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INDEX AND CONVENTIONS

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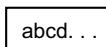
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CONVENTIONS

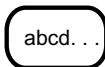
In this manual, all important information is indicated using the following symbols and conventions:



abcd. . . : WARNINGS



abcd. . . : INSTRUCTIONS



abcd. . . : TECHNICAL DATA

abcd. . . : IMPORTANT TEXTS

Before installing, starting and using the radio remote control, this manual MUST be read and understood carefully by all people who install, use and carry out maintenance on the radio remote control.

Follow the indications and warnings given by the machine producer regarding the machine controlled by the radio remote control.

The information contained in this manual is subject to modification without notice and is not binding.

If this manual is lost or damaged, ask for a copy from Autec. Please specify the serial number of the relative radio remote control.

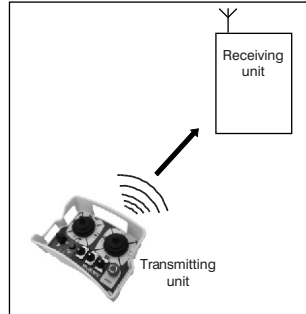
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2 INTRODUCTION TO E16 SERIES

Industrial radio remote controls of the E16 series are used to command machines from a distance. Each industrial radio remote control is made up of a portable transmitting unit, from which the user can remotely control the machine, and a receiving unit installed on board the machine itself.

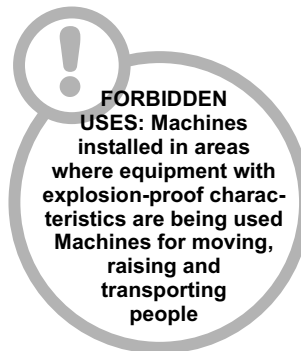
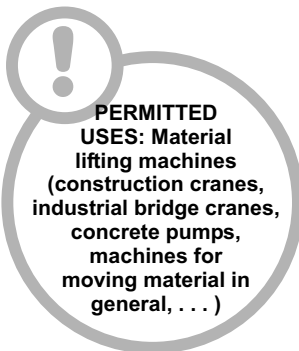
The transmitting unit uses radio frequencies to transmit a coded message which contains a value called address. Each receiving unit can only decode the messages coming from a transmitting unit with the same address.

This excludes the possibility of an interference activating any system function. If the radio frequency transmission is disturbed, incorrect or interrupted, the receiving unit autonomously stops the whole system.



Each E16 series radio remote control is in conformity with the R&TTE 99/05/CE Directive and all its essential requisites.

Each radio remote control is also in conformity with the norms given in the EC conformity declaration present in this manual.




To guarantee correct radio remote control operation, all current regulations regarding safety at work and accident prevention should be respected. All current user country national laws regarding the use of both the machine and the radio remote control **MUST ALWAYS** be respected.

Autec cannot be held responsible if the radio remote control is installed on applications that are different from those permitted or if used in working conditions that do not respect prescribed standard.


LIMITATIONS & AUTHORISATIONS

It should be remembered that in some countries must be respected rules which control:


- the use and/or possession of a radio remote control;
- the use of operational frequencies which have not yet been harmonised in Europe.



All the indications that must be observed can be found in the "Limitations & Authorisations" document, which is included in the product's documentation



In any cases of emergencies, faults or damaged parts, **ALWAYS** stop the "machine + radio remote control" system until the problem has been solved.



Any damaged parts can **ONLY** be replaced by authorised Autec personnel, and only using original Autec spare parts.

INSTRUCTIONS FOR DOCUMENT MANAGEMENT

CERTIFICATE OF GUARANTEE

The conditions of the radio remote control guarantee are given in the "Certificate of Guarantee" contained in this manual.

The electronic components which have a 3 year guarantee are: E16TXEU_, E16RXEU_ and E16CHEU_.

TECHNICAL DATA SHEET

The technical data sheet shows the wiring system between the receiving unit and the machine. It should be compiled and checked by the installer, who has the responsibility of correct wiring. Once all necessary checks have taken place the installer must sign the technical data sheet, which must be kept with the user's manual (always keep a copy of this data sheet in case it is needed for administrative purposes).

IDENTIFICATION PLATES

The radio remote control identification and approval data is given on plates that are on both the transmitting unit and the receiving unit.

The plates MUST NOT be removed from where they are placed or damaged otherwise the warranty will be forfeited.

E16 SERIES TECHNICAL DATA

Frequency range	433.050 ÷ 434.790 MHz (or 869.7 ÷ 870 MHz)
Programmable radio channel	32 at 433 MHz (or 12 at 870 MHz)
Channel spacing	25kHz
Hamming distance	8
Probability of non-recognition of error	<10 exp-11
Typical working range	100 m
Working temperature	-20°C ÷ +70°C
Time of reply to commands	<100 ms
Time of reply to STOP	<100 ms
Passive emergency time	1 second (optional 0,5 s)

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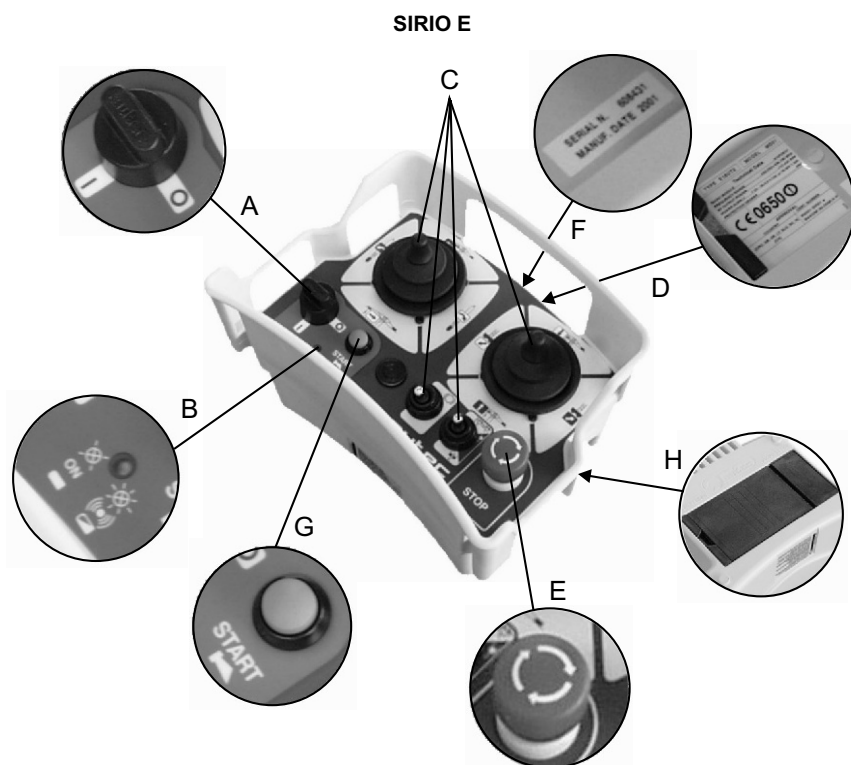
SIRIO E, CONDOR E TRANSMITTING UNIT

A SIRIO E, CONDOR E transmitting unit can be used with one of the following receiving units:

- Type E16URX
- Type E16URQ.

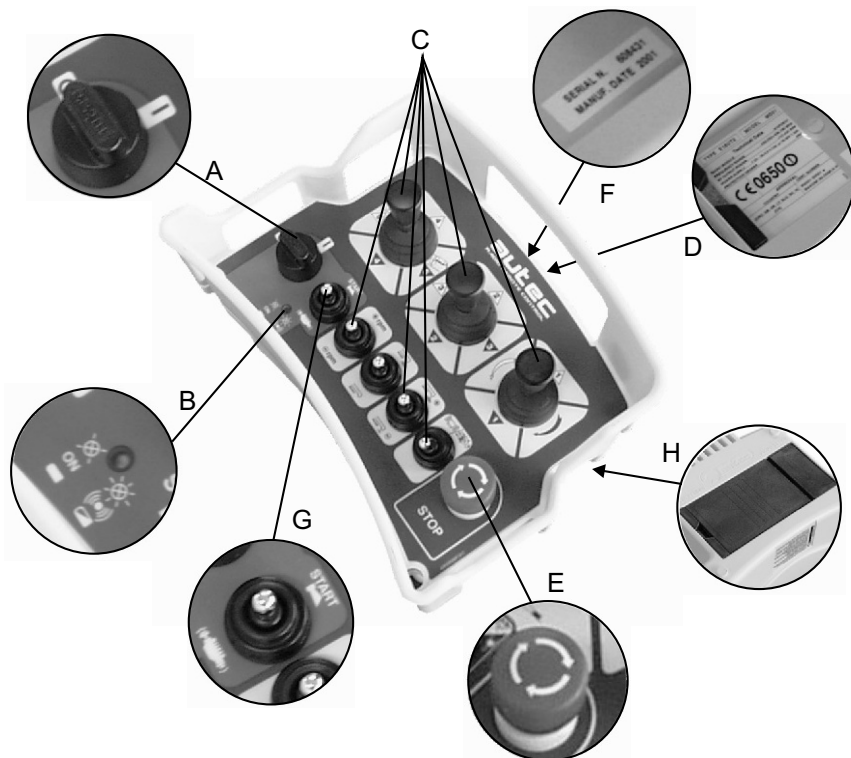
This manual refers exclusively to the transmitting unit: the installation warnings are given in the receiving unit manual.

The E16 series is equipped with a safety function called **SAFETY** which protects the "radio remote control + machine" system from involuntary movements caused by possible radio remote control faults.



A	starting keyswitch	E	STOP button
B	green signalling LED	F	identification plate
C	actuators (joystick and selector)	G	START pushbutton
D	technical data plate	H	battery

CONDOR E



A	starting keyswitch	E	STOP button
B	green signalling LED	F	identification plate
C	actuators (joystick and selector)	G	START selector
D	technical data plate	H	battery

SIRIO E, CONDOR E TRANSMITTING UNIT TECHNICAL DATA

Power supply (battery pack).....	NiCd 7,2V - 0,7 Ah or NiMH 7,2V - 1.3 Ah
Antenna.....	internal
Transmitting power (frequency 433 MHz).....	< 10 mW ERP
Transmitting power (frequency 870 MHz).....	< 5 mW ERP
Housing.....	nylon (20% fg)
Minimum protection grade.....	IP65
Dimensions.....	263x160x173 mm
Weight.....	1,4 kg
Autonomy with fully charged battery (at 20°C).....	~ 15 hours
Warning of low battery charge.....	~ 7 minutes

4 WARNINGS FOR USE

NEVER LEAVE the transmitting unit unguarded when the starting keyswitch is inserted

VISUALLY FOLLOW all movements of the machine and its load remaining inside a typical range of action of the machine

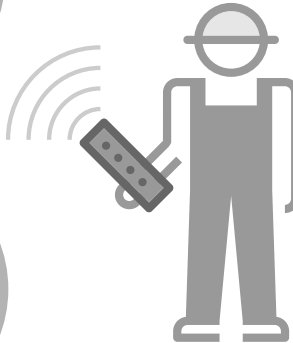
BE POSITIONED in a way that permits him to see the “machine + radio remote control” system, and above all the load, in the best possible way.

ONLY SWITCH ON OR USE the transmitter unit when starting work: improper use could be hazardous

THE OPERATOR MUST

Before using the radio remote control **ALWAYS MAKE SURE** that the **STOP** pushbutton can be properly moved

NEVER SWITCH ON OR USE the transmitter unit in closed spaces, with the machine not in sight, or outside the typical range of action



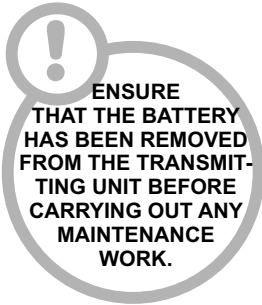
PRESS immediately the **STOP** button in case of hazard

SWITCH OFF the transmitter unit when work is interrupted. Avoid leaving the load suspended in the air (even when changing the battery)

PAY ATTENTION to the entire work area. Press the **STOP** button in case of hazard

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5 WARNINGS FOR MAINTENANCE



No particular maintenance needs to be carried out on the transmitting unit, but the following should be done in order to always keep it reliable and safe:

- 1) always store the unit in a clean dry place,
- 2) remove dust or accumulations of other material from the transmitting unit (never use solvents or flammable and corrosive products),
- 3) make sure that the gaskets, bellows and the actuator hoods (joystick, selectors and pushbuttons) are whole, soft and elastic, and that the symbols on the panel can be seen clearly
- 4) make sure that the battery seat is always clean
- 5) make sure that the battery contacts are clean
- 6) check for signs of damage.

SERVICE

When it is necessary to carry out special maintenance (radio remote control repair and replacement of damaged or faulty parts), do not contact anyone other than our Assistance Service. In order to make the intervention faster and more reliable, please help us identify the radio remote control correctly and completely by giving:

- the serial number
- the purchase date (given on the guarantee)
- description of the problem found
- the address and telephone number of the place where the radio remote control is being used
- the name of the person to be contacted
- the name of the company that supplied the radio remote control.

Before calling the Assistance technicians, it is advisable to make sure that the given instructions have been followed correctly.

SCRAPPING

When scrapping, entrust the radio remote control to the separate scrap collecting services in the user country.

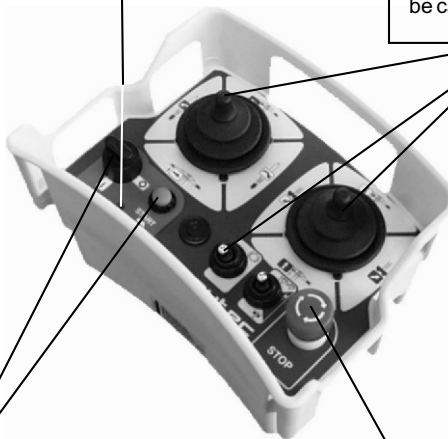
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OPERATION OF SIRIO E, CONDOR E TRANSMITTING UNIT

LED SIGNALS		
TYPE OF SIGNAL	MEANING OF SIGNAL	ACTION NECESSARY
Slow flash	OPERATION NORMAL	///
Fast flash	LOW BATTERY The transmitter unit switches off approx. 7 minutes after the LED starts flashing	Switch off the transmitter unit and replace the battery
Steady light on starting	ONE OR MORE (movement) ACTUATORS INSERTED	Release actuator(s)

COMMAND ACTIVATION

Activate the joystick and/or selector actuators relevant to whatever movement or selection command is to be carried out.



POWER AND STARTING

To switch on the transmitting unit, insert the starting key and turn it to "I".

To start the radio remote control functions, press the "START" (or activate the selector) button or selector for 1+2 seconds.

After starting, the green signalling LED always lights up.

STOPPING

The STOP button should be used when it is necessary to stop the machine immediately in order to check any danger condition.

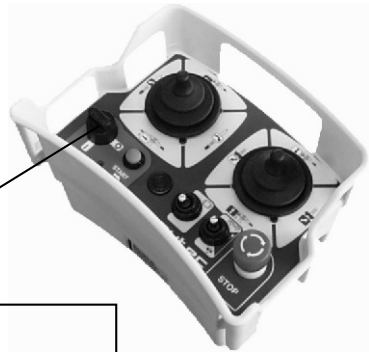
To **stop** the machine **immediately**, press the STOP button.

To **start working again**, turn the STOP button in the direction indicated to deactivate it and repeat the power on and starting procedure.

CHARGING THE BATTERY

To recharge a flat battery, proceed as follows:

1. Insert the battery into its proper battery charger, which should be positioned in an area having a temperature of between +5°C and +35°C. The battery now starts charging, a state signalled by the lighting up of the "ON CHARGING" pilot light.
2. After a maximum of 4+5 hours the "END OF CHARGE" indicator switches off: the battery is fully charged. Remove the battery from the charger (if the battery is not removed, charging continues in maintenance mode).



SWITCHING OFF

The transmitting unit should be switched off each time work is stopped by turning the ignition key to "O" and extracting it (always put the key in a safe place).

The unit may also switch off if the battery is not sufficiently charged and/or when the radio remote control is not used for more than 7 minutes.

7 FREQUENCIES

WORKING FREQUENCIES

! The use of 433.050÷434.790 Mhz band frequencies has not yet been harmonised in Europe: check for possible user's country limitations.

Each working radio frequency to which a radio remote control can be programmed belongs to the set of frequencies permitted by national standards that are valid at the moment of entry into the market.

Each radio remote control is programmed by the producer in the **AUTOMATIC** scanning or **MANUAL** selection mode.

AUTOMATIC SCANNING MODE

The radio remote control is usually programmed by the manufacturer in this mode: it can therefore work in any of the available frequencies. In cases of interference or conflict with other systems, this mode makes it possible to move the working frequency (see the process explained below) without having to intervene inside either the transmitting or the receiving units.

Working frequency change process

1 With the transmitter unit ON (flashing green LED), press the STOP button.



2 Within 4 seconds after the STOP button has been pressed, press the START pushbutton (or the selector) then release it.



3 Turn the STOP button in the direction indicated and repeat the power on and starting procedure.



N.B.: During the work frequency changing process, the receiving unit loses radioelectric connection with the transmitting unit. After starting, some seconds may be necessary to reset connection, **therefore keep the START button pressed for about 8÷10 seconds.**

MANUAL SELECTION MODE

A radio remote control operating in **MANUAL** selection mode can operate at a specific frequency.

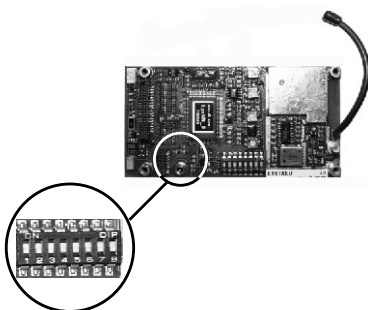
In order to set the frequency selected the dip switch on the transmitter and receiver units must be set.

To activate this means of operation contact authorised Autec personnel.

8 SETTINGS

DIP SWITCH ON RADIO MODULE

The eight dip switches on the transmitter module are for programming various functions and setting the operating frequency.



!
The dip switches must be programmed with the battery removed from the transmitting unit and can be done only by authorised personnel.

OFF	DIP	ON
The transmitter unit switched on without commands entered switches off after 7 minutes	1	The transmitter unit never switches off automatically
Activation of low battery warning from horn on machine	2	Low battery warning from horn on machine deactivated
Automatic selection and scanning of frequencies (DIP 3 + DIP 7 OFF)	8	Manual selection of frequencies (DIP 3 ÷ DIP 7 as table)

433.050÷434.790 MHz 32 frequencies available

MHz	DIP SWITCH					MHz	DIP SWITCH						
	3	4	5	6	7		8	3	4	5	6	7	8
433.075	OFF	OFF	OFF	OFF	OFF	ON	433.975	ON	OFF	OFF	OFF	ON	ON
433.100	ON	OFF	OFF	OFF	OFF	ON	434.000	OFF	OFF	ON	OFF	OFF	ON
433.150	OFF	OFF	OFF	OFF	OFF	ON	434.050	ON	ON	OFF	OFF	ON	ON
433.175	ON	ON	OFF	OFF	OFF	ON	434.075	OFF	OFF	ON	ON	OFF	ON
433.275	OFF	OFF	OFF	OFF	OFF	ON	434.175	ON	OFF	ON	OFF	ON	ON
433.300	ON	OFF	ON	OFF	OFF	ON	434.200	OFF	OFF	ON	OFF	ON	ON
433.350	OFF	OFF	OFF	ON	ON	ON	434.250	ON	ON	ON	OFF	ON	ON
433.375	ON	ON	ON	OFF	OFF	ON	434.275	OFF	OFF	ON	ON	ON	ON
433.525	OFF	ON	OFF	OFF	OFF	ON	434.425	ON	OFF	OFF	ON	ON	ON
433.550	ON	OFF	OFF	ON	OFF	ON	434.450	OFF	ON	ON	OFF	OFF	ON
433.650	OFF	ON	OFF	ON	OFF	ON	434.550	ON	ON	OFF	ON	ON	ON
433.675	ON	ON	OFF	ON	OFF	ON	434.575	OFF	ON	ON	ON	OFF	ON
433.725	OFF	ON	OFF	ON	OFF	ON	434.625	ON	OFF	ON	ON	ON	ON
433.750	ON	OFF	ON	ON	OFF	ON	434.650	OFF	ON	ON	OFF	ON	ON
433.850	OFF	ON	OFF	ON	ON	ON	434.750	ON	ON	ON	ON	ON	ON
433.875	ON	ON	ON	ON	OFF	ON	434.775	OFF	ON	ON	ON	ON	ON

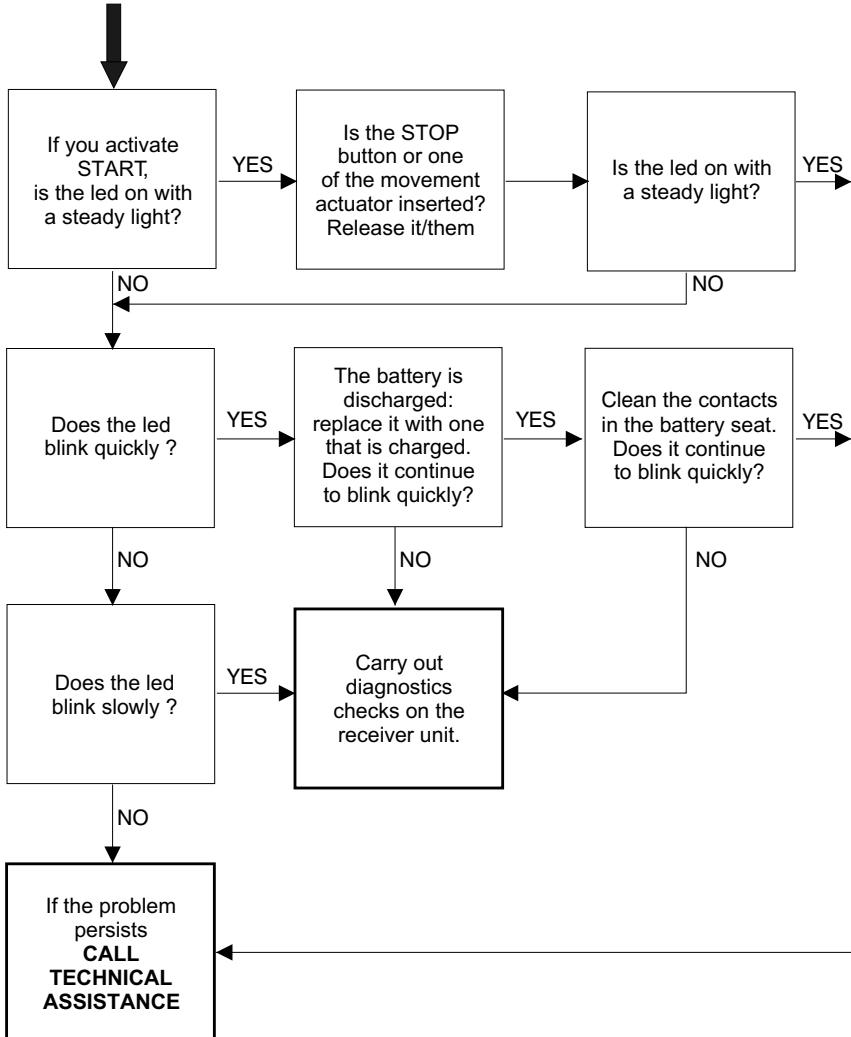
869.7÷870 MHz 12 frequencies available

MHz	DIP SWITCH					
	3	4	5	6	7	8
869.7125	OFF	OFF	OFF	OFF	OFF	ON
869.7375	OFF	OFF	OFF	ON	OFF	ON
869.7375	OFF	OFF	OFF	ON	ON	ON
869.7625	OFF	OFF	OFF	OFF	ON	ON
869.7875	OFF	ON	OFF	OFF	OFF	ON
869.8125	OFF	ON	OFF	ON	ON	ON
869.8125	OFF	ON	OFF	ON	OFF	ON
869.8375	OFF	ON	OFF	ON	OFF	ON
869.8625	OFF	OFF	ON	OFF	OFF	ON
869.8875	OFF	OFF	ON	ON	ON	ON
869.8875	OFF	OFF	ON	ON	OFF	ON
869.9125	OFF	OFF	ON	OFF	ON	ON
869.9375	OFF	ON	ON	OFF	OFF	ON
869.9625	OFF	ON	ON	ON	ON	ON
869.9625	OFF	ON	ON	ON	OFF	ON
869.9875	OFF	ON	ON	OFF	ON	ON

9 TRANSMITTING UNIT DIAGNOSTIC

If the "machine+radio remote control" system does not start, check if the problem is caused by the radio remote control or the machine. Before carrying out any verifications, check the functioning of the machine with the cable control panel:

- if it does not switch on, the problem lies with the machine itself
- if it does switch on, the problem lies with the radio remote control. In this case, proceed as follows:



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