REMOTE CONTROL

SYSTEM

rival

Receiver Rival 434

Operating manual

CE
MADE IN POLAND

dtm
SYSTEM

dtm 433 MHz

dtm 433 MHz MULTI

V. 2.5

The intention of the WEEE Directive (Directive 2002/96/EC on waste electrical and electronic equipment) is to reduce the amount of hazardous substances in waste. The underlying purpose is to promote the avoidance, recovery and risk-free disposal of waste.

Contents

A. Introduction

DTM433MHz control system is the group of electronic devices, based on microprocessors, with functional possibilities you will find nowhere in this kind of devices. The Control System consists of receivers, including Rival 434 receiver, roller and gate controllers, radio remote controls and many additional interfaces.

Basic application for Rival 434 is to control gates, rollers and external devices like lighting, alarm systems, electromagnetic locks, etc.
The system is very flexible and the possibilities of using depend on a customers ideas and needs.

We use components of the best quality manufacturers in the world. Our devices include a lot of innovative functions and solutions. Rival 434 introduces a new modern concept of PC connectivity (USB port).

Rival 434 receiver consists of a main board and a splash-protected plastic enclosure with on outdoor aerial. The main board (fig. 1) has got terminal blocks for connecting the power supply or peripheral equipment.
The case has got a terminal for the external aerial and it is equipped with a fix-holder.

It is possible to mount the receiver's main board directly in the case of the controlled device (using the additional mounting set added to the Rival 434). The additional set consists of: sticking stand-offs for mounting the main board outside the case (3 pcs.); a cable ring connector and plastic distances to make the outdoor aerial, made out of unused receiver's case and wire aerial; a wire indoor aerial; Working temperatures of the receiver are -20°C to +50°C at normal humidity. Red LEDs are showing actual operating state (they glow as long as the corresponding channel is on).

Supply voltages: 12V - 24V AC/DC (switching converter is built in) or by USB port.
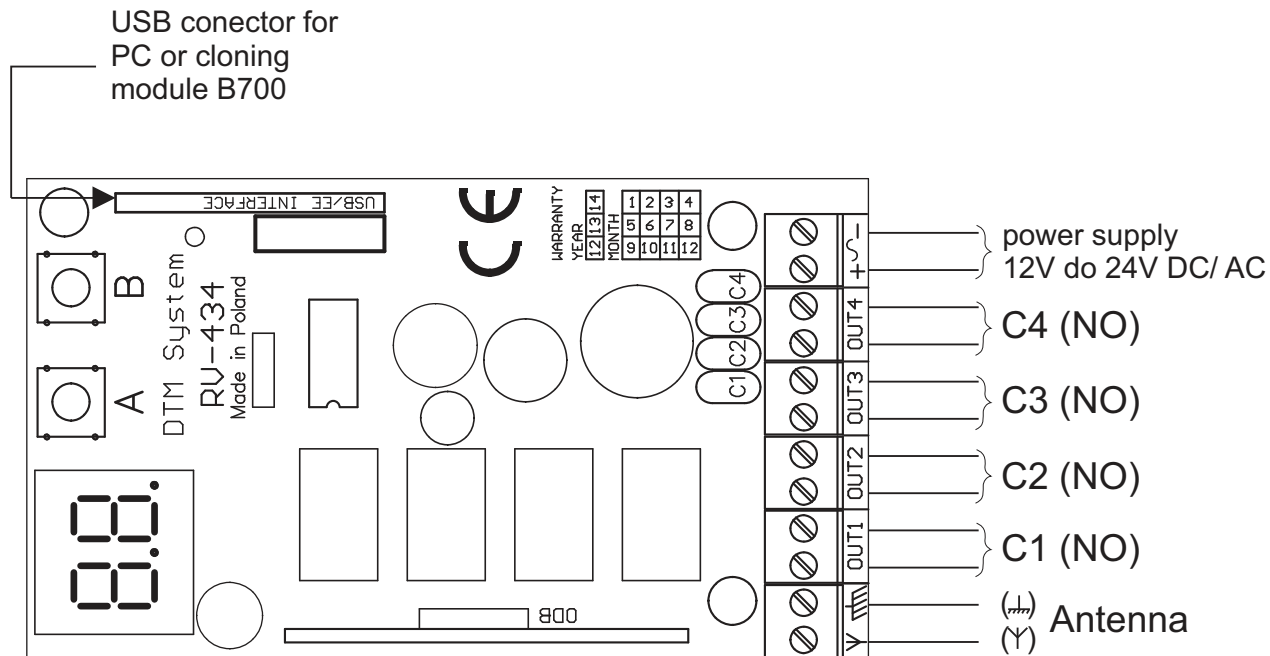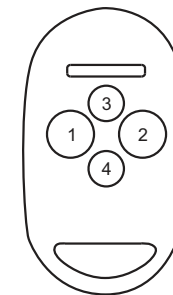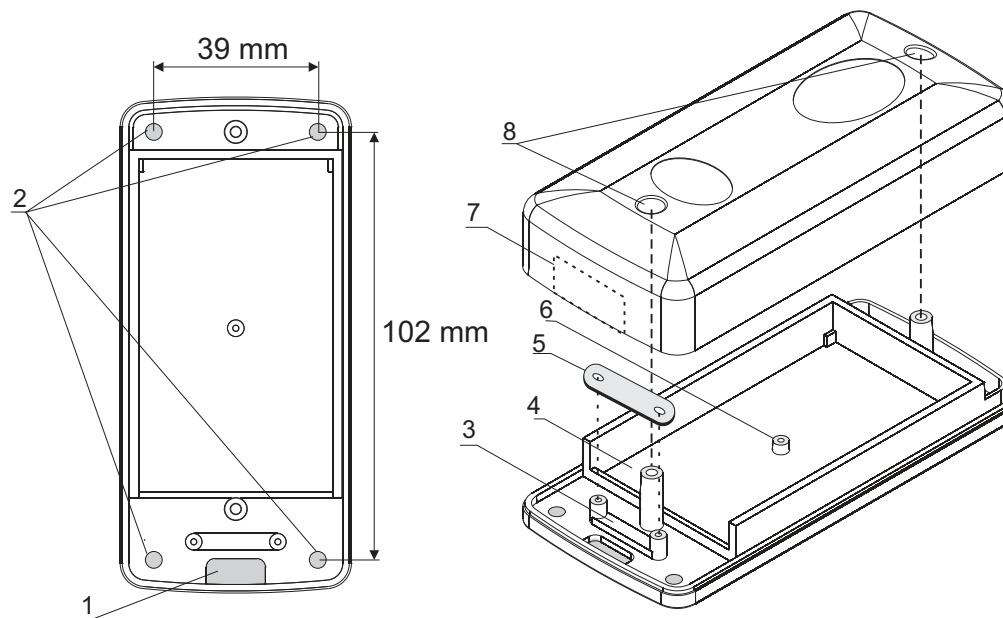

Fig. 1 Rival 434 installing diagram

Fig 2. NEO 4remote control with buttons numeration.

- Open Rival 434 enclosure (take off top part - fig.3). Access to receiver power supply terminal, channel terminals 1,2,3,4 and antenna terminal is direct.
- Mount bottom part of enclosure, use mounting openings (fig.3 element 2). Enclosure mounting should enable wires connection from the bottom. Depends on instalation (surface or inside) right weakenings of enclosure should be taken out (fig.3 element 1 or 7), wires should be connected through resulting openings.
- Connect control wires and power supply
- Mount wires through clip to hold them (fig.3 elements 3 and 5) to secure from rip
- Turn on power supply and program receiver according to needs, see operating manual next chapter
- Connect antenna to "Y" signed terminal. If antenna's range is not enough use outdoor aerial right for 433MHz (not included in set). In case outdoor aerial mounting use right wire (ex. RG58) according to aerial producer instructions.
- Mount the top case-side back.

Legend:
1. weakening for wires in bottom part of enclosure (inside instalation),
2. weakenings for receiver mounting,
3. clip to hold wire,
4. chamber for electric plate,
5. wire clip clousure,
6. distance sleeve for plate mounting układu elektronicznego (screw 2,2 x 6,5),
7. weakening for wires in top part of enclosure (surface instalation),
8. case closing openings,

39 mm

102 mm

Fig. 3 Rival 434 enclosure look

Electrical supply (+ - or ~)
        The receiver can be supplied with voltages from 12V to 24 AC/DC (120mA max). It is possible to use the internal voltage from the gate controller. Otherwise, some external power supply is needed, for example ZAS ZSP-4ZEW. It is possible to supply the receiver only by USB port.

Receiver's outputs (OUT1...OUT4)
        Receiver's outputs 1...4 has three terminals: NO (normally open) Maximum ratings for these contacts are 1A/24V (AC).

USB connector / EEPROM interface
        The pin connector on the main board may be used to:
- connect PC (USB interface and cable needed),
- clone (copy) EEPROM memory (EEPROM interface B700 needed).
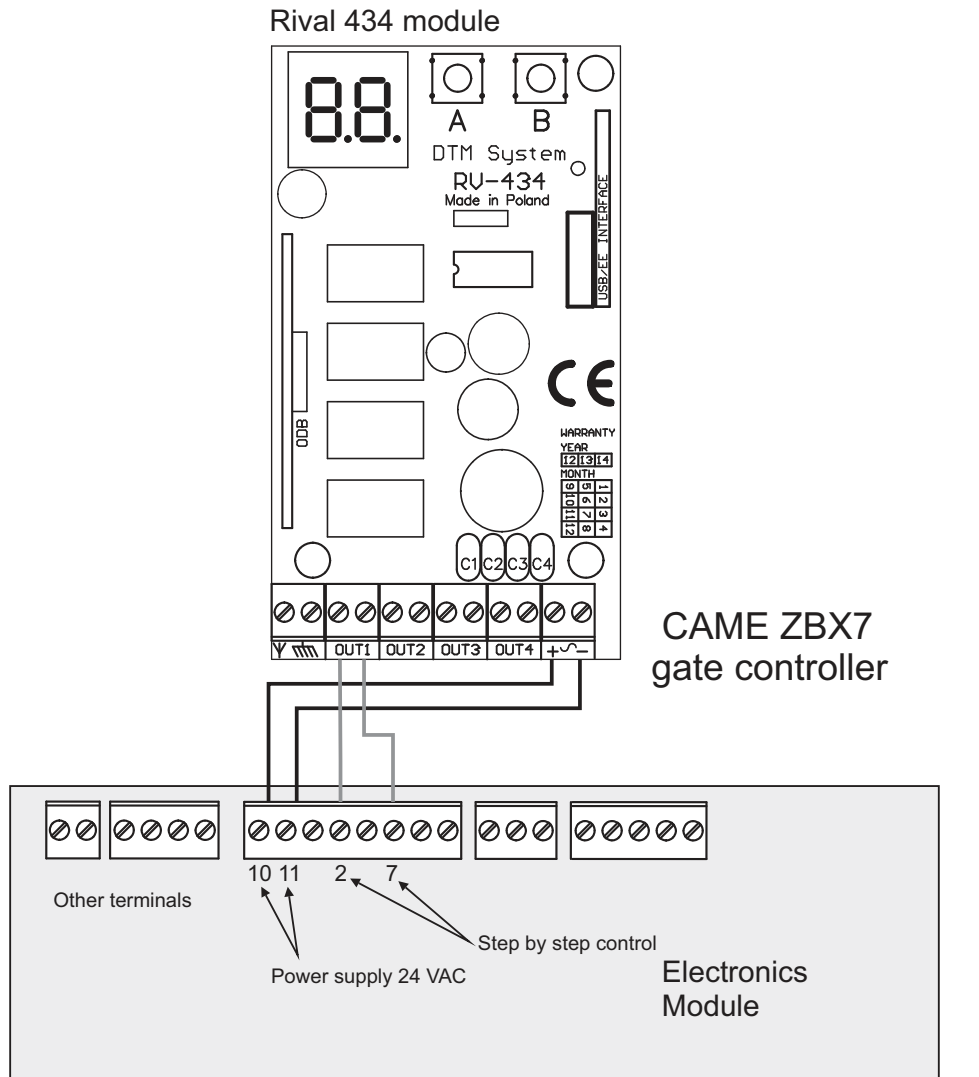
Antenna connector
 Receiver has antenna conncector, signed "Y", where 175mm wire-antenna should be connected. If necessary connect outside antenna through right wire to "Y " - signal and " screen.
Hints for making the optimal radio range:
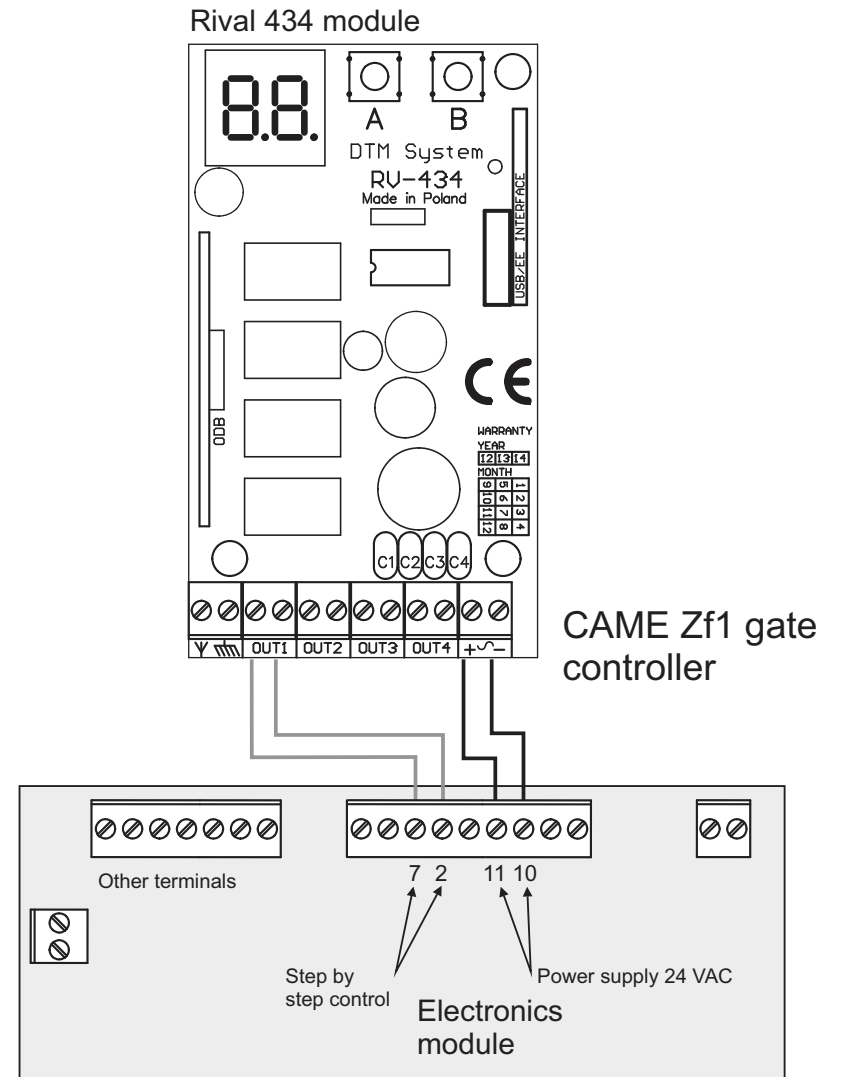- the neighbourhood of the energetic devices and metal elements will short the range;
- radio interference from other sources will short the range;
- avoid wet and concrete walls for mounting the receiver;
- remember to remove old used batteries from the remotes;
- mount the receiver as high as possible;
- use the good quality coaxial cable for making the outdoor aerial (e.g. RG 58)

Rival 434 module

Rival 434 module

CAME ZBX7
gate controller

CAME Zf1 gate
controller

10 11   2   7

Other terminals

Step by step control

Power supply 24 VAC

Electronics
Module

7 2   11 10

Other terminals

Step by
step control

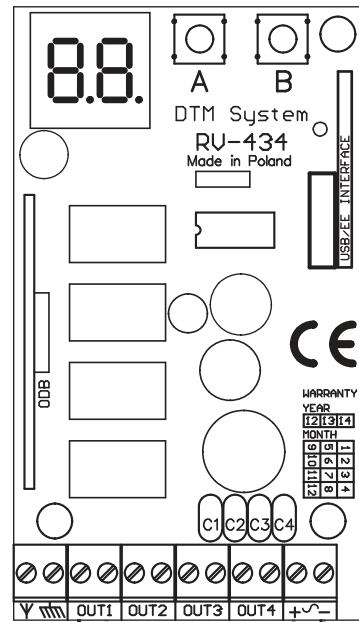Power supply 24 VAC

Electronics
module

Scheme 1. Example of CAME ZBX7 gate controller and Rival 434 connection

Scheme 2. Example of CAME ZF1 gate controller and Rival 434 connection

Rival 434 module

Control take place by connecting ground petencial (-) through wire (1) to Rival 434 channel.

20 21 5
Other terminals
Power supply 24 VDC
Step by step control
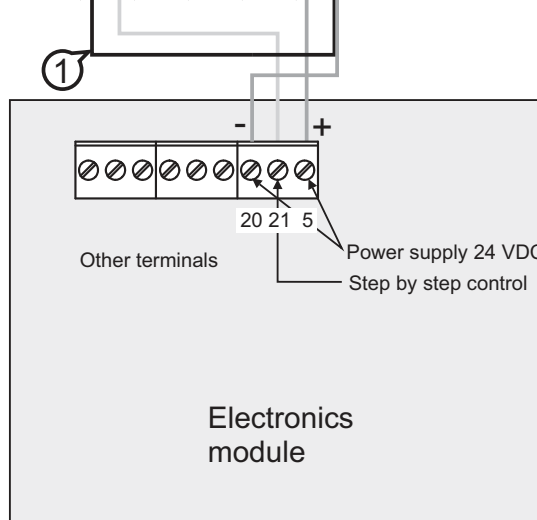
Hormann gate controller (Supramatic E buttons description)

Electronics module

Rival 434 module

NICE gate controller

Other terminals
Power supply 24 VAC
Joint terminal
Step by step control

Electonics module

Scheme 3. Example of HORMANN 2 gate controller and Rival 434 connection

Scheme 4. Example of NICE gate controller and Rival 434 connection

Description:

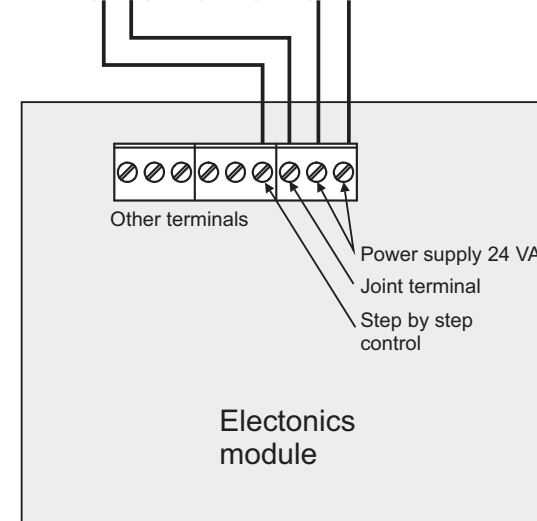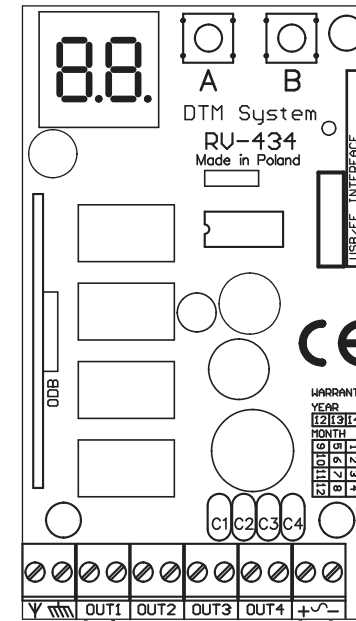   After turning on the power supply, the receiver goes automatically into the OPERATION MODE - it is signalized by glowing of the LED dot on the right side of the display. In this mode, remote controls the receiver's outputs. After pressing the programmed remote's button, the proper output will be turned on according the preferences made by the user - the LEDs corresponding to the channels show actual outputs state.

Indications of the display:

In the stand-by mode only the dot on the right side of the display glows.

     After pressing any button of the programmed remote, the display will show: the number of remote's button and the number of the remote in the receiver's memory.
All this information will be shown in three phases as on the example in the left: P1 - means that channel number one was activated, the next numbers (0) and (01) show the number of the remote in receiver's memory - 001.

Remarks !

▶ After turning on the power supply, the receiver goes automatically into the OPERATION MODE.

▶ If the receiver is connected to USB interface, the display will show **U** sign (see page 28).

Rival 434 has a feature allowing a user to add a new remote to the receiver's memory without using the receiver's buttons. This feature is useful only if any registered remote is also available.

The bc option from the receiver's menu (see page 16) can block this feature for the specific remote. It is also possible to block this feature for all the remotes (see page 23).

Pos.	Operations	Remarks
1	Radio range	You have to be as close as possible to the radio receiver (but no closer than 1m). The receiver must be in the OPERATION MODE.
2	Button of the already registered remote	Press and hold for 15 seconds button 2 of the remote that is already in the receiver's memory. The simple registering blockade for this remote must be turned.
3	>15 s	
4	<3s	The pause between operations number 3 and 5 must be less than 3 sec.
5	Button of a new remote	Press button 2 of a new remote for at least 15 seconds.
6	>15 s	
7	The remote has been added	The new remote has been registered in the receiver's memory. The preferences for this remote have been copied from preferences of the remote used for registering (from operation no 2).
8	Adding has failed	It was not possible to register a new remote. Possible reasons: - too big radio interferences. - The battery of one of the remotes was too low for such a long transmission.

Tab. 1 Simple registering procedure.

Remarks !

▶ The possibility of registering a new remote without using the receiver's buttons will reduce the safety of the system. The remotes with bc a turned off option should be protected against any unauthorised persons.

▶ You can not use a button working in momentary mode for this procedure.

E. Receiver's programming - introduction

All the programming can be done with the LED display, the receiver's buttons A and B, and four buttons of any DTM433MHz remote.

The remote's buttons has attributed directions keys that move through the program menu.

Use up/down keys of the 4 button remote to move vertically in the menu and left/right to move horizontally.

The receiver's button A is used for confirmation, the button B is used for cancelling and going up in the menu structure.

The receiver's program menu has a tree structure that consists of major and minor options. For further information, look in to the next chapters.
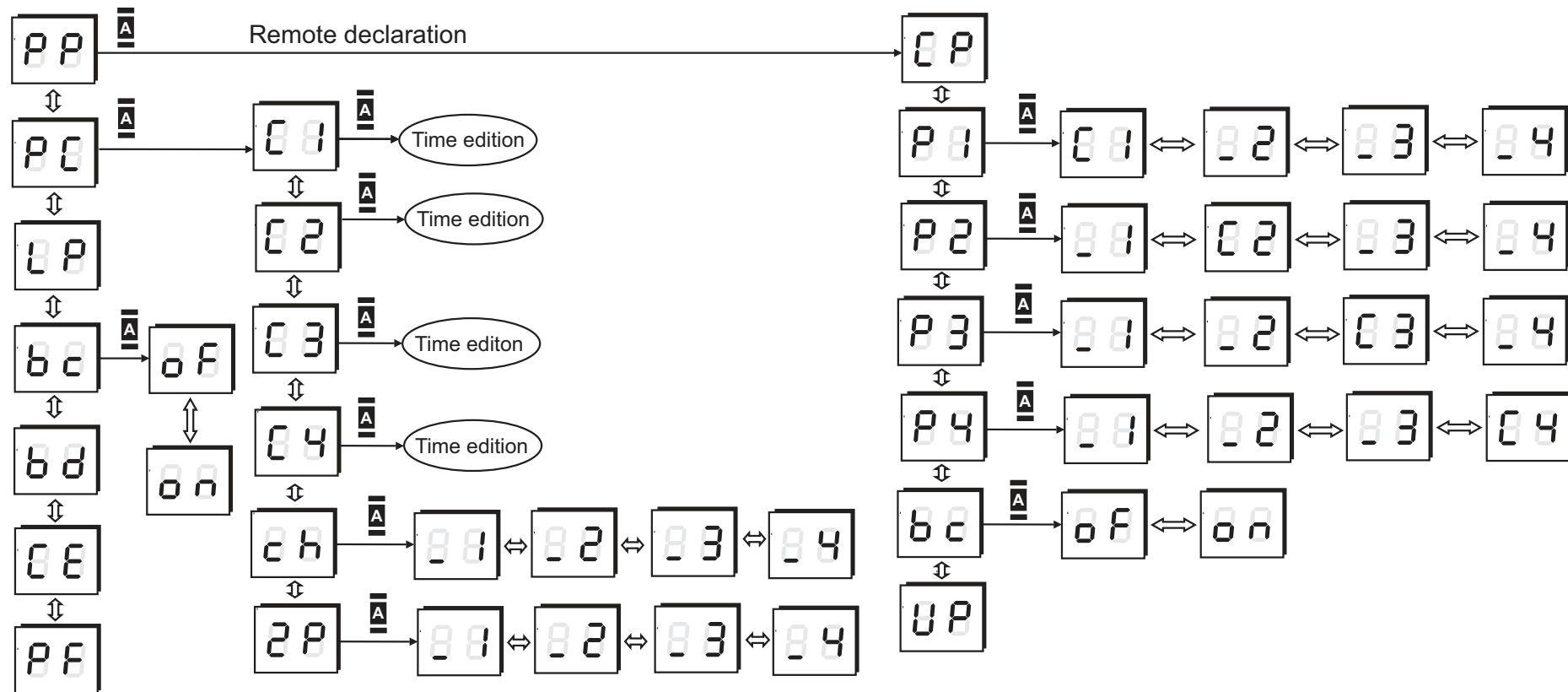
Fig. 5 The structure of the receiver program menu.
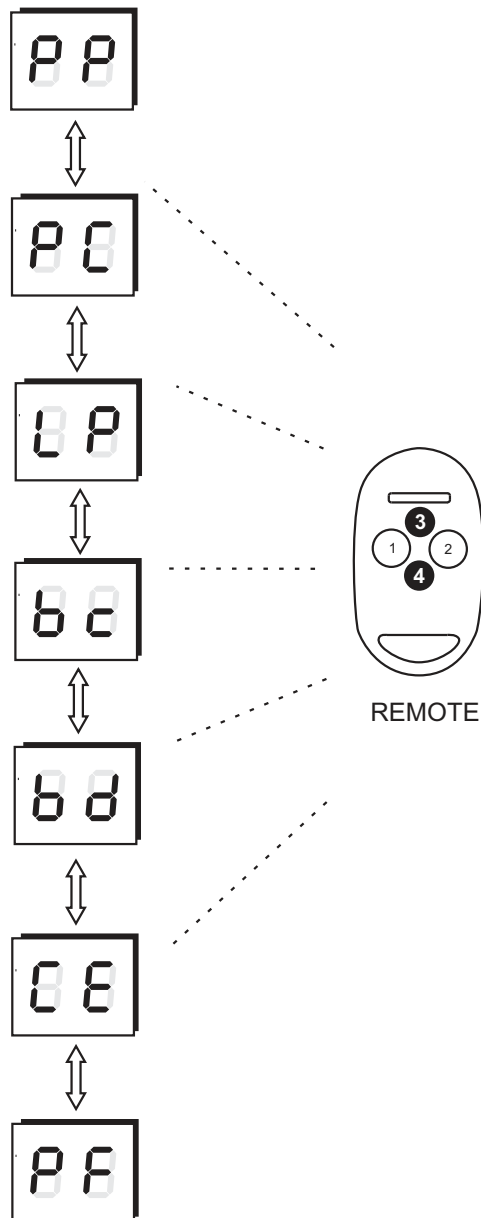
1. Main menu

The receiver's configuration can be adjusted to a user's needs. The program's options allows registering remotes to the receiver, defining one or many receiver outputs to the remotes buttons, removing any remote from the receiver's memory, the configuration of receiver's outputs.

To enter the PROGRAMMING MODE press **A**. The options can be chosen by pressing up/down buttons of any 4 button NEO remote.

The main menu options:

PP- remotes programming (registering, deleting, copying, bc option) - *see page 12*

PC- channels configuration (mono- / bi-stable mode, momentary mode, double push button, turn on time) - *see page 19*

LP- number of remotes registered in the memory - *see page 22*

bc- simple registering blockade for all remotes - *see page 23*
bd- setting PIN number - *see page 24*
CE- memory cloning - *see page 26*

PF- default settings - *see page 27*

REMARKS: The remote which is used for the first time after entering PROGRAMMING MODE (after first A button pressing) will be used for the programming session - it will be called 4-button remote.

Fig. 6 Main menu options - available after declaring the remote which will be used during programming session.

Remote being
registered.
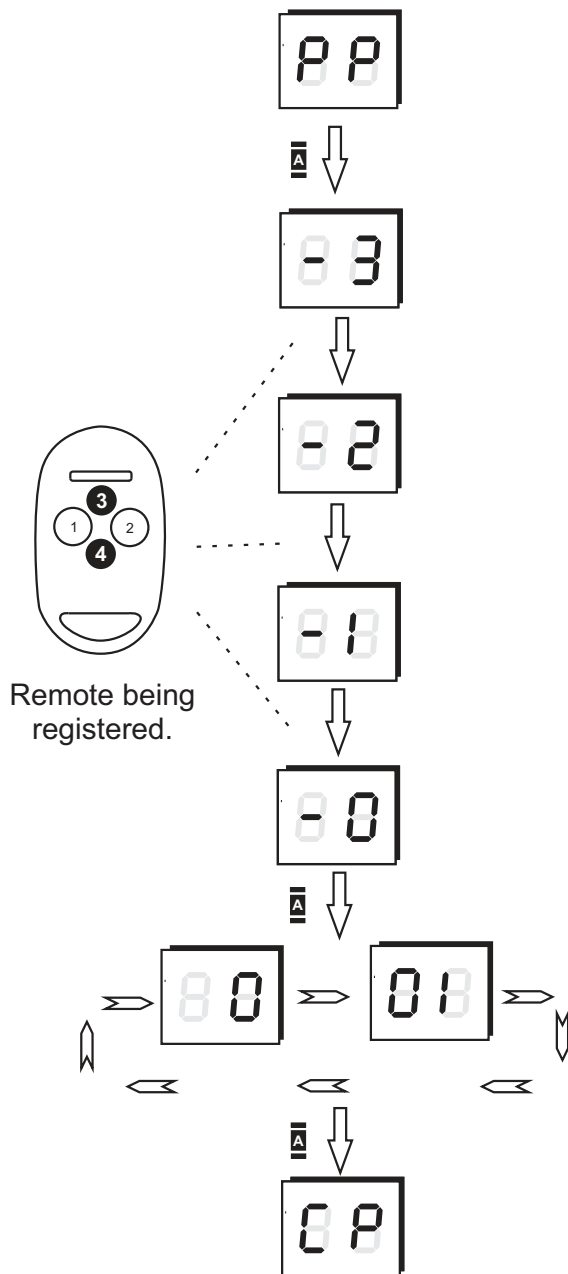
1.1 Registering a new remote

The PP option is the first in the main menu.

Programming sequence for registering a new remote:

a) press Ā button while PP option on the display.

b) press the button of the remote that is to be registered, 3 times until you get -0 on the display,

c) press Ā button to confirm registering,

d) the position number in the memory of the new remote will be shown on the display. At first, hundreds of the number, then tens and ones (001 in the example), press Ā button to confirm,

e) new remote has been registered in the memory. Press B̄ button twice exit the menu or once to go back to **PP** option to register another remote.

Remarks !

▸ It is possible to go back in the menu by pressing the B̄ button.

▸ It is suggested to write down all the information about the newly registered remotes in the identification card from the remotes package and to the remotes table (see page 28).

▸ Tthe additional EEPROM module can be used B700 for archiving - see page 26.

Fig. 7 New remote registering procedure.
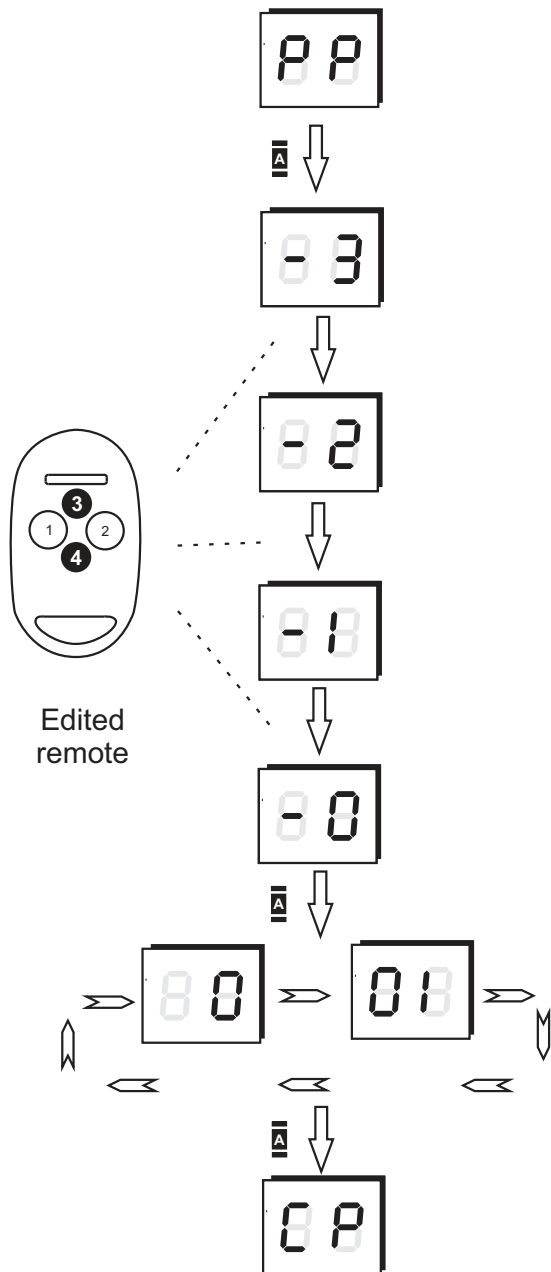
1.2 Editing of the existing remote

In the **PP** option it is also possible to edit the preferences of already registered remote (changing remote's buttons to receiver's outputs, removing the remote, copying preferences from remote number 001, etc).

First the remote to be edited must be declared.

Declaring the remote to be edited:

a) press $\overline{A}$ button while **PP** option on the display (change options by pressing up/down buttons on the remote button)

b) press 3 times button of the remote to be edited, (until you get -0 on the display),

c) press $\overline{A}$ button in the receiver,

d) the number of the declared remote will be shown on the display (the hundreds column first, then tens and ones columns of the number). Press $\overline{A}$ button to confirm.

e) the remote is now declared and editing options are available (**CP, P1...P4, bc, UP**).

Remarks !

▸ You can go back (cancel) in the menu by pressing the $\overline{B}$ button any time.

Edited remote

Fig. 8 Declaring the remote to be edited

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REMOTE

Back to
option CP

Fig. 9 Copying remote's preferences procedure

After declaring the remote to be edited, all edit options are available. Use up-down buttons in the remote to change the sub options:

CP - *copying remote's preferences,*
P1...P4 - *declaring receivers outputs to different remote buttons - see page 15,*
bc - *simple registering blockade (individually for every remote - see page 16,*
UP - *deleting the remote (page 17).*

Copying settings from the first remote (number 001) makes editing much easier and faster. It is useful when more remotes have the same settings which are different from the default ones.

Copying the preferences from the first 001 remote:

a) press 🅐 button while the display shows **CP**.

b) press 🅐 button 3 times while **A3** option on the display.
   The edited remote has the preferences copied from the first one.

Remarks !

▶ The first remote (no 001) should have the preferences required mostly.

▶ The 🅑 button allows to go up (cancel) in the menu any time.

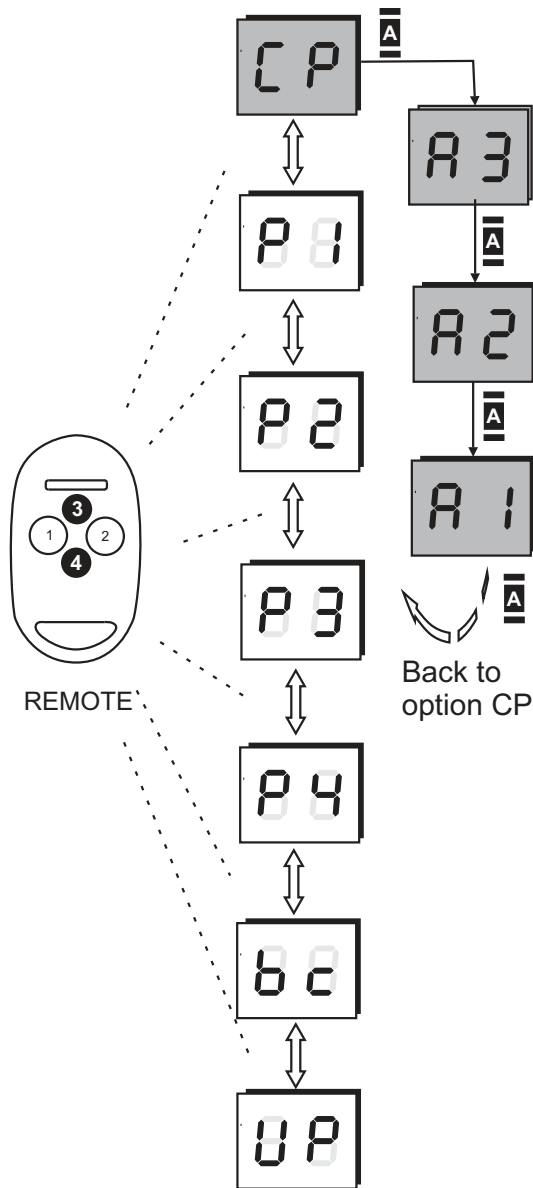▶ It is possible to use this feature without the physical presence of the remote (see page 18).

After declaring the remote to be edited, all edit sub options are available. Use up/down buttons in the remote to change the sub options:

CP - *copying the remote's preferences - see page 14,*
P1...P4 - **define channels to the remote's buttons ,**
bc - *simple registering blockade (individually for every remote) - see page16,*
UP - *deleting the remote - see page 17.*

New registered remote gets the default preferences:
Button 1 - channel 1,
Button 2 - channel 2,
Button 3 - channel 3,
Button 4 - channel 4.

This option allows to change these settings. It is possible to attach few buttons to the same remote button, etc.

Changing the definition for the channels to the remote buttons:

a) choose the proper option **P1**...**P4** for the button which is to be edited,

b) press Ⓐ button to go to the chosen option,

c) using left/right buttons choose the channel to be attached / deleted.

d) press to set up the sign _ (to delete) or C (to define the channel to the edit button) press up-down buttons.

e) press Ⓐ button to confirm.

Fig.10 Define channels to the remote's buttons

Remarks !

▸ It is possible to change the button's configuration without the physical presence of the remote.(page 18).
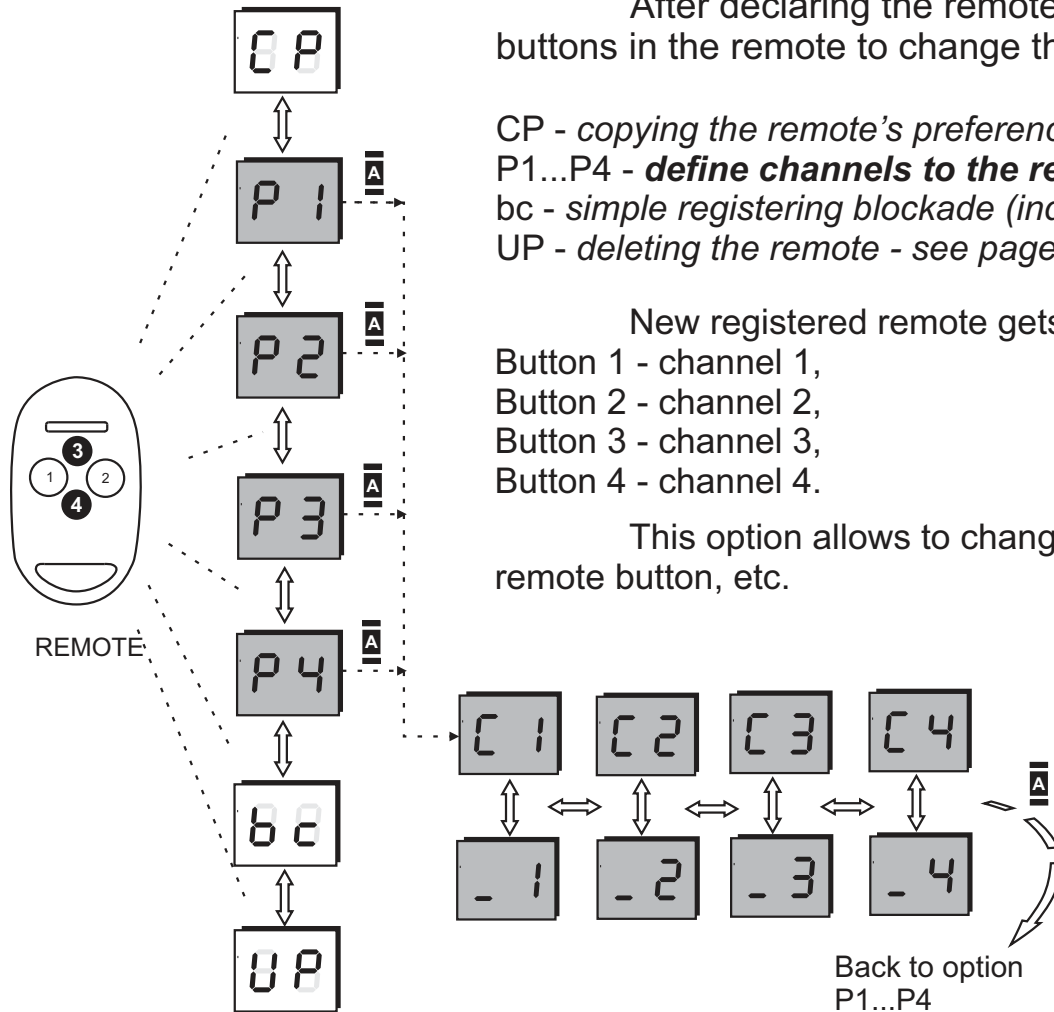
Back to option P1...P4

After declaring the remote to be edited, all edit sub options are available. Use up/down buttons in the remote to change the sub options:

CP - *copying the remote's preferences - see page 14,*
P1...P4 - *define channels to the remote's buttons - see page 15,*
bc - **simple registering blockade (individually for every remote)**
UP - *deleting the remote - see page page 17.*

The option "simple registering blockade" was introduced to give a better safety to the system - see page 9.

To activate / deactivate of the individual new remote register blockade:

a) press Ā button while the display shows bc,

b) you may active (**on**) or deactivate (**of**) the blockade by pressing up-down buttons,
c) press Ā button to confirm your choose.

Remarks !

▶ This blockade function is individual for a particular remote. To change the blockade f*or all remotes see page 23,*

▶ It is always possible to go back in the menu by pressing B̄ button,

▶ It is possible to use this function without the physical presence of the remote (page

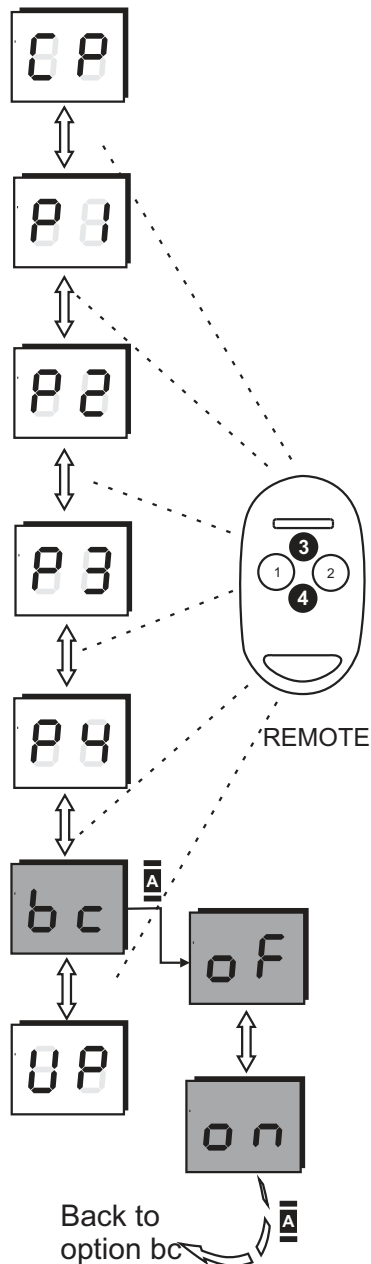REMOTE

Back to option bc

Fig.11 Blocking simple registering

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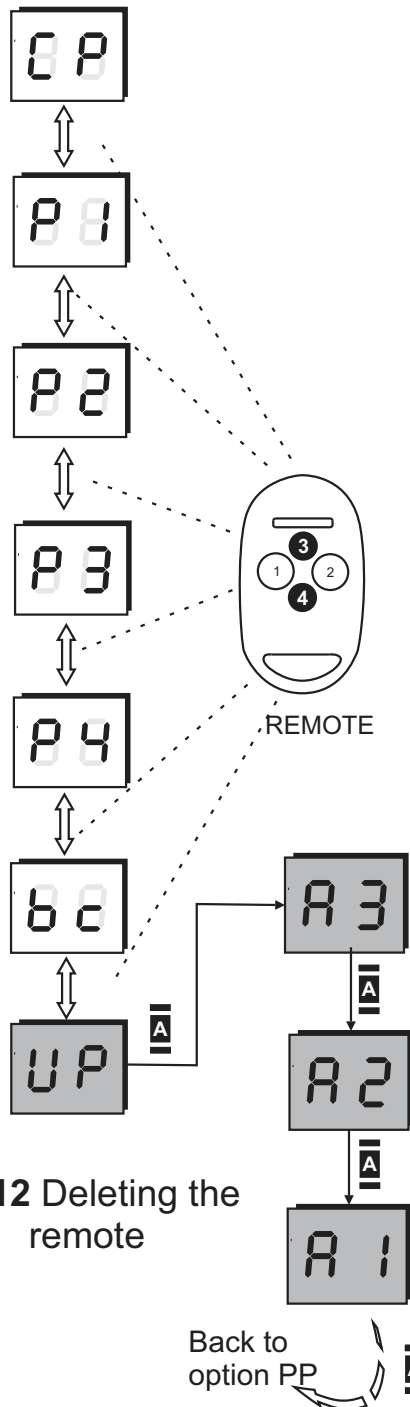
Fig.12 Deleting the remote

1.2.4 Deleting the remote

After declaring the remote to be edited, all edit sub options are available. Use up/down buttons in the remote to change the sub options:

CP - *copying the remote's preferences - see page 14,*
P1...P4 - *define channels to the remote's buttons - see page 16,*
bc - *simple registering blockade (individually for every remote) - see page 16,*
UP - **deleting the remote**

This option is used to delete one of the existing remotes. All the other numbers of the existing remotes will be kept. When another remote will be added to the system - the number it gets, will be the first available.

To delete a remote:

a) press $\overline{A}$ button while the displays shows **UP**,
b) press $\overline{A}$ button while displays shows **A3** three times.

Remarks !

▸ To keep the position number of a temporarily unavailable remote in the receiver's memory you must disconnect all channels from the buttons (options **P1**...**P4**),
▸ It is possible to go back (cancel) in the menu by pressing button $\overline{B}$,
▸ It is possible to delete a remote without the physical presence of the remote - see page 18.

The system allows to take advantage of functions such as copying the remote's settings, changing the button's configuration, simple registering blockade, and deleting the remote without its physical presence - the only thing needed is the remote's number. All the remotes data should be stored in the table - see page 32 or in the PC file - see page 28. This possibility is very useful in the case of theft, for example or when a particular channel number is to be changed and the configuration of the rest of the remotes must be updated.

The one difference between using the remote without and with physical presence is declaring it for the edition. All the actions mentioned here are similar to the ones from 1.2.1 to 1.2.4 points.

To declare a remote for editing without physical presence:

a) press Ⓐ to go into programming mode,

b) press Ⓐ button while displays shows PP,

c) press Ⓐ button once more while the displays shows -3. The first serial number (of hundreds) will be shown on the display. Use up-down buttons in the remote to set-up the proper value and left-right buttons to move between the edited numbers of hundreds columns, tens, and ones columns. The hundreds reading as one number, the tens parts, and ones of the number are shown side by side. (Two numerals: adequately shown from left the tens and ones of the number),

d) press Ⓐ button to confirm. The display shows the setted serial number,

e) press Ⓐ button once more to confirm. You will get the access to the options for editing the remote. Remember, the edited remote will be the one which serial number was manually setted-up in point c.

Follow points 1.2.1 to 1.2.4

The second menu's option is PC which allows changing modes and the channel's turn on times.

The possible turn on time is between 0,1 sec and 6553,5 sec (about 110 min.) . Turn on time resolution is 0,1 sec. Setting 0 sec. turns the channel into the bistable mode. The default settings for each channel are: 0 00 05 - which means 0,5 sec.

Change the actual edited number by pressing left-right buttons. To edit the pulsating number press up-down buttons.

Fig.13 Receiver

REMOTE

To program the receiver's channels:

a) use up/down buttons to choose option **PC** and press Ⓐ button,
b) use up/down buttons to choose a channel **C1**...**C4** and press Ⓐ button,
c) to edit the pulsating number press up/down buttons and to change the edited number, press left/right buttons,
d) to confirm the turn-on time, press button Ⓐ ,

Thousands sec.   Hundreds and tens sec.   Ones and tens of sec.

Back to option C1...C4
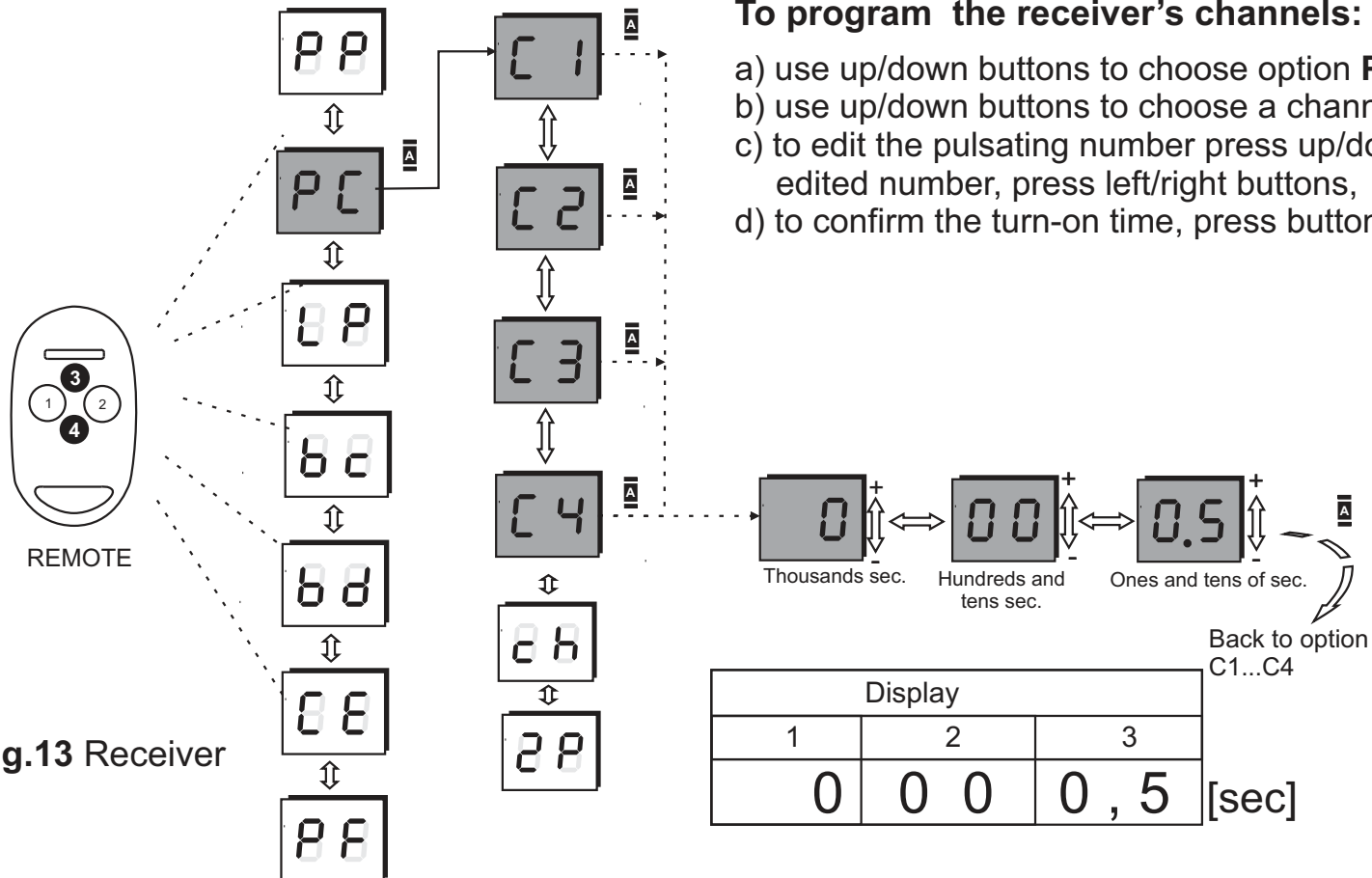
Display		
1	2	3
0	0 0	0 , 5	[sec]

Remarks !

▸ To turn on the bistable mode, set the time to 0 sec..
▸ It is possible to go back (cancel) in the menu by pressing button Ⓑ
▸ If the channel is set to work in momentary mode -)*see page 20*) - the display will show --. Setting any time will turn this mode off.

1.5 Momentary mode

This option sets the channel into momentary mode when the output relay is turned on as long as the remote's button is depressed (after button release the relay goes off).

The maximum turn on time is 25 sec. After that time the remote turns off to save the battery and it may be pressed again for another 25 sec.

To set momentary mode on any of the channels:

a) use up/down buttons to choose option **ch** and press $\overline{A}$ button,

b) the display will show the channel number, use up/down buttons to choose between **C** symbol (momentary mode) or _ symbol (normal time settings),

c) to change the edited channel, press left/right buttons,

d) to confirm the turn-on time, press button $\overline{A}$,
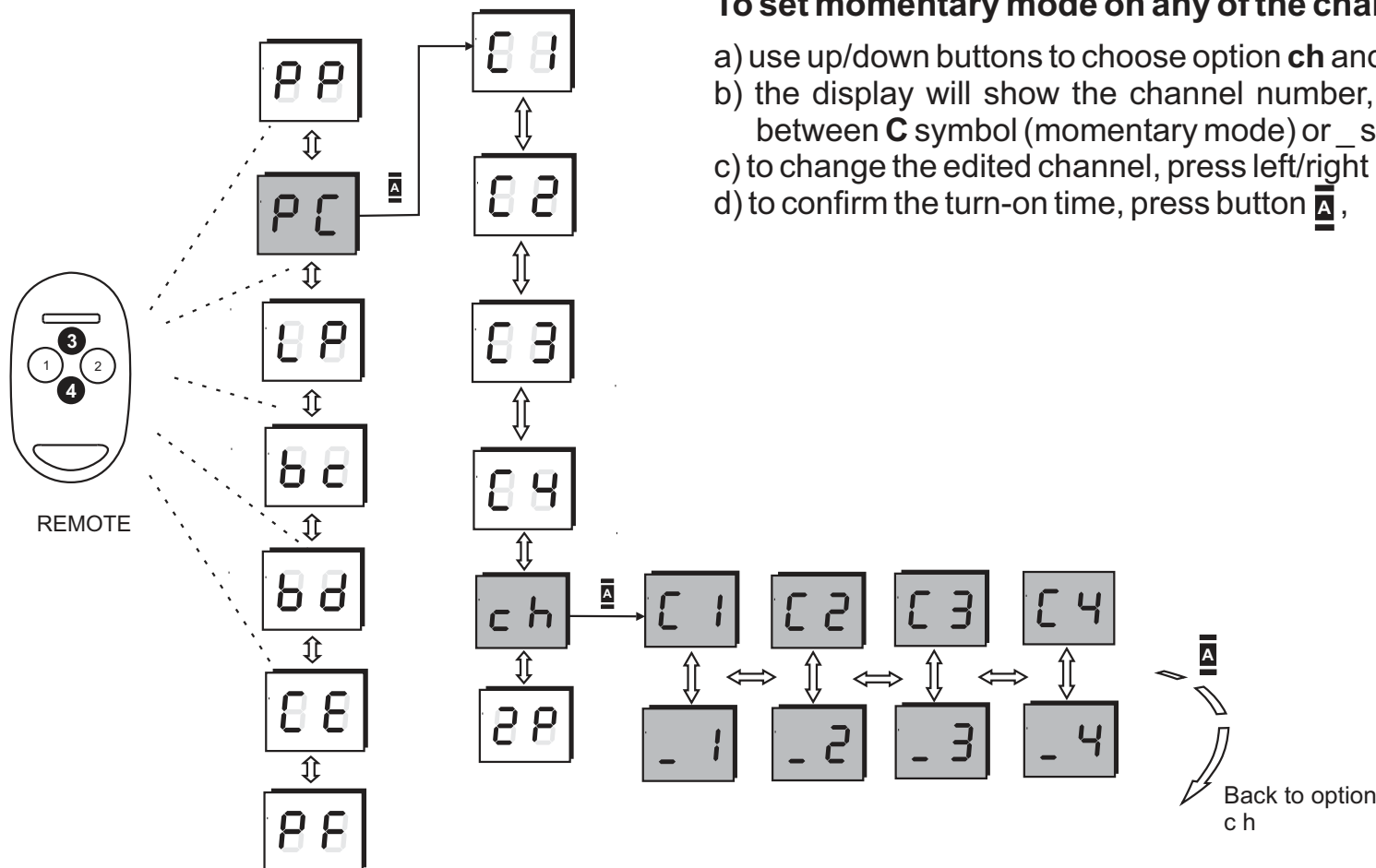
Fig. 14 Setting momentary mode procedure

After setting this option, the remote's button have to be double-pressed (double-clicked) to activate the receiver's output. The second click have to be within 3 seconds from the first one. It is not possible to set this function when the channel is in momentary mode. If the channel is set to work in the bistable mode, the remote's button has to be pressed twice for activating the channel and only one for deactivating it.
This feature reduces the possibilities of activating the channel by mistake.

To set double-click mode:

a) use up/down buttons to choose option **2P** and press Ⓐ button,
b) the display will show the channel number, use up/down buttons to choose between C symbol (double-click mode) or _ symbol (normal),
c) to change the edited channel, press left/right buttons,
d) to confirm the turn-on time, press button Ⓐ ,

Back to option c h
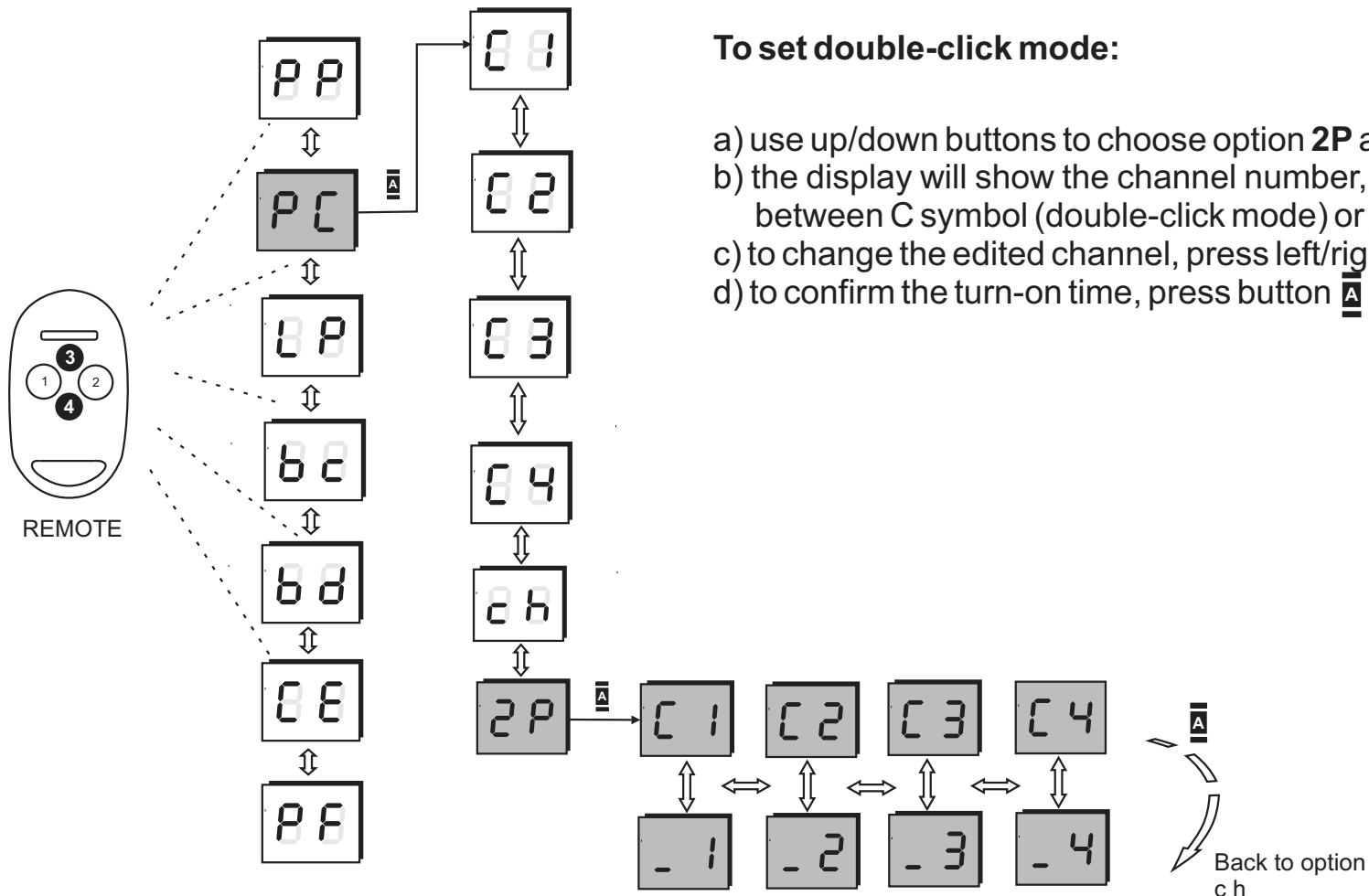
Fig. 15 Setting double-click mode procedure

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The third main menu's option is LP which shows the actual number of registered remotes. After choosing the LP option, the display will show the number divided in two parts: hundreds, tens and, ones columns e.g. If the first part is 0 and the second one is 11 it means 011.

The maximal possible number of remotes registered in the Rival 434 memory is 700.

To check the actual number of registered remotes:

a) use up-down buttons to choose option **LP** and press $\overline{A}$ button,
b) the display will show the actual number of registered remotes. Return to the menu by pressing button $\overline{A}$ or $\overline{B}$.
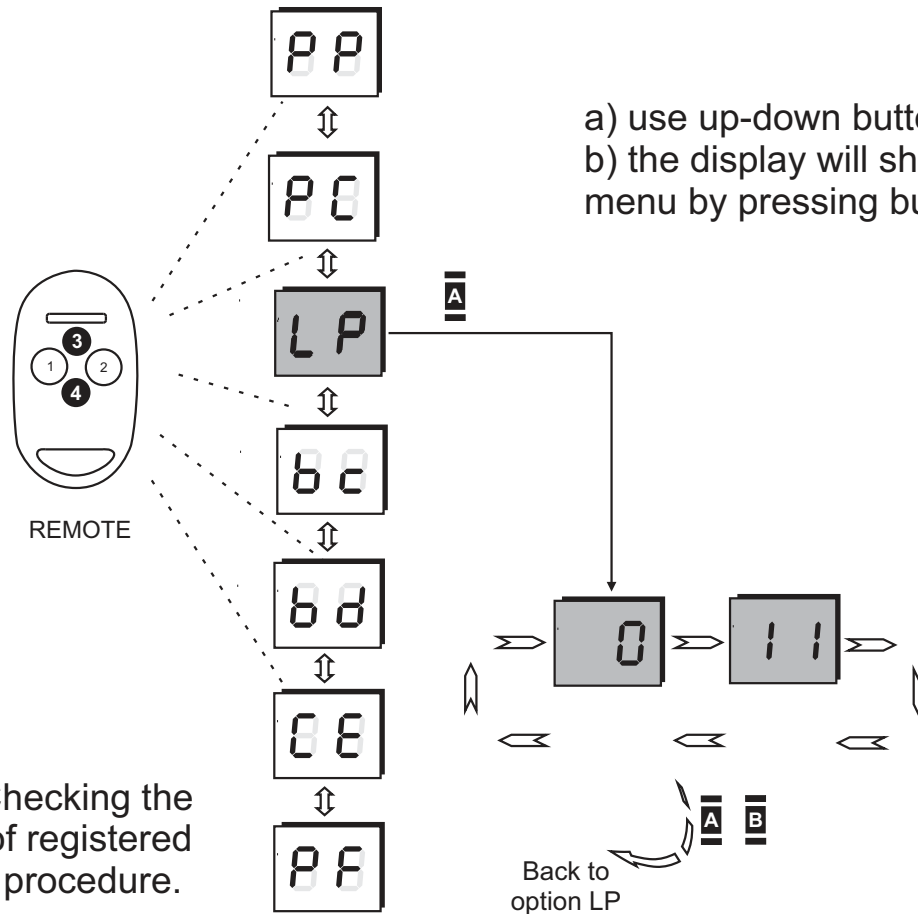
Remarks!

▶ Press $\overline{A}$ or $\overline{B}$ button to cancel.

Fig. 16 Checking the number of registered remotes procedure.

REMOTE

Back to option LP

1.8 Simple registering blockade for all remotes

The bc option from the main menu blocks simple registering feature for all (global) already registered remotes.
This blockade can be activated (on) or deactivated (of - which is default setting).

To set the blockade of simple registering for all already registered remotes:

a) use **up/down** buttons to choose option **bc** and press $\overline{A}$ button,
b) use **left/right** buttons to activate (**on**) or deactivate (**of**) this function and confirm with $\overline{A}$ button.

Remarks!

▸ Press $\overline{B}$ button to cancel.

▸ After setting, this blockade will also be active for all remotes that will be registered in the future.

REMOTE
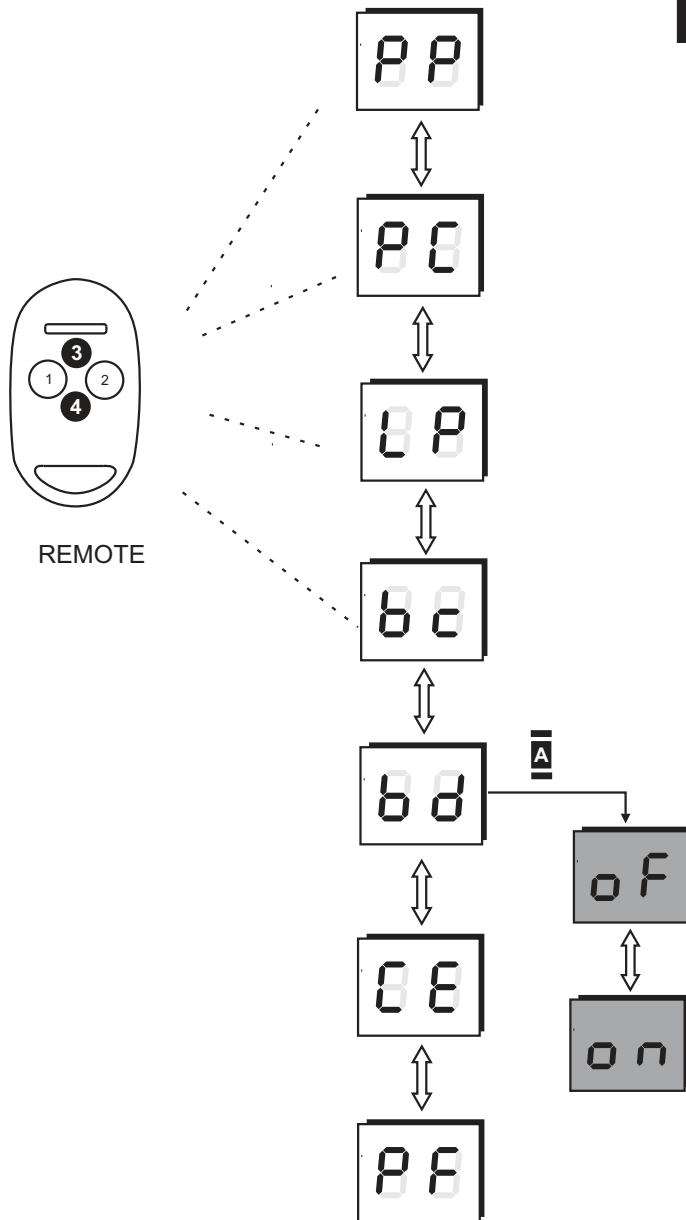
Fig. 17 Setting simple registering blockade procedure

PP

PC

LP

REMOTE

bc

bd

CE

PF

oF

on

A3

A2

A1

Back to
option bd

Fig. 18 Deactivating PIN
number checking procedure.

The **bd** option in the main menu sets PIN number checking at the entrance to the main menu.

The possible settings are: activated (**on**), deactivated (**of**). This option is not active as default.

To deactivate PIN number checking at the entrance to the main menu:

a) use up/down buttons to choose option **bc** and press Ā button,

b) use up/down buttons to deactivate (of) this function, confirm with Ā button, when **A3** appears on the display, press Ā receiver button 3 times.

Remarks!
▸ Press B̄ button to cancel.

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Setting restricted access to main menu (PIN code):

To set activate PIN checking and set new PIN code:

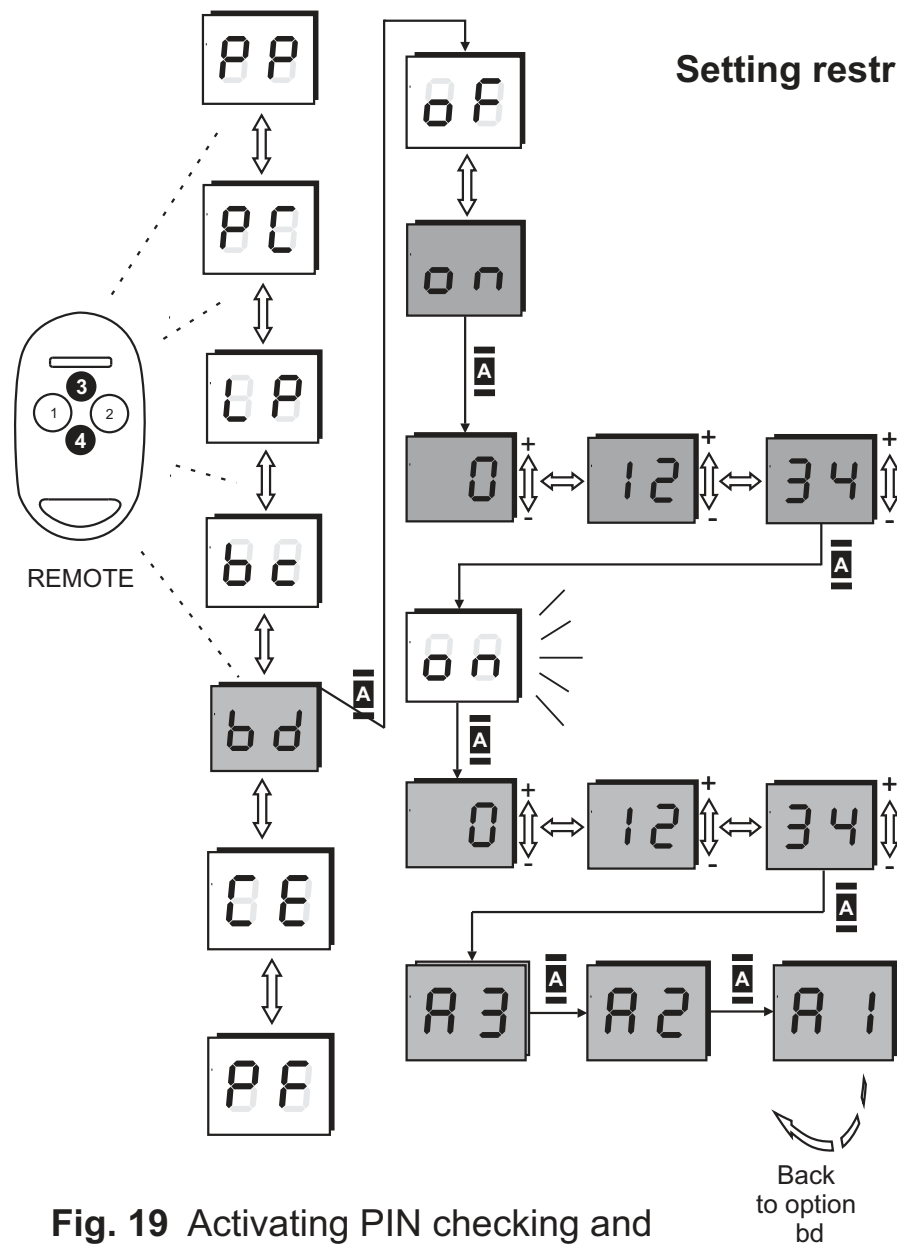a) use up/down buttons to choose option **bd** and press **Ā** button,

b) use **up/down** buttons to activate (**on**) this function, confirm with **Ā** button,

c) the first digit of the new PIN code will appear on the display,

d) using **up/down** buttons choose the right number,

e) press right button to move to next number, follow point **d** to set whole value of the PIN number,

f) press **Ā** button in the receiver, the on sign will appear blinking,

g) press **Ā** button again to confirm PIN number, set the same code again,

h) after depressing **Ā** button, **A3** will appear on the display, press **Ā** button 3 times.

Remarks!

▸ Loosing your PIN code will block the ability of entering the main menu. In such case only receiver's manufacturer can unlock it.

Fig. 19 Activating PIN checking and setting new PIN number procedure

REMOTE

Back to option bd

1.10 Memory cloning

The **CE** option allows to copy / clone the receiver's memory with all the configuration and all remotes data to another receiver.
This option can only be used with B700 memory cloning module.

To clone the memory:

a) plug in B700 module into pin socket on the main receiver's board,
b) use up/down buttons to choose option **CE** and press ▲ button,
c) **A3** symbol will appear on the display, press ▲ button 3 times to accept,
d) wait for memory to clone.

During cloning, the display will blink in a characteristic way. After it is completed the display will show the **CE** again (main menu).

Remarks !

▶ Place B700 module in the right position. Mind the pins. If it is placed in the wrong way it may lead to receiver or module failure.

▶ If the module is broken or there is no connection between it and the main board, the display will show **EE** and **Er** symbols alternatively.

REMOTE

PP
PC
LP
bc
bd
CE
PF

A3
A2
A1

Back to option CE

Fig. 20 Memory cloning procedure.
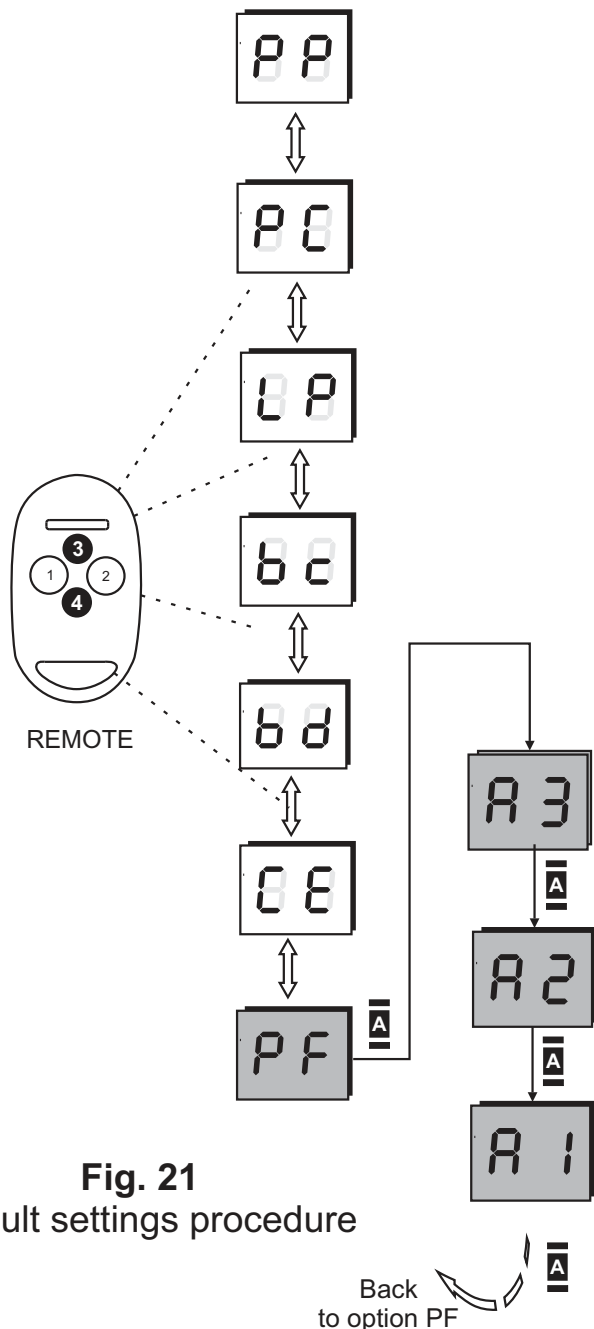
Fig. 21
Default settings procedure

1.11 Default settings

The option **PF** sets back the default settings of the receiver.

The default settings are:

- no remotes registered in the memory,
- all 4 channels working in the monostable mode (0.5 sec turn on time),
- simple registering blockade: off,
- PIN checking: off,
- double-click mode: off.

To reset receiver and set the default settings:

a) use up-down buttons to choose option **PF** and press Ā button,
b) press Ā button three times while the display shows A3 to confirm the option,

Remarks !

▸ Using of **PF** option causes removal of all registered remotes from the receiver's memory and sets default settings to all channels.

▸ press B̄ button to cancel.

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The receiver can be connected to a PC computer using a standard USB cable and "Programator USB" PC software. The receiver is automatically recognised by the PC. The cable and the PC software are available as option.

PC interface is much more user-friendly than the standard receiver's menu and gives some additional features.
Additional options available in PC program:
- additional description added to every remote (e.g. name of the user),
- events register,
- coping memory to file,
- channels control by PC.

To connect the receiver to the PC:

a) plug in the USB interface board with the USB cable according to the manual,
b) the display will show **U** sign,
c) the receiver will be automatically recognized by the computer,
d) at the first installation the Windows creator will be launched and will guide the used through the installation process,
e) the set is ready.

Fig. 22 Symbol on the display during USB connection

Remarks !

▶ PC connectivity is available only with the receiver's software version above 2.0. Receivers with the lower version of code can not be used and have to be upgraded . Contact manufacturer for details. The actual version of receiver's software can be seen right after powering it (with USB cable) on the LED display.

▶ While working with USB, the receiver does not have to be powered with external source.

▶ All the installation details can be found in the manual added to the USB cable and the interface kit.

Receiver MAX
- four separated relay outputs, NO or NC type , working in mono-, bistable or momentary mode,   max load for each output 1A/24V AC/DC - the receiver differentiate up to 700 remotes, each of them addressable
- monitoring, changing and remote deleting possibility, even without remote presence,
- outputs attached to any of the remote's buttons - access control
- simple registering feature,
- EEPROM receiver memory in the socket eases servicing,
- turn on time in monostable mode: from 0,1 sec. to 107 min.   (resolution to 0,1 sec.), bistable mode remembers last state before power down,
- information on number of registered remotes,
- memory cloning feature,
- PIN code for better safety,
- PC connectivity (USB port),
- "watch dog" circuit protecting from program flow,
- user interface based on push buttons and LED display,
- terminal for external aerial coaxial cable,
- plastic, splash resistant enclosure,
- supply voltage: 12V to 24V AC or DC, integrated switching stabilizer,
- working temperatures: from -20 C0 to + 55 C0,
- dimensions: enclosure: 80 (plus 40mm holder) x60x30mm, without case: 74x50x18mm,
- working frequency: 433.92 MHz

NEO and TIP Remote

NEO remote
- modern and ergonomic shape
- four (two) buttons that can control any channel or the group channels,
- signal transmission is based on Microchips® KeeLoq® dynamically variable code,
- remote frequency stabilized with the high quality quartz
- up to 150m radio range,
- high endurance ABS enclosure, - LED signalling transmission,
- battery: L1028 23A 12V,
- dimensions: 70 x 42 x 14 - 19 mm
- blister pack with bar code, remotes card with place for ID data, user's manual for new remote's registering, place for dealer's stamp

TIP remote
- up to 50m radio range
- dimensions: 54 x 43 x 14 - 19 mm
- the rest of the features and parameters are the same like NEO (2 button version).

Remote MAKSTER
- 20 buttons,
- up to 150m radio range,
- black ABS plastic case in the shape of TV remote composes perfectly to other electronic devices at home,
- five LED diodes indicates correct work of each remote module,
- readable and abrade-resistant designation of remote push-buttons
   (Numeration from 1 to 20 in five groups)
- battery: 6F22 9V,
- dimensions: 144 x 62 x 30 mm

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H. Certificates

DTM System hereby declares that the radio receiver complies with Directive 2014/53 / EU. The full text of the EU Declaration of Conformity is available at the Internet address: www.dtm.pl

$$C\mathcal{E}$$

I. Warranty

DTM System provides operational and ready to use devices. The producer gives 24 months warranty from the selling date to the end customer. This time is counted according to the producer warranty labels or serial numbers placed on every product. Producer obliges himself to repair the device for free if during the warranty period there are problems which come because of his fault. Broken device should be supplied on customer's expense to the place of purchase and enclose clear and brief description of the breakage. The cost of mount/dismount is covered by the user. The warranty does not cover: batteries in the remote controls, faults caused by improper usage, user self repairs and adaptations, lightning strikes, voltages or short circuits in the electrical grid. Appropriate legal acts regulate details of the warranty.

J. Index

Number	Remote ID	Button no - 1				Button no - 2				Button no - 3				Button nr - 4			
		C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4
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003																	
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016																	
017																	
018																	
019																	
020																	

Tab. 2. Example of ID table for 20 remotes (table for 700 remotes can be downloaded at www.dtm.pl)

rival

DTM System spółka z ograniczoną odpowiedzialnością
spółka komandytowa , ul. Brzeska 7, 85-145 Bydgoszcz
www.dtm.pl

dtm
SYSTEM

CE

MADE IN
POLAND