 4m coaxial cable and stainless steel bracket	13250140
antenna FK 433	433 MHz, incl. 4m coaxial cable and stainless steel bracket	13250130

### 3.1 Receivers in housing

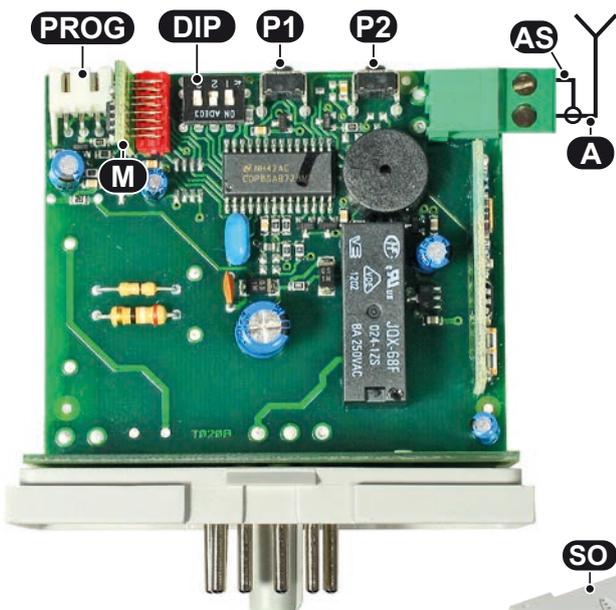
- The receivers RS 868 & RS 433-K (-K2.2) have to connect to the respective control via terminals in the housing, the receivers RS 868 & RS 433-SO24 and RS 868 & RS 433-SO230 have a 11-pole plug socket.

(P1) memorizing button (A) antenna (SO) plug socket  
 (P2) deleting button (AS) shield  
 (M) memory (PROG) Connection slot for programming device



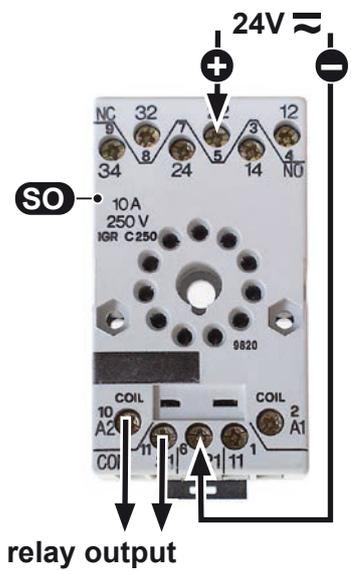
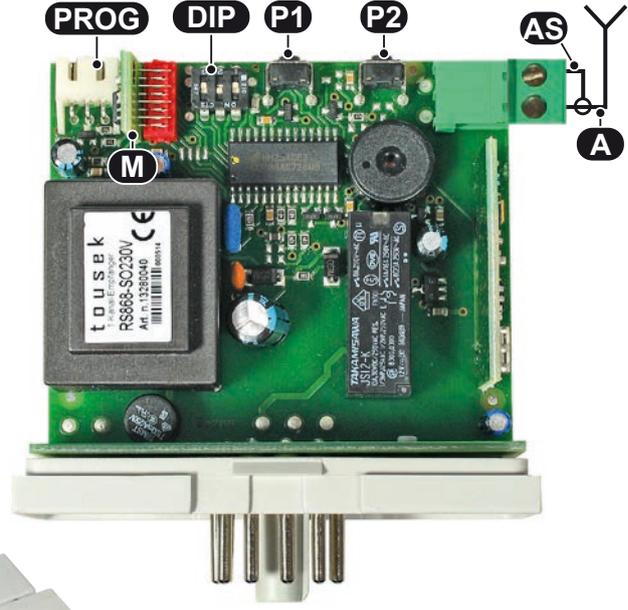
**RS 868 & RS 433-SO24** 1-channel, IP20

Connection voltage: 24V a.c./d.c.

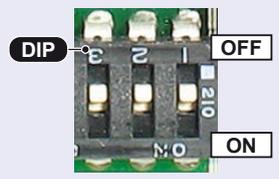


**RS 868 & RS 433-SO230** 1-channel, IP20

Connection voltage: 230V a.c.



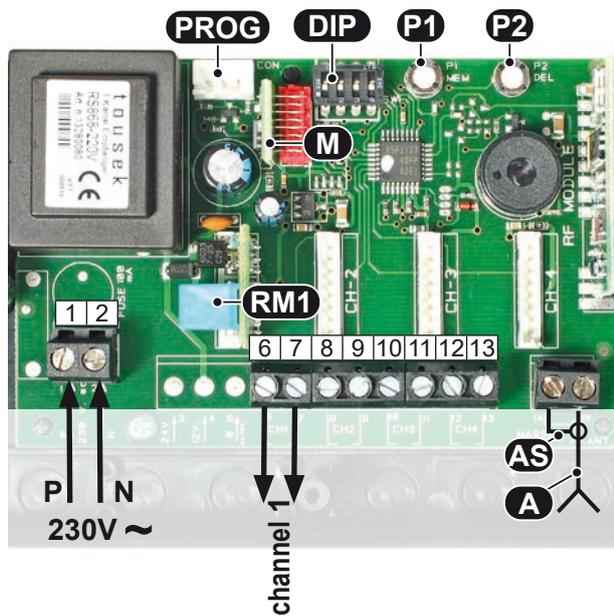
- Receiver with 11 pole plug socket.
- Connection slot (PROG) for programming device PROG RS 433/868.
- Adjustment of functions via DIP-Switches (DIP).



DIP-Schalter	OFF	ON
DIP 1	Adjustment OFF compelling	
DIP 2	Learning through transmitter button P3 <b>not possible</b> .	Learning through transmitter button P3 <b>possible</b> .
DIP 3	<b>No time limit</b> after "net on" for learning through transmitter button P3.	<b>1 min time limit</b> after "net on" for learning through transmitter button P3.

**RS 868 & RS 433-230V1 1-channel, IP54**

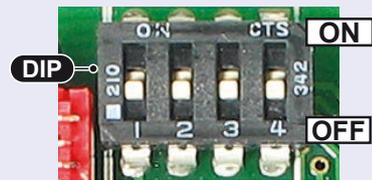
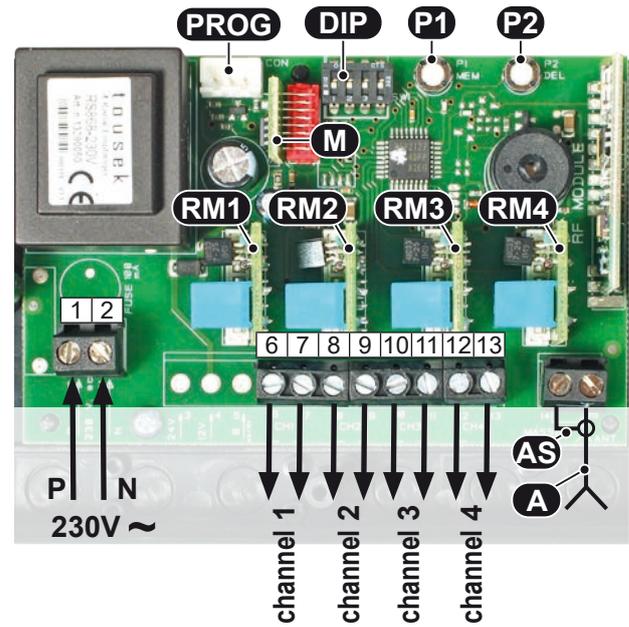
- Connection voltage: 230V a.c.
- Only the 1. channel equipped with a relay module (**RM1**).



- Connection slot (**PROG**) for programming device PROG RS 433/868.
- Please note that when using the 1-channel version RS 868 & RS 433-230V1, the setting of the operating mode is made on the DIP-switch which corresponds to the connection slot of the relay module (channel 1-4).

**RS 868 & RS 433-230V4 4-channel, IP54**

- Connection voltage: 230V a.c.
- All channels equipped with relay modules (**RM1-4**).



**DIP-switches**

**OFF**

**DIP 1 (for channel 1)**

**DIP 2 (for channel 2)**

**DIP 3 (for channel 3)**

**DIP 4 (for channel 4)**

**Pulse mode (default):**  
Relay closes while transmitter button is pressed. Relay opens when button is released.  
(but max. ~28 sec. only)

**ON**

**Continuous mode (latched):**  
Relay stays in one position (open or closed) until another command is issued by a subsequent depression of the transmitter button.

### 3.2 Radio receiver printed circuit boards

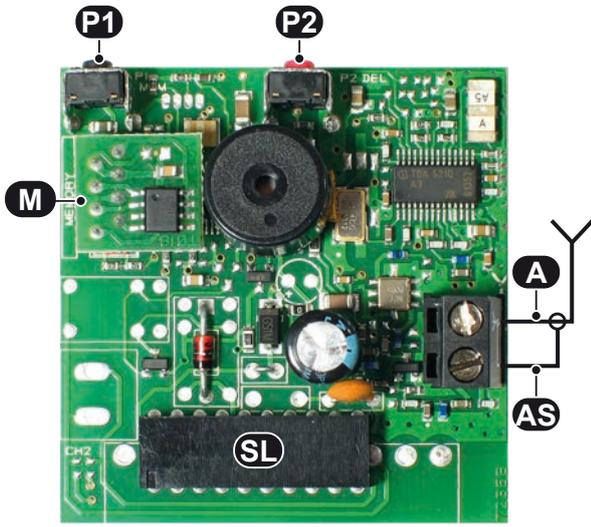
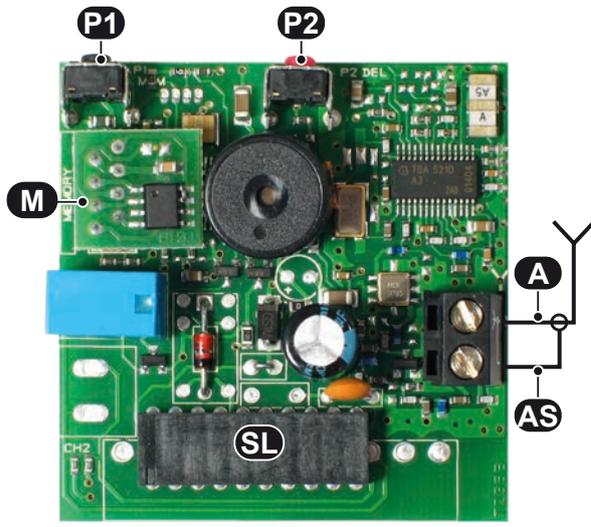
- The receiver boards are being plugged directly onto the control board via plug in socket (SL).

**Exception:** The receiver board RS-868 ST/GTZ Digital has a connector plug (S).

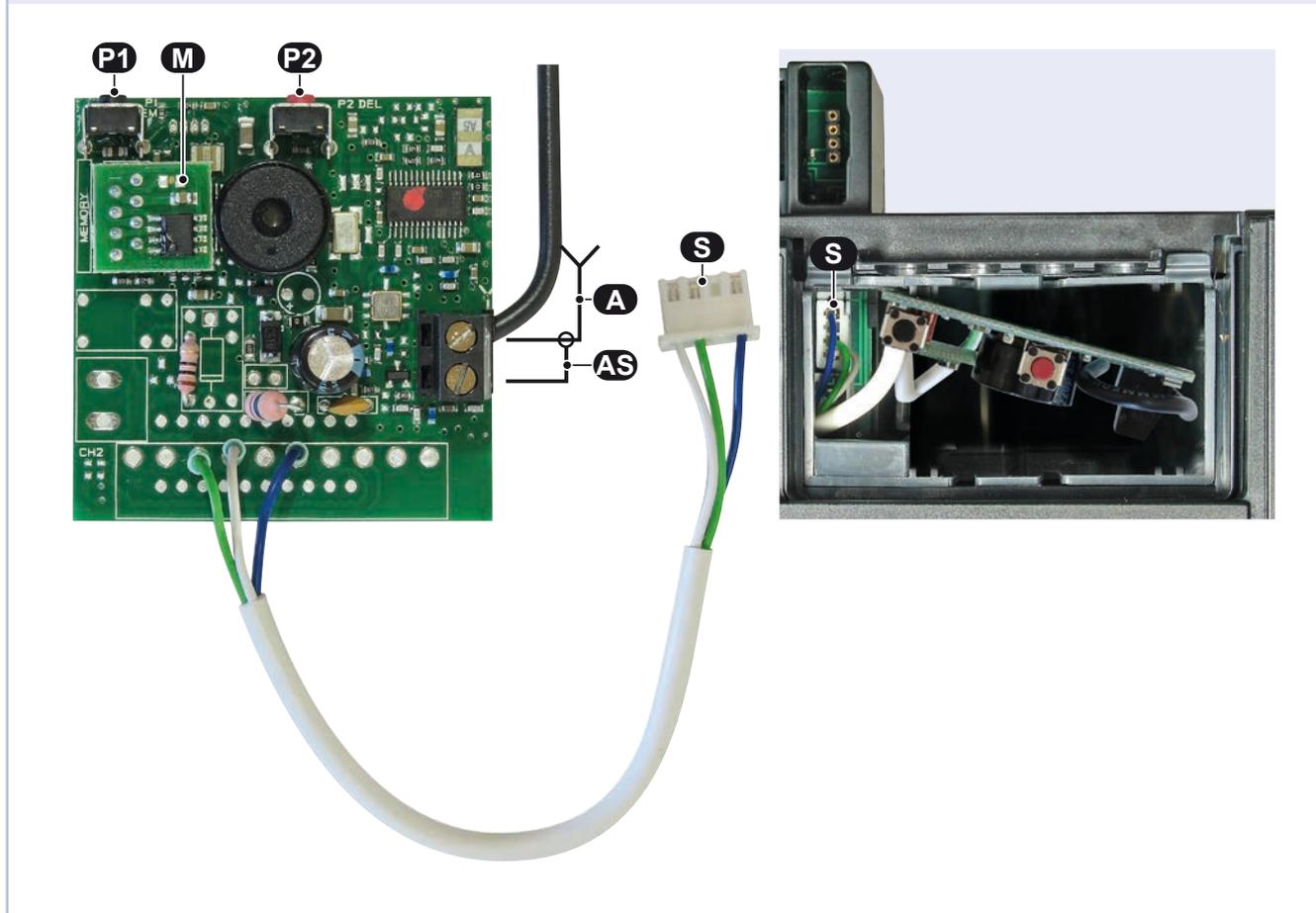
(P1) memorizing button  
 (P2) deleting button  
 (M) memory

(A) antenna  
 (AS) shield

(SL) Plug-in socket  
 (S) connector plug

RS 868 & RS 433-STN1	RS 868 & RS 433-STN2.2
1-channel For tousek controls with STN-socket.	2-channels For tousek controls with STN-socket. With potential free contact - the two channels are transmitted via the connector strip.
 <p>The diagram shows the RS 868 &amp; RS 433-STN1 board. It features a green PCB with various components. Labels include P1 (memorizing button), P2 (deleting button), M (memory), A (antenna), AS (shield), and SL (plug-in socket). The board is connected to a control board via the SL socket.</p>	 <p>The diagram shows the RS 868 &amp; RS 433-STN2.2 board. It features a green PCB with various components. Labels include P1 (memorizing button), P2 (deleting button), M (memory), A (antenna), AS (shield), and SL (plug-in socket). The board is connected to a control board via the SL socket. A blue component is visible on the left side of the board.</p>

RS 868-ST-GTZ Digital	1-channel
For controls of garage door operators GTZ Digital. The radio receiver is connected by plug (S) to the operator control board.	





**NOTE the assignment of the transmitter buttons to the channels of the RS 868 & RS 433 receivers in housing**

In accordance of the transmitter in use (1,2 or 4-channels) there are 1, 2 or 4 transmitter buttons (T1–T4) available for commands. The table shows the possible assignments of transmitter buttons to the different receiver channels:

transmitter buttons	T1	T2	T3	T4
receiver				
<b>1K-receiver RS 868 &amp; RS 433</b>	channel 1	channel 1	channel 1	channel 1
This means: Any transmitter button can be assigned to the output channel.				
Spezialfall: <b>1K-receiver RS 868 &amp; RS 433-230V1</b>	channel 1	channel 2	channel 3	channel 4
This means: this receiver is extendable to a 4-channel receiver. It is equipped with 4 slots and at the 1-channel version only one slot is used by the relay module (see picture). Dependent on the transmitter button which should respond to the receiver the slot assigned to the specified channel has to be chosen for the relay module. The assigned output terminals have also to be chosen.				
<b>2K-receiver RS 868 &amp; RS 433-K2.2</b>	channel 1 or 2			
This means: When activating the learning process with the receiver (P1) the assignment of the transmitter buttons can be made on one of the 2 channels, when activating via a transmitter (P3) <b>two consecutive buttons can not be set to the same channel, since then the assignment is done automatically alternately (channel 1, channel 2, channel 1 ...)</b> .				
<b>4K-receiver RS 868 &amp; RS 433</b>	channel 1	channel 2	channel 3	channel 4

This means: the transmitter buttons have a fixed assignment to channels 1–4.

**A rerouting hence e.g. a response of the 4 channels with four units of 1-channel transmitters is not possible.**

**Transmitters RS 868 & RS 433 TXR, TXR-B, -M, Torcody and radio wall transmitters**



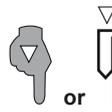
## 5. Radio programming

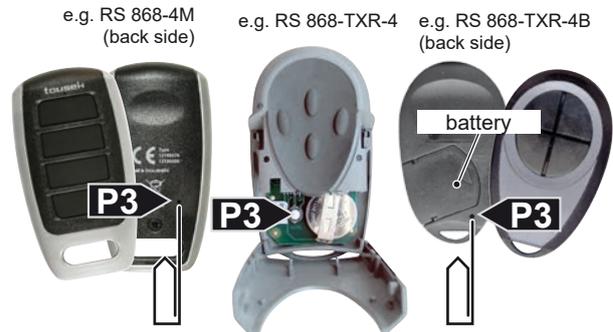
### Rolling code radio system RS 868 & RS 433



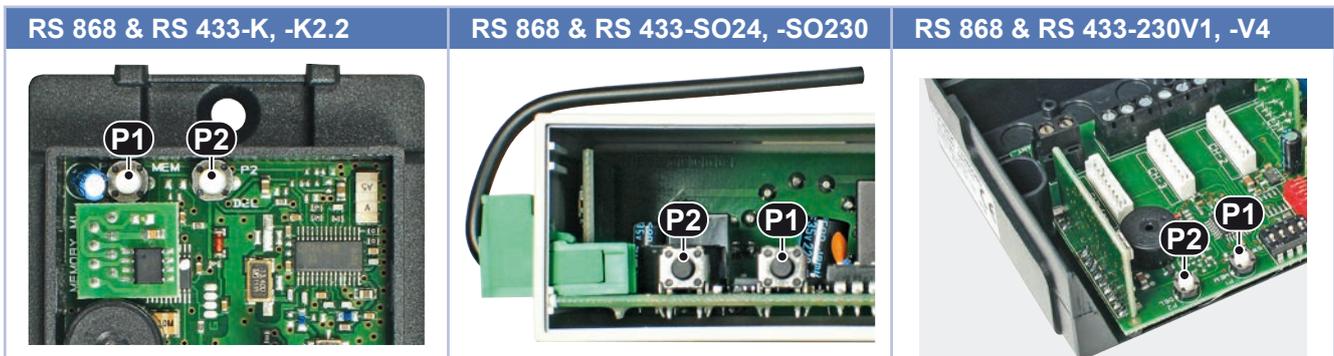
- For reasons of safety it is recommended to clear the whole memory of the receiver at every new installation. see „Deleting the whole memory“
- **IMPORTANT** for receivers RS 868 & RS 433-SO24, -SO230: Adjustment DIP 1 = OFF compelling!

#### Symbols for radio programming

press and hold the according button	release the according button	process finished
 or 	 bzw. 	
continuous tone	slow successive signals	quick successive signals
		



#### Memorizing and deleting buttons of the receivers



(P1) memorizing button (P2) deleting button (P3) memorizing button of the transmitter (activation from the distance)

### 5.1 Memorizing of transmitters

### Radio programming

- For memorizing transmitters you have to stand in the immediate near of the radio receiver.
  - For memorizing, two different procedures are possible:
    - Memorizing process is activated with the **P1** button of the receiver.
    - Memorizing process is activated with the **P3** button of an already memorized transmitter.
- Note: If the receiver memory is completely empty then the learning process can be started with the **P3** button of any transmitter to be programmed.

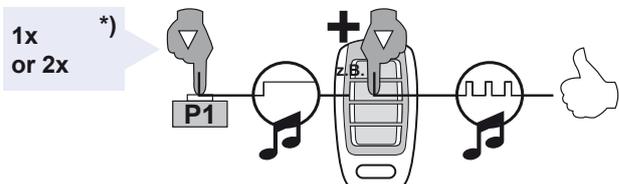


**ATTENTION:** If the receiver doesn't store the code, the receiver memory may be full. (signal tones can be heard for 3 seconds) hence the corresponding transmitter button has already been programmed.

#### Memorizing new transmitters through receiver (P1)

- Press memorizing button **P1** of receiver board **1x or 2x \*)** and then hold the button, after approx. 0,8 sec. the buzzer will sound continuously.
- While you keep **P1** pressed, now also press the button of the transmitter which should be stored.
- When the memorizing process is finished, the receiver will emit successive signals. Now the transmitter code has been successfully stored. If you want to store further transmitters, you have to repeat the whole procedure.

- With 1 or 4 channel receivers:
  - \*) Press once and hold: Learning process starts
- With 2 channel receivers:
  - Press once and hold: Learning process for receiver channel 1 starts.
  - Press twice and hold: Learning process for receiver channel 2 starts.



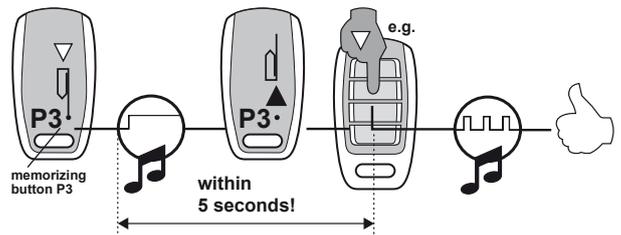


## Memorizing new transmitters through transmitter (P3)

### Important

- **ATTENTION at multichannel facilities:** The power supply for possibly existing additional receivers has to be turned off, to avoid an unintentional activation of several receivers during memorizing.
- **IMPORTANT:** If the receiver memory is not completely empty then the learning process must be started with the **P3** button of an already memorized transmitter!
- **Note for receivers RS 868-SO24, -SO230:**  
The remote activation of the learning mode on the transmitter button P3 is only possible if this function has been enabled on the receiver (DIP 2 = ON, see „DIP switches“, page 5).  
**Exception: With an empty memory remote activation is always possible.**
- When teaching a transmitter to a 2-channel receiver via distance learning (start the learning process by transmitter button P3), the first to be taught transmitter button (any) is stored in the first receiver channel. The second button in the channel 2. In a 4-channel transmitter, the third button is again set to channel 1 and channel 2 on the fourth. **Thus it is e.g. not possible to place button 1 and 2 on one channel**

- If the receiver memory is not completely empty then the learning process must be started with the **P3** button of an already memorized transmitter! If the receiver memory is completely empty then the learning process can be started with the **P3** button of any transmitter to be programmed.
- **Through pressing transmitter button P3** the receiver is set in memorizing mode and emits a 5s long continuous tone. As soon as you hear this tone, **release button P3**.
- **Within these 5 s** now press the channel button of any transmitter which should be stored. As soon as the channel has been stored in the receiver memory, you can hear several successive signals.



## 5.2 Deleting of transmitters

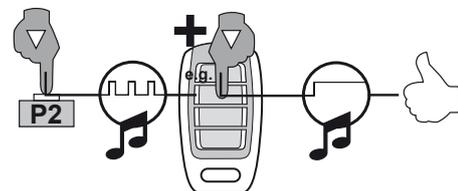
### Radio programming

- Move to the immediate vicinity of your radio receiver for deleting transmitters. The deletion process is activated directly at the receiver.

### Deleting one transmitter code out of receiver memory

- **Press and hold receiver button P2** (deleting button). After 0,8 s the receiver will emit slow successive signals.
- **While you hold P2 pressed**, now also actuate the transmitter button, you would like to delete. As soon as the deleting process is finished, the receiver will emit a continuous tone.

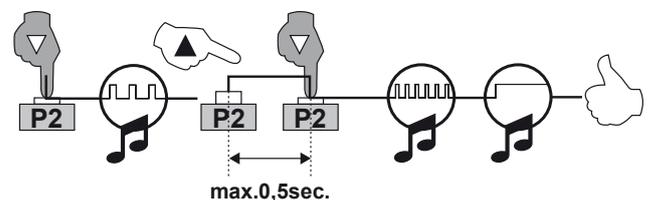
For deleting further transmitter channels, please repeat the whole procedure.



### Deleting the whole memory

- **Press and hold receiver button P2** (deleting button) After 0,8 s the receiver will emit slow successive signals.
- **Now release P2 (deleting button) for a short moment and then press it again within 0,5 s.** Now the receiver emits quick successive signals.

**Keep the button pressed as long as the receiver starts emitting a continuous tone.**



## 6. Trouble shooting

### Rolling code radio system RS 868 & RS 433

Problem	Possible cause	Check
relay doesn't switch after emitting a command	no power supply	Is receiver correctly connected ?
	transmitter not memorized	see instructions for memorizing and deleting of new transmitters
	transmitter defective	check battery, resp. let transmitter be controlled
transmitters only have a small range of transmission	battery of transmitter empty	check battery
	Faulty installation of antenna. Antenna not or wrong connected	see „Antenna“, page 2

## **tousek PRODUCTS**

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- garage door operators
- folding door operators
- traffic barriers
- electronic controls
- radio remote controls
- key operated switches
- access control
- safety devices
- accessories

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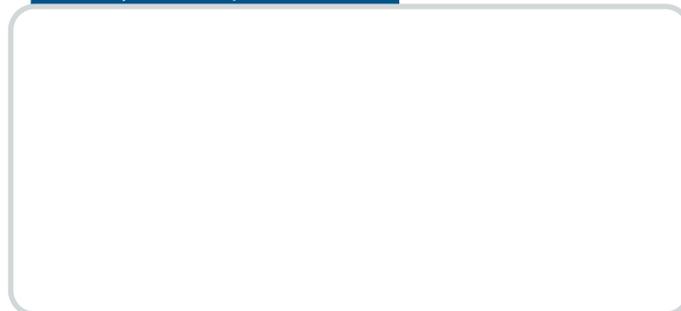
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