



Universal radio-control

GUIDE OF EMPLOYMENT AND APPLICATION

Applications:

- Enology
- Cheese factories
- Oil mills
- Water
- Zootechnic
- Fish farming
- Gardening
- Floriculture
- Tanks /big basins
- ...

“a flexible product of higher performances, efficacious and safe”



BCM machine enologica

Viale Veneto 10 Zona artigianale SAONARA (PD)

Tel/Fax 049-640372 mail: info@bcmenologia.com

General Index

1- General information	pag 2
<i>General operation</i>	
<i>Available models</i>	
2- Electric connection of product	pag 3
<i>Integrated version on board pump</i>	
<i>Universal version</i>	
<i>Mechanical fixings</i>	
3- Product safety	pag 4
<i>Absence of phase</i>	
<i>Emergency stop</i>	
<i>Connection to electric line</i>	
4- Description and functioning	pag 4
<i>Three-phase model with inverter</i>	
<i>Three-phase model with acoustic signal (for operator)</i>	
<i>Single-phase model 220Vac</i>	
5- Transmission mode	pag 6
<i>Continuative mode (push button)</i>	
<i>Step mode with memory effect (push button memory)</i>	
<i>Configuration of reception board and identification code</i>	
6- General characteristics	pag 8
<i>Technical Data</i>	
<i>Protection level</i>	
<i>Accessibility</i>	
7- Maintenance and product guarantee	pag 9
<i>Maintenance</i>	
<i>Guarantee</i>	
<i>Validity conditions</i>	
<i>Tampering and guarantee decay</i>	
8- Service activity	pag 9
<i>Common problems</i>	
<i>(operator error, anomaly, failure)</i>	
9- After- sales service	pag 10

1- GENERAL INFORMATION

Overall operation

The radio control allows the remote control via radio of pump in completely safety making all planned manoeuvres of turning power on/off, possible flow reversal (if provided) and a distance signal sound for operator (if provided).

This product can be provided both in installed board pump version and in a universal version ready for use.

It exists both in 220 Vac single-phase and three-phase version and 400 Vac three-phase version.

Available models

The radio control product is available in:

- Three-phase mode with gear, stop and via radio inverter
- Three-phase mode with gear, stop and acoustic signal for operator
- Single-phase mode for low power till 1,5 Kw (only gear/stop and acoustic signal)
- Single-phase mode for medium power till 15 Kw (only gear/stop and acoustic signal)

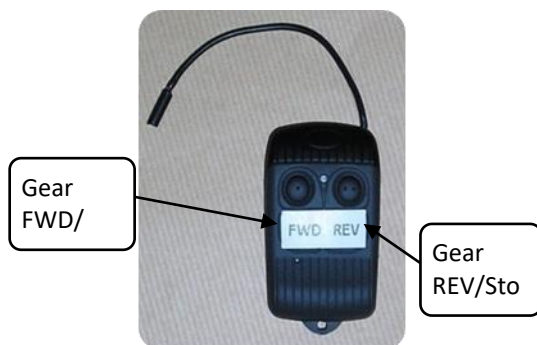
Three-phase mode with gear, stop and via radio inverter



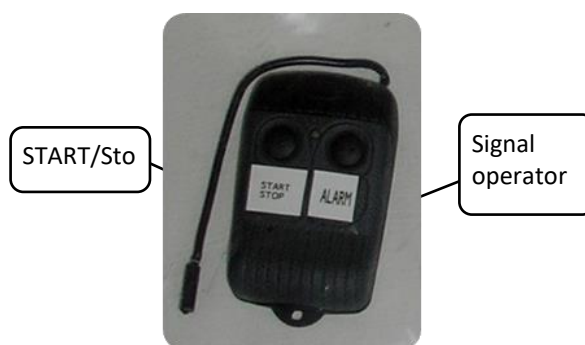
Three-phase mode with gear, stop and recall operator signal



Transmitter for three-phase mode with gear, stop and via radio



Transmitter for three-phase mode with gear, stop and signal operator.



NOTE of transmitter operation: 1st pressure =start , 2nd pressure=stop

2- PRODUCT CONNECTIONS

Integrated version on board pump

In all models and during assembly phase, the radio control can be integrated on board pump: in this case the provided connections are only those of pump main supply through the plug connection provided on the radio control switchboard.



Example of box directly applied on three-phase pump: possibility of 220Vac and 380Vac

Universal version

The radio control can be supplied like single element to connect universally to any type of property pump. In this case the provided connections will be both through mains supply and through property pump.

- Box power source through cable equipped by adequate connection plug: protected power source connection with RDC (residual different current and/or circuit breaker and fuses)
- Property pump connection through cable equipped by suitable plug connection.

NOTE: The management of property pump must have an inferior power respect to box in use.

NOTE: The pump in use must be without restoration device (it must start again in case of network failure).

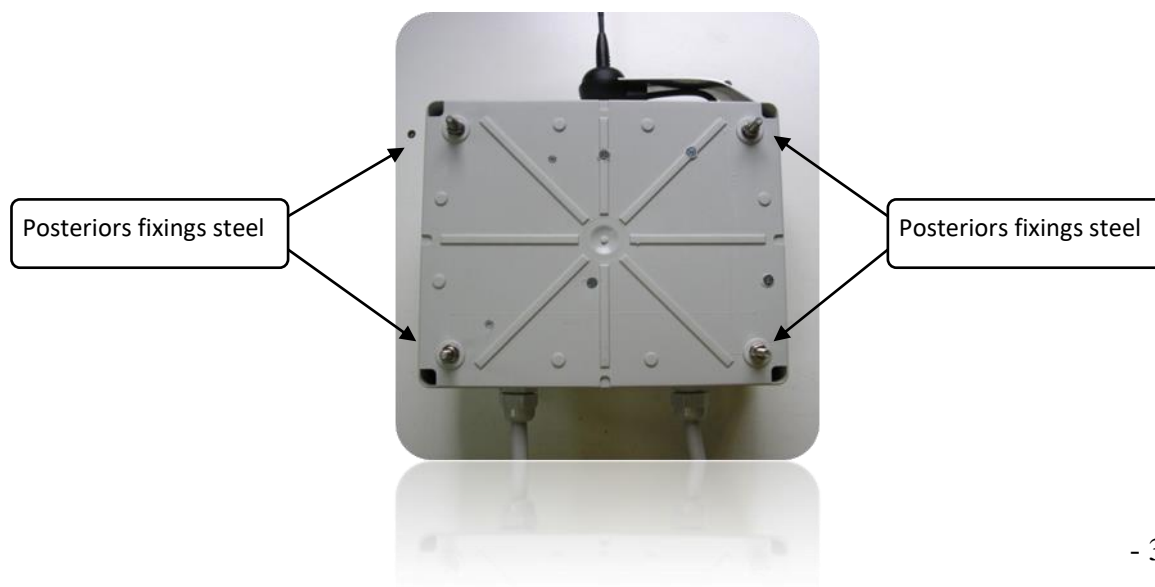
Mechanical fixings

The radio control is supplied with specific rear screw steels for possible mechanical fixings to surfaces, machineries or various metals structures.

The main characteristic of these fixings is to have a double clamping nut to avoid creating excessive pressure on box plastic: the nut near the plastic box (do not remove it) will limit possible pressure due to a closure of other nut.

The fixing surface should be interject between two presents nuts.

NOTE: Do not make excessive pressure with the closure of external nut.



3- PRODUCT SAFETY

for a correct use of product it is recommended a careful reading of present use and maintenance manual. Please note that for operator safety within the radio control, there are dangerous electrical voltages, as indicated in the special tag (under reported) and collocated to the side of the box.



The radio control has some standard protections:

- **phase absence:** in case of absence of one or more phases, the pump will not be activated.
In case of phase absence, the product will result completely off or partially on with disarmed gear.
The total network failure (black out) will require the reset of gear even if it has been given in remote by remote control.
NOTE: If the selector gear on box is in manual position, it will be reactivated in case of black out.
- **emergency stop:** the radio control product does not include the emergency button on box. Its application must be performed only in machineries with moving parts that are completely covered (impossibility of contact) or with safety device integrated upstream of radio control that is assembled with power source.
NOTE: do not connect the box to machineries with not covered moving parts without safety device installed between power source and radio control (level of protection reduced to IP20).

connection to electric line: the radio control MUST be connected and powered to standard electric line according to the safety directives and protected by RCD device (residual current differential), circuit breaker or protection fuses, reliable and safety earth connection.

To these devices is entrusted the electrical overload protection, electric leakage and short circuit.

The power source connection via cable is provided with double insulation equipped with three-phase or single-phase IP67 plug. It must be directly realized on protected source equipped by disposal protections (see above).

In the universal version, the connection to engine must be realized with double insulation cable provided with socket IP67.

On board pump version, the connection is already realized by manufacturer.

- All box commands and vision signals are optoisolators by power part.

The level of protection of power source is IP55, whereas the electrical connection both towards power line and engine, are realized with specific FG7 double insulation and socket connection IP67 with sleeve of watertight.

For further information read the paragraph "technical data" in chapter "general characteristic".

4- DESCRIPTION AND FUNCTIONING

The radio control product has two types of functioning:

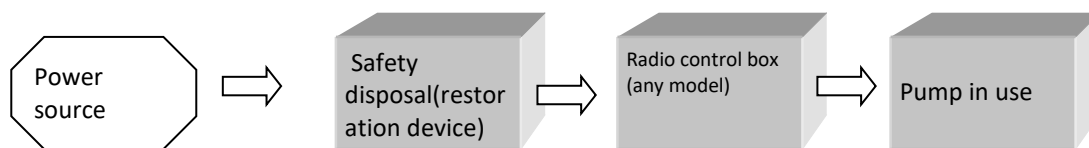
- *gear mode backwards and forwards with via radio inverter*
- *only gear mode with via radio acoustic signal for operator.*

Both models command the gear via radio: the difference between them is that the first one controls both the directions, the second only the gear but it has an acoustic signal via radio.

According to the logic under reported, every transmitter button function associated with every pressure, will be both of start up (gear) and deactivation (stop):

1st pressure =start, 2nd pressure=stop

Please note always that, in case of universal version, the controlled pump **must be lacking of restoration device** (it must leave again in case of temporary power cut): the restoration device, if necessary for safety measure, could be maintained upstream of radio control as indicated by general connection scheme under indicated.



NOTE: the transmitter does not work if activated near receiver (minimum distance 1,5 mt).

For a correct start up, the pressure and the duration must be about 0.5 seconds for button.

Following are reported the two functioning models.

- ***Via radio gear backwards and forwards mode with inverterflux***

Using FWD/REW buttons on relative transmitter, this product allows a distance control of the connected machinery. The FWD and REW directions are setting up by the selector that is both on box in fix mode and by the FWD/Stop or REW/Stop button present on the transmitter.

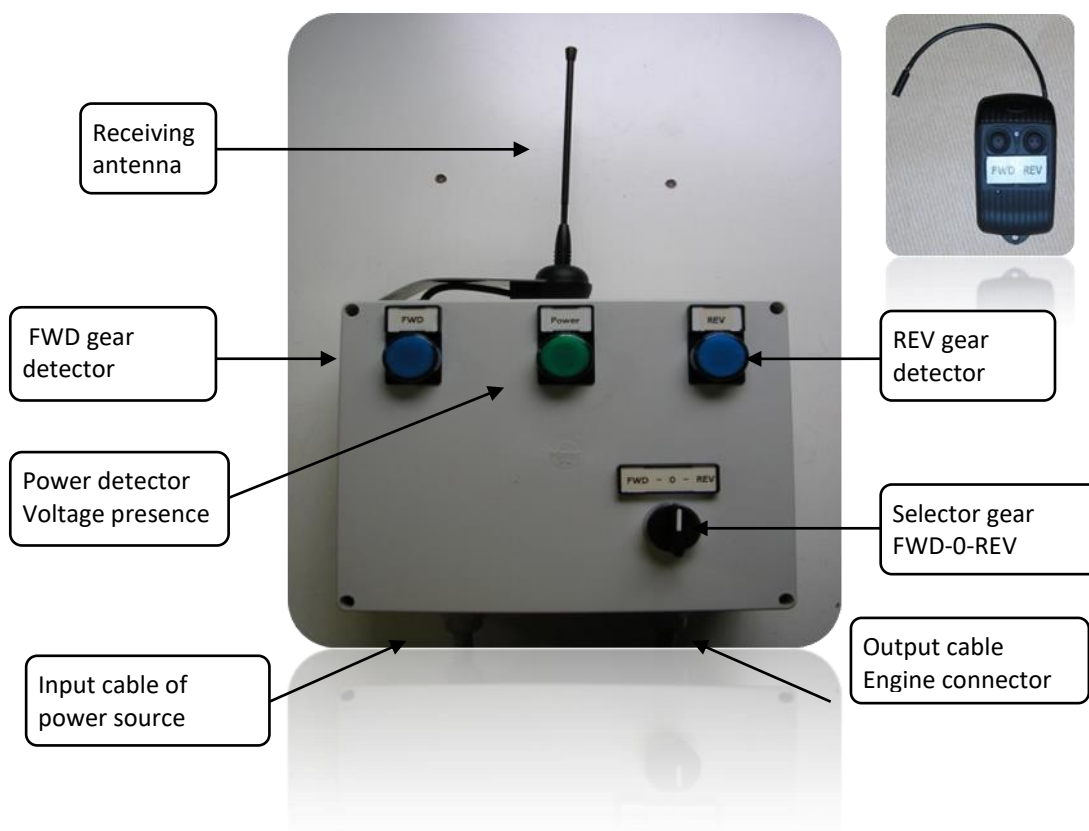
Remember that the FWD or REW command fix in box selector remains operating in case of power cut but is disabled from remote control.

In this case the transmitter buttons, delivered with product, will be marked with FWD/Stop and REW/Stop.

NOTE: if you put together FWD and REW command, the system won't start. It lies in wait that one of two command is removed to activate the remaining gear.

This sequence serves moreover to avoid sudden instantaneous flow inversion caused by operator error.

Below it is reported the picture with the main indication of the principal components.



- **Only gear model with acoustic signal for operator**

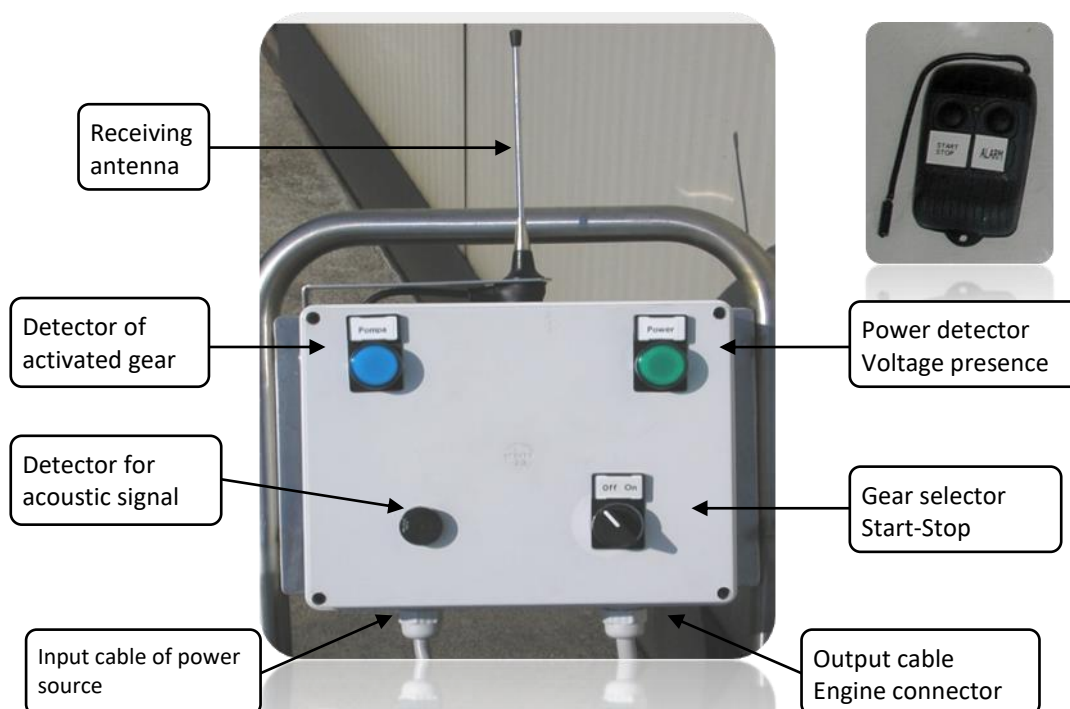
This product allows a distance control of pump or other connected machinery only in one gear direction: the command indicates both on transmitter and on box only START-STOP without specify the gear direction. This radio control model has a particular function: with the second transmitter channel it is possible to activate a detector by operator (if necessary).

Also in this case the gear command (if fixed by box selector) remains operative even if there is no mains supply, whereas is disabled by remote control.

The transmitter buttons (delivered with product) will be signed by notice start/stop and as indicated as the beginning of this chapter, the function of every transmitter button associated with each pressure will be both start up (gear) and deactivation (stop) according to the following logic:

1st pressure =start , 2nd pressure=stop

Below it is reported the picture with the main indication of principal components.



- **Single-phase version 220Vac (available only in gear mode with acoustic signal)**

It is possible to order the product with 220 Vac power source that it is **available only in gear mode with acoustic signal**.

The device has the same function and characteristics of similar three-phase, except the power connections that are adequated to be connected to 220 Vac line.

The conditions of use of transmitter and gear command remain the same.

this model can also be installed on board pump or used for universal version in different types of pumps (pumps must always be lack of restoration device).

The power available are:

- In compact version till 1,5 kw (size 190x140x70 cm)
- In standard version from 1,5 kw to 7,5kw (size 240x190x70 cm)

In order to optimize performances and thus the receiving, it is suggested to place the pump in open spaces and airline with the transmitter.

With these simple processes will be possible to improve the efficiency of product ensuring a major signal covering in respect to a classic radio control.

The transmitter does not operate if activated in proximity of receiver (minimum distance 1,5 m).

5- TRANSMISSION MODE

The transmitter has a signal led to indicate the given command: if the led flashes, it indicates low batteries (replace them as soon as possible).

It is recommended to replace the transmitter in the appropriate box where the product is delivered: it is reminded that the transmitter level of protection does not guarantee humidity protection, aqueous and oily rests.

The transmission mode (rolling code system) provides a continuous field research in order to guarantee the operation in all working conditions. It provides moreover a superior receiving distance from standard.

The transmission mode can be programmed acting some parameters of programming present on control card inside the product.

Possible configurations are:

- **Continuative mode (push button, opened jumper)**

Note that this mode (continuative transmission in rolling code) is more expensive in energetic level and guarantees a minor duration of battery (the signal of low battery is indicated by flash led).

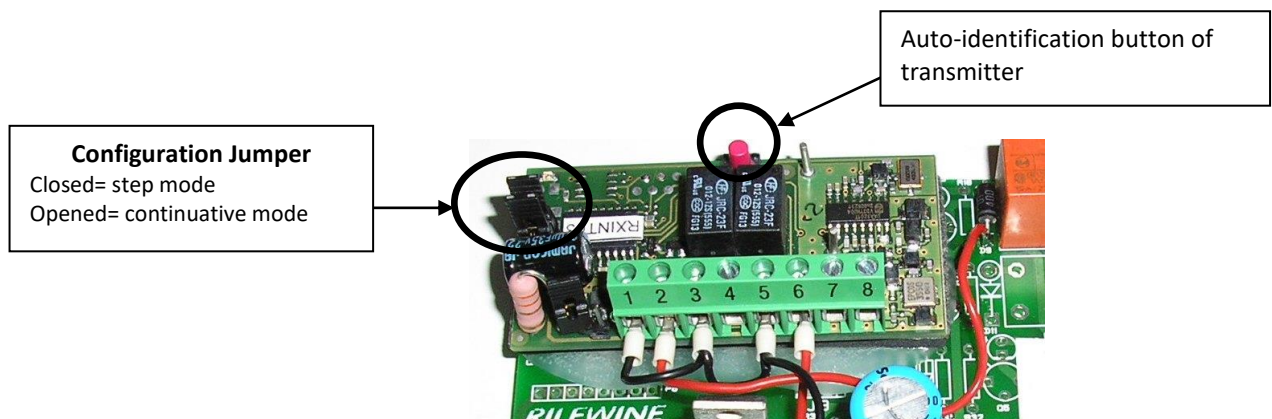
The command is operative only if the button is always pushed.

In this mode the transmitter suspends automatically after 50 second the transmission and it requires a new pressure of button command.

- **Step mode with memory effect (closed jumper).**

In this mode every pressure of transmitter button coincide with START/STOP command that will be memorized till new following pressure.

A single impulse activates the pump and the following one, causes the interruption.



TECHNICAL NOTE: Both modes are available with inverter version and without it: to invert the flow in step mode with memory effect is necessary to turn off the pump before and then do the gear reversal.

This sequence protects the pump from wrong manovreus of gear inversion without its turning off that provokes mechanical stress for pump and engine.

Reception board configuration and identification code

- Reception board configuration

If there is a necessity to make a new transmitter registration, you must follow this simply procedure:

- Opening the radio control cover to enter on inside control sheet: the opening is effected by unscrewing screws put on the corners and lifting the cover delicately detaining it suspended.
- Feeding the radio control with expected mains supply (inside green led turn on)
- Push the auto identification button presents on board and indicates on figure above. A fix red led will light and will activate the procedure of identification wait.
- To continue with identification of one of transmitter buttons keeping press in continuous way: if the operations are correct, the red led will flash several times.

Effectuate the operation before led turning off. In case of turning off repeat the operation pressing an other time the auto identification button on schedule.

- In this way, a channel has been configured and memorized.
- Repeat the operation following the same procedures for the second channel

NOTE: the operation can be effectuated for several transmitters in order to have more transmitters for the same schedule. The operation is guaranteed only if it is given by at a time transmitter.

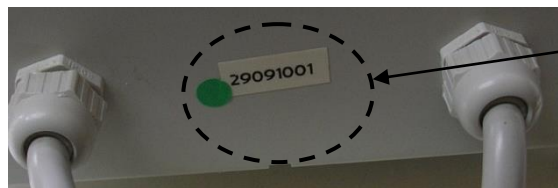
The activation of one or more remote control in the same area cancels and paralyzes the same command.

o Identification code

To associate precisely and in univocal way the transmitter to remote control, it has been created a identification code that is reported both on radio control and on transmitter.

As indicated on figure below, this code is reported on lower side of radio control and back of transmitter.

Being a code dated, it acts as a guarantee starting date.



Identification code for associating the transmitter

6- GENERAL CHARACTERISTICS

Technical data

- o Mains supply: 220 Vac and 380 Vac 50/60Hz
- o FG7 double insulation connect, plug and socket IP67
- o Dimensions: till 1,5Kw/220Vac 190x140x70 cm, from 1,5Kw to 7,5kw 240x190x70 cm
- o Powers: till 7,5 Kw
- o Lack of phase protection in three-phase version
- o Transmitter power source: 10 mW TX in transmission
- o Transmitter power source: n° 2 batteries 3 V from lithium
- o Cover: till 200 mt open space, 80 mt with infrastructure building interposed
- o Minimum distance of transmission: 1,5 mt
- o Self-acquisition function of receiver/transmitter
- o Signal led flashes of low battery on transmitter
- o Transmission command in continuative or step mode.
- o Via radio inversion
- o Operator command optoisolators by power part
- o Posterior mechanicals fixings
- o Protection level of radio control box IP55.
- o Protection level of transmitter IP 20
- o Optical gear signals and presence on box of energy voltage.
- o Acoustic signal for operator.

Level protection

The switchboard radio control is guaranteed with level protection IP55.

The connection is executed with cable FG7 double insulation equipped with plug/socket watertight IP67.

The transmitter is supplied in a special protective box that guarantees protection from dusts, liquids and other small components.

Accessibility

It does not expected the inspectionability of product. So, during normal operation, is not expected that the operator enters to the voltage parts of box.

The accessibility is reserved only to specialized staff in technical support that will make all necessary checks with assistance of facilities.

7- MAINTENANCE AND PRODUCT GUARANTEE

Maintenance

The product does not require any type of specific maintenance on electrical part.

Do not insert liquids or other small components to the connection point of pump.

The product acquires level of protection IP55, so can be submitted to sprinkles water and humidity (not in pressure).

The portable transmitter is more flimsy and it **MUST NOT** be exposed to sprinkles water, humidity, high temperature or mechanical impacts: it is supplied with a specific protective plastic box to be replaced when worn out.

It is recommended to verify the correct operation before its use.

The transmitter is already provided with lithium batteries of long duration. It is recommended to verify their charge state, the possible substitution in case of long inactivity and the use (maximum 3 years).

Verify the presence through the red led lighted. Flashing led = low batteries.

Guarantee

The product is **guaranteed two years (2)** against any type of malfunction imputable to it and connected to a device damage.

The guarantee covers all defectives or bad functioning materials and their substitution.

It is no granted in connection with faults resulting from improper use, from modifications carried out by unauthorised personnel on product and from mechanical breaking of the containment box or its transmitter.

The guarantee is activated by a dated identification code put on inferior side of product. This identification code is also reported on transmitter and identify the 2 decoded components.

Validity condition

As the product is provided by electronic control, for a correct and safety use and for guarantee validity, the product:

- **MUST NOT** be set near heat sources
- **MUST NOT** be exposed to continuous solar radiation
- **MUST NOT** working to room temperature superior to 45°C
- **MUST NOT** be hit by high pressure water sprinkles
- **MUST NOT** suffer by mechanical shock due to impact, accidental falls or inappropriate transports.

Please note that only the receiver is IP 55, whereas the **transmitter must be accurately safeguarded**.

The respect of previous conditions will ensure the correct product operation in all working conditions as well as a major duration of all system.

The lack of respect could cause both out of guarantee and out of product service.

Tampering and guarantee delay

The guarantee is lost if the use conditions are not respected or the product is improperly tampered.

8- SERVICE ACTIVITY

Common problems

The common problems connected to operator error/anomaly/failure of product are:

OPERATOR ERROR

- It is activated the gear both to box selector and transmitter, but the pump does not start.

Result: It will be allowed only the gear set up from selector . Put the selector on central position "0" and use only transmitter to control the gear .

- Both the gears FWD and REW are controlled by transmitter without passing for stop.

Result: the pump remains turn off waiting that one of two gears is removed and restart than in the other direction.

- Remove with a further press of buttons on transmitter one of the two gears.

Result: the command is not accepted if it is given in a range of action inferior to 1,5 mt (bell effect).

ANOMALIES

- The box is lighted, the gear is correctly set up according to manual indications, but the pump is not activated.

Result: it is probably that a mains supply phase lack. Try the gear with selector and verify the correct presence of voltage.

- The box does not turn on

Result: it is probably that one or more mains supply phases lack.

- The transmitter operates, but the led flashes .

Result: it is possible that the transmitter has slow batteries. Make replacement.

PRODUCT MALFUNCTION

- The box does not turn on but the power source is operating.

Result: verify the power plug connections and, in case, the inside starting green led of control box through the SERVICE.

- The transmitter does not operate in any condition.

Result: it is possible that the transmitter has slow batteries or there is a failure. Verify the red led also in flashing mode. In case, try to substitute batteries.

If it does not operate, will contact the support service.

9- AFTER-SALE SERVICE

The support can be directly provided by BCM or by its suppliers.

The guarantee support is provided at Rilewine or at the same customer (upon agreement).

It is possible to contact and communicate trough these addresses:

**BCM macchine enologiche**

Viale Veneto 10 Zona artigianale SAONARA (PD)

Tel/Fax 049-640372

mail: info@bcmenologia.com

Web: www.bcmsnc.com