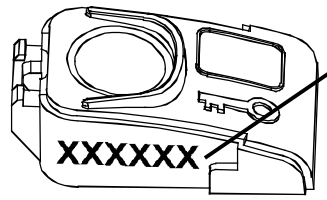
UDEE / UDRE

CE

En Industrial enhanced-safety radio remote controls

IMPORTANT

An identification number is engraved on the side of the electronic key.
Take a moment now to write down this number :



(electronic key of the transmitter **UDEE**)

N° :

•Identity code number of associated receiver :

•Equipment controlled :

jay électronique

PRELIMINARY Document

Ref. doc :
332170A
revision02

- TABLE OF CONTENTS -

Appendix :

General safety rules

A radio remote control is considered as a machine control device and as a safety component used to stop a machine as specified by the EEC Machinery Directive. All applicable rules must therefore be observed to ensure safe, correct operation of such devices.

- **For maximum safety** when using the radio remote control, we recommend that the operator carefully follow the instructions provided in this manual.

- **The operator must be appropriately trained and certified** to operate machines by radio remote control.

- **The operator must have uninterrupted visibility of the manoeuvre which he is performing.** When the operator's direct field of view is inadequate, the lifting machinery must be equipped with auxiliary devices to improve visibility.
  When several machines are being moved simultaneously, the equipment must be fitted out to limit to consequences of a possible collision.

- **To avoid any risks of electrocution, don't open the receiver case when powered.**

- **Never leave the transmitter lying around anywhere, in particular when it is powered up.**

- **Never leave** the radio control transmitter on the ground or on a metal surface. If doing so becomes indispensable, press the stop palmswitch on the radio control.

- **If several radio controls are used at the same site**, different radio frequencies should be used, spaced by at least two channels (for example, channels 5, 7, 9, etc.). The more space there is between the chosen radio channels, the less the risks of disturbance are.

- **For safety reasons, remove the electronic key** when not in use. Store it in a safe and tracked down place.

- **Do not forget to recharge the battery pack** when discharged.

- **In the event of a malfunction**, immediately shut down the installation by pressing the stop palmswitch on the transmitter and remove the electronic key.

- **Service your equipment** and perform all the periodic checks as may be required by the intensity with which your equipment is used. Follow necessarily the instructions of cleaning described in the chapter "Servicing".

1- Description of **UDEE/UDRE** radio remote control

Thank you for choosing our UDEE/UDRE Series industrial enhanced-safety radio remote control.

The **UDEE/UDRE** radio remote control is designed for remote control applications on handling machines and for industrial equipment applications.
The radio remote control enables the operator to better focus on his work as it allows him to choose his observation position which is only limited by safety considerations (example: no one should be standing under a load).
The radio remote control completes and enhances the classic safety circuits (emergency stop circuits).

Special attention has been given to ensure operator comfort through the following features :

- Ergonomic transmitters enabling one-hand control
- Control button accessibility
- Button touch sensitivity
- Identification of functions controlled
- Light-weight, compact transmitter
- Transmitter endurance, and fast charging battery pack
- Adaptability to all radio configurations of the environment by possibility for changing frequency by a trained operator
- Mechanical protection of function buttons to avoid any unintentional action
- Transmitter carrying strap which hooks onto belt when unit is idle, or removable shoulder strap (optional accessories)

To further enhance safety when using this equipment, technical solutions and innovative options are also proposed :

- Radio remote control shutdown category 3 per EN954-1 and Hamming distance superior or equal to 4 for each transmitted message
- Access is enabled by electronic key to an authorised operator only
- Memorisation of use of remote control by recording number of operations and durations for each movement (option)

Easy maintenance :

- Customization entirely stored in electronic key
- Diagnostic aid indicator lights
- Parameter definition software (accessory)

Finally, the UDEE/UDRE radio remote controls fully satisfy the safety requirements of the current applicable and draft standards and comply with the following European directives:

- Machinery Directive, shutdown category 3 per EN954-1
- RTTE : microwave equipment and telecommunication terminals (low voltage, electromagnetic compatibility, radio-electric spectrum) ART conformity certificate
- American regulation FCC part 15

For any recommendations or questions concerning installation of the **UDEE/UDRE** remote control system, contact us at our customer service department :

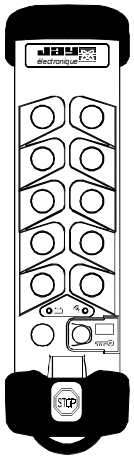
Tel : *+33.(0)4.76.41.44.00*
Fax: *+33.(0)4.76.41.44.44*
Email : *support.technique.client@jay-electronique.fr*

2- Installation

2.1- Composition of the **UDEE/UDRE** Series and description of elements

The UDEE/UDRE Series comprises :

- A transmitter : «**UDEE**» with radio communication :



10+2 button version
(10 function buttons + 1 «On/Horn» button + 1 «stop palmswitch button»)

- A receiver «**UDRE**» which decodes the information generated by the remote control and controls movements of the machines.
- A battery pack «**UDB2**» (transmitter battery).
- A battery pack charger «**UBCU**».
- Accessories (strap, label kits, common wiring accessory etc...).

2.2- Unpacking the elements

IMPORTANT

When unpacking the products, be sure to :

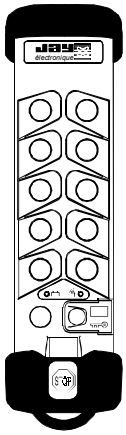
- Write down the electronic key number on the cover page of this manual. This number will allow you to order a new, identical electronic key defined with your parameters.

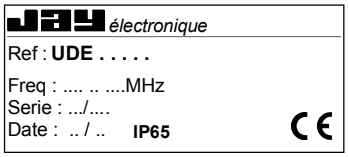
- Put the battery pack on load for 14 hours minimum before a first use.

1st package

Descriptive label

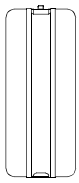
Transmitter
UDEE

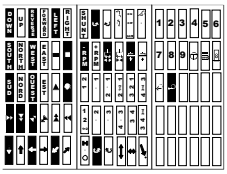




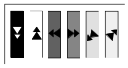
electronic key
(1)

Battery pack(1)
UDB2





label kits



2nd package

Battery pack charger
(for charging the **UDB2** battery pack)

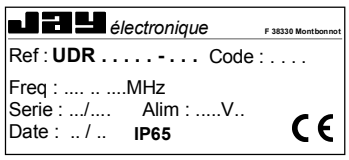
UBCU

110-230VAC/12VDC
with european and
english plugs

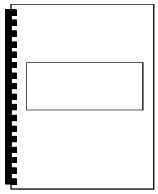
(1) = mounted on transmitter

3rd package

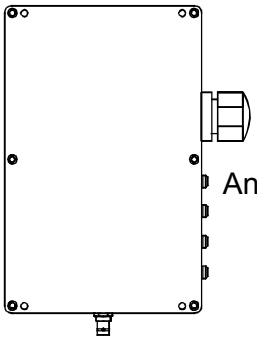
Descriptive label



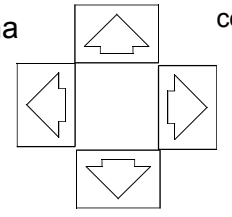
Technical manual



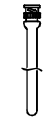
Receiver
UDRE



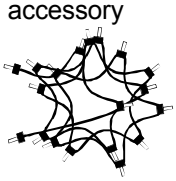
4 colored directional arrows



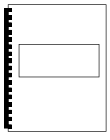
Antenna



common wiring accessory



Technical manual only for additional options



2.3- Product identification
(according to sales reference)

2.3.1- Transmitter **UDEE**

U	D	E	E	2	2	2	2	2

2.3.2- Receiver **UDRE**

Programming of button - relay correspondence :
Number of relays controlled by BPDV (double speed pushbutton)
1 = 3 relays
2 = 4 relays
x = special (equipment definition covered by a customization data sheet)

U	D	R	E	C	B	0	0	-			1

Programming of transmitter button interlocking :
0 = no interlocking
1 = interlocking button n°1-n°2, n°-n°4, n°5-n°6 with output relays set to OFF
2 = interlocking button n°1-n°2, n°-n°4, n°5-n°6 with priority on left button
3 = interlocking button n°1-n°2, n°-n°4, n°5-n°6 with priority on right button
x = special (equipment definition covered by a customization data sheet)

2.3.3- Accessories

For **UDEE** transmitter

Reference	Description
UBCU	Charger for battery pack, 110-230VAC/12VDC with european and english plugs
UDB2 (1)	Transmitter plug-in battery pack
UDC1	Wall bracket for stowing and battery pack charging when idle
UDWE22 X (1)	Programmed electronic key (electronic key number to be supplied)
UDP1	Belt fastening clip
UWE102	Removable shoulder strap
UWE303	Protective case for transmitter 10+2 button version
UWE202 (2)	Kit of 6 colored labels "movements" for double speed pushbuttons (2 steps)
UWE205	Kit of 48 white blank labels for cutomized marking
UWE207 (2)	Kit of 90 white/black labels "movements, special functions and customization" for switches and pushbuttons

For **UDRE** receiver

Reference	Description
VUB984	BNC straight antenna, 1/2 wave in 911-918MHz
VUB105	2m extension for antenna + non insulated bracket BNC
VUB125	5m extension for antenna + non insulated bracket BNC
VUB131	10m extension for antenna + non insulated bracket BNC
UWE001	2 ways directional colored arrows for travelling crane
UWE002 (1)	4 ways directional colored arrows for travelling crane
UDWR38	Fastening Kit for receivers by magnetic contacts
UDWR12 (1)	Common wiring accessory
UDWR13	24-pin plug-in connector + 2m cable
UDWR14	16-pin plug-in connector + 2m cable
UDWR23	UDWR13 cabling realization in UDRE receiver
UDWR24	UDWR14 cabling realization in UDRE receiver
UDWR32	Serial link board (kit UDWR36 software + cable to be ordered separately)
UDWR36	PC "DialogUD" Software (CD-ROM+ computer PC/ receiver UDRE cable)

(1)= 1 accessory supplied with product
(2)= Label kits supplied systematically with transmitter

2.4- Delivery configuration

- **Radio channel number :**

  - Programmed with radio channel number **01** (911,800MHz)

- **Duration of the temporization for the "Dead Man" function (automatic shutdown of remote control in case of prolonged non-use) :**

  - Programmed for **4 mn**

- **Button / relay configuration and button interlocking:**

  - According to product definition with order (receiver reference) or special (equipment definition covered by a customization data sheet).

- **Locking of the UDEE transmitter electronic key : (access to UDEE transmitter programming)** 

  - The transmitter is supplied with an "unlocked" electronic key, programmings : **Radio channel** and **"Dead man" function duration** can be directly modified by a trained operator (see programming procedures on chapter «transmitter configuration»).

2.5- Installation recommendations

Experience shows that the functional efficiency of the system basically depends on the quality of the installation :

- **Implementation of elements,**
- **Marking of the controlled equipment,**
- **Wiring quality of UDRE receiver,**
- **Interference suppression,**
- **Electrical power supply protection,**
- **Minimum and maximum current of relay outputs,**
- **Choice of operating frequency.**

2.5.1- Implementation of elements

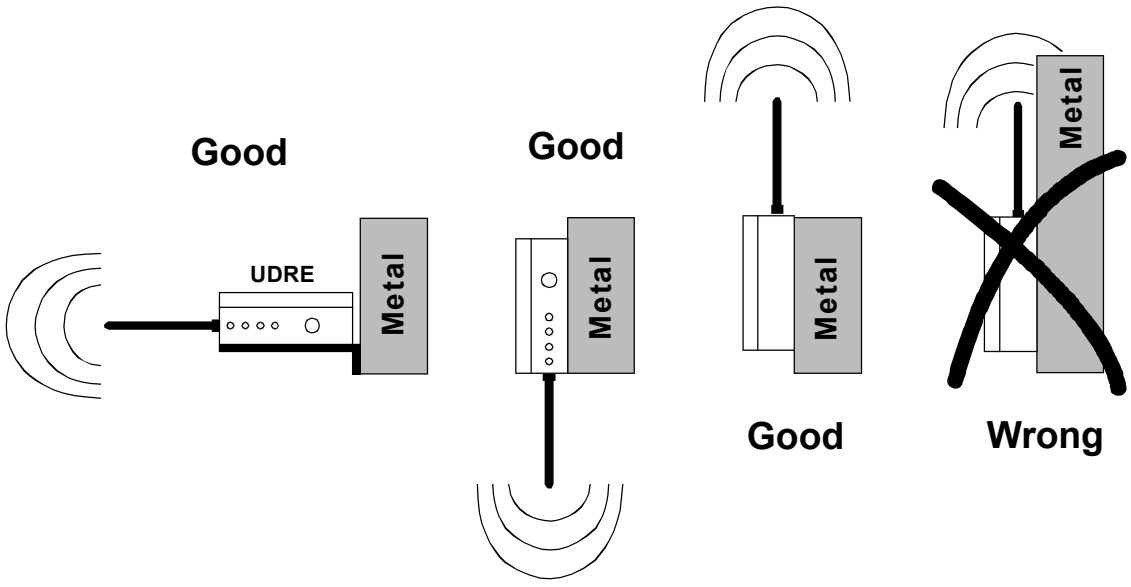
☞ Element dimensions are available for consultation in Appendix **C**

Receiver position

The remote control receiver **UDRE** should be mounted as close as possible to the control cabinet, vertical with respect to the machine structure. The receiver should be sheltered from shocks and weather.

The antenna should be as far as possible from the class 3 cables and power components (power supply, motor, variable speed drive, etc.) while remaining within an area favorable to radio reception :

- The antenna should be located at a height, above the operator using the transmitter **UDEE**. No metal object which could create a screen should be located between the operator and the antenna.
- The antenna must be directed toward the transmitter working areas (downward with a hoist).
- The antenna orientation is indicated in the figure below :



2.5.2- Marking of the controlled equipment,

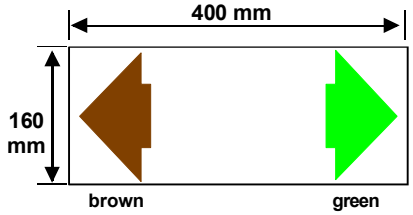
If there are several equipment fitted with similar radio remote control systems working in the same neighbourhood (e.g. in a plant), each transmitter shall carry a clear indication which tells the equipment driver which equipment is controlled by the transmitter in question.

In this respect, signalling arrows are available as an accessory.
Place the different arrows on the equipment to be controlled so that each arrow colour corresponds to that on the associated transmitter control button.

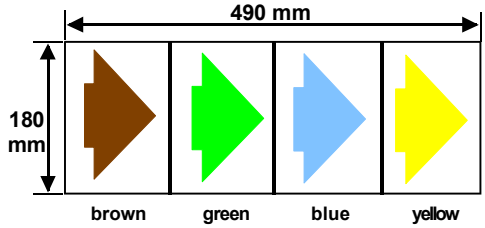
The direction of movement of control buttons shall whenever possible be consistent with equipment motion. Symbols shall be fixed in such positions that there is a clear and unambiguous relationship between the action on buttons in the control station and the corresponding direction of motion.

The arrows are available in the following versions:

Reference :
UWE001 **2 ways directional self-adhesive color arrows**



Reference :
UWE002 **4 ways directional self-adhesive color arrows (independent arrows)**



2.5.3- Wiring

WARNING

To avoid any risks of electrocution, do not open the receiver case when powered.

Important :
Do not place cables of different classes side by side.

A minimum space (20 cm) should be observed between the different classes :

- **Class 1 :** Radio, antenna cable (case of an antenna extension).
- **Class 2 :** Mains for power supply of various units.
- **Class 3 :** Power control for motors, variable speed drive, etc...

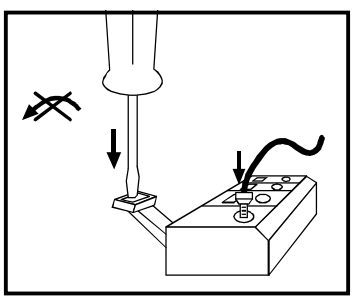
Ideally, each cable class should be run through a cable path specific to the class. If only one cable path is available, cables of different classes should be separated as much as possible.

Wiring the receiver UDRE

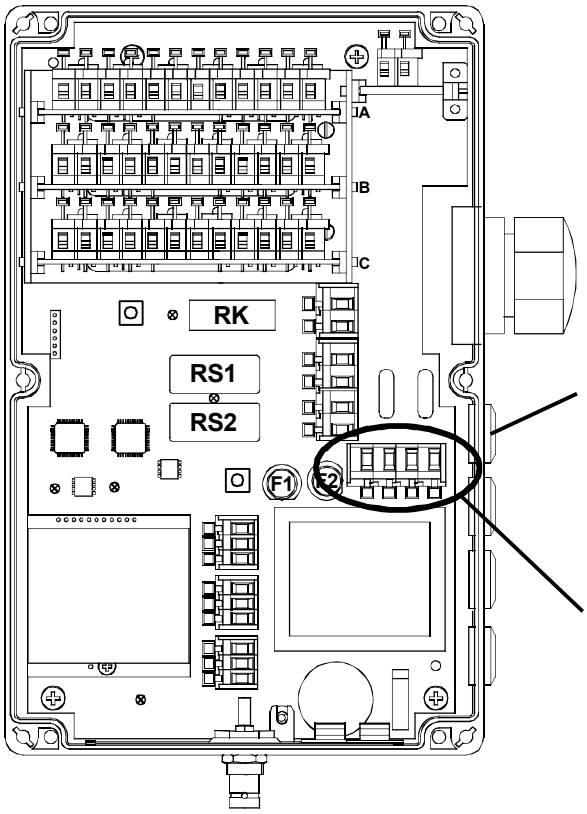
If flexible stranded wire is used, crimped terminations should be used to avoid false contacts and short circuits.

To open the connection terminal strips:

- Vertically push the screwdriver (flat tip screwdriver of 1.5 to 3 mm width) on the lever,
- Exercise a moderated pressure up to opening the terminal
- Insert the wire,
- Remove the screwdriver.

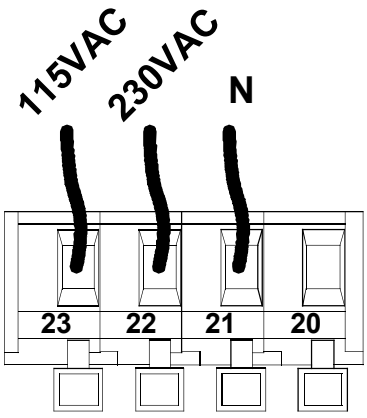


Caution:	The electrical connections should be made such that when the main switch is off, the **UDEE/UDRE** remote control receiver is also deactivated.



Advised way for power supply cable

Power supply terminals strips



UDR receiver reference : **UDRECB00 - **1**

115/230 VAC

For the wiring and to determine the correspondence between the action on a function button and the relay controlled, refer to the configuration table supplied with the receiver (label on housing cover) and **appendix A.**

See wiring example in **appendix D**

2.5.4- Interference suppression

In the event of inductive loads on the relay outputs (contactor coils, solenoid valves or electro-brakes), interference suppression devices such as capacitors, RC circuits, diodes, etc. **must be placed** directly at the terminals of the controlled components using the shortest possible connections.

2.5.5- Electrical power supply protection

Protection against overcurrents (EN60204-1 § 7.2) resulting from overvoltages.
A fuse or other protection device should be provided in the power supply circuit of the receiver (see wiring diagram for standard assemblies, item F in appendix D). The assigned current is defined in the table in § «**UDRE** receiver technical characteristics».

2.5.6- Minimum and maximum current of relay outputs

Be sure not to exceed the minimum and maximum characteristics specified in § «**UDRE** receiver technical characteristics» by installing, if necessary, an additional load or intermediate relays (auxiliary contacts in electrical cabinet for power control, for example).

2.5.7- Auxiliary control

Measures should be taken to ensure, that when the radio control is not in service, another control system can be used to ensure the safety of the operator and the manipulated load.

2.5.8- Choice of operating radio frequency

The 64 radio channels in 911-918MHz of the **UDEE/UDRE** provide a broad range of choices among the available frequencies. To ensure good operating quality, it is important that the radio channel used be free (as well as the preceding and the following one) throughout the area in which the machine will be controlled.

If several radio remote controls are operating on the same site, frequencies spaced by **at least two channels** (for example: 5, 7, 9 …) should be used and, if necessary, a frequency plan should be drawn up, specifying the various machines controlled and their working frequency.

2.6- UDEE transmitter function button labels

The various button functions are identified by means of adhesive labels placed in the recesses provided in the transmitter unit envelope at each button location.

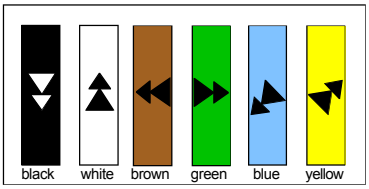
The labels are supplied in the form of sheets with the various labels you will need for your application. Simply choose the labels corresponding to your configuration.

2 label kits are systematically supplied with UDEE transmitter: **UWE202** and **UWE207**.

Reference :

UWE202

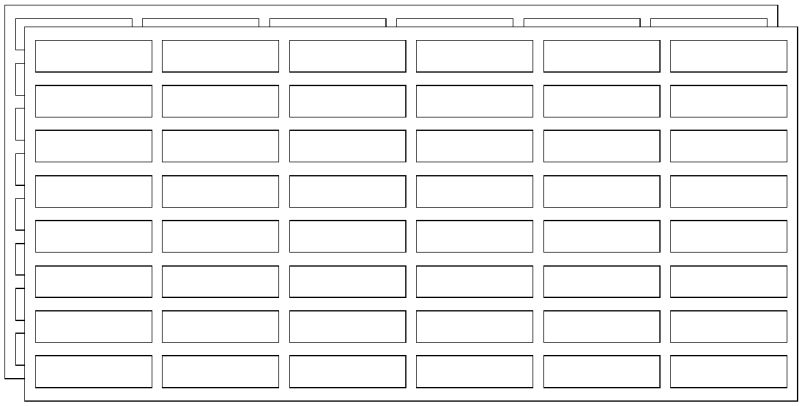
Kit of 6 colored labels, «movements», for double speed pushbuttons (2 steps)



Reference :

UWE205

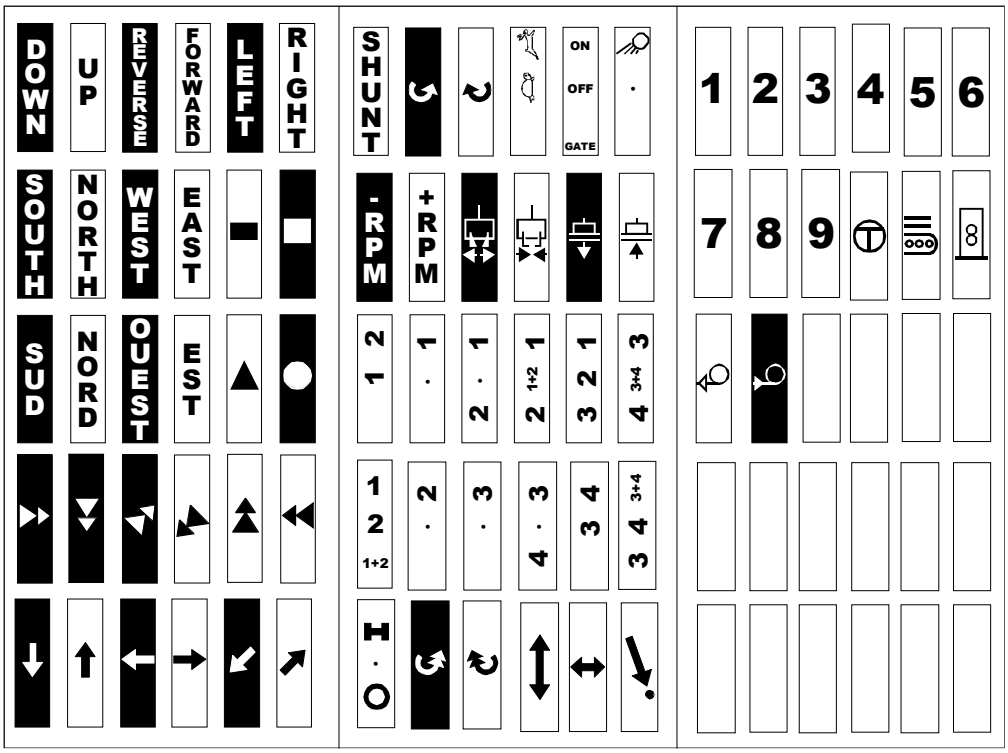
Kit of 48 white blank labels, «customization» + 48 transparent protecting labels.



Reference :

UWE207

Kit of 90 white/black labels, «movements, special functions and customization» for switches and pushbuttons (with 16 labels for personalized marking with indelible felt-tip)



3- Commissioning

3.1- Precautions when commissioning

- **The installer must :**

  - ensure that the transmitter and receiver identity code and radio channel match correctly,
  - ensure that the radio channel chosen corresponds to the frequency plan set up for the site,
  - perform a final check to verify that the desired Button-Relay correspondence is in place.

- During the previous check, the installer must check that when the "On/Horn" button is pressed on startup, only the function relays assigned to the rotary button selections are in the "ON" state.

- **Verify the priority general shutdown mode** (remote control in operation and radio link established)::

  Active stop : When the stop palmswitch button on the transmitter is pressed, the receiver safety relays (RS1 and RS2) should instantaneously change state.

  Passive stop : When the electronic key is removed from the transmitter in operation, the receiver safety relays (RS1 and RS2) should change state within two seconds max.

- **"Dead man" function duration :**
  Check the effective duration of the "Dead man" function (automatic shutdown of transmitter) :
  Start up the remote control and leave it without activating any control. Record the time after which the receiver safety relays (RS1 and RS2) are deenergized and check that this duration corresponds to the standard duration supplied (4min.) **or** the duration specified on order (special programming, see customisation sheet), **or** to the new duration defined by a trained and authorized operator in accordance with the procedure described in chapter «transmitter configuration».

- **Radio range limits :**
  Evaluate the range limit of the transmitter/receiver assembly (by moving up to the range limit).

- **Special function: masking of certain function buttons :**
  If button masks are included in the electronic key, check that they properly correspond to the application for which they have been provided.

3.2- Periodic checks and checks performed following maintenance operations

In addition to the commissioning checks which should be performed, also check :

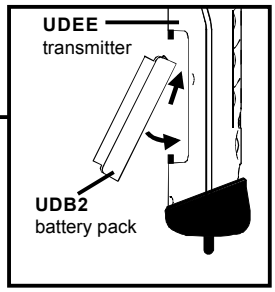
- That the ergonomic features of the transmitter unit have been preserved, such as: pressure on function buttons, correct rotation of rotary switches, correct functionning of emergency stop button, etc.

- Response time of commands between transmission of a command and resulting movement.

3.3- First radio remote control startup

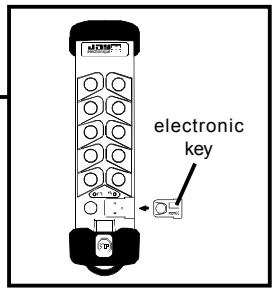
1- Switch ON the **UDRE** receiver.

2- Plug the **UDB2** battery pack into **UDEE** transmitter housing. (Take care that **UDB2** battery pack is loaded and is well connected to **UDEE** transmitter back.)

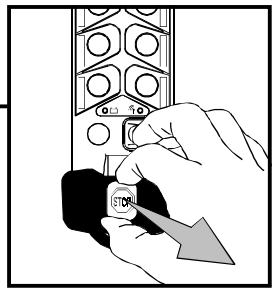


3- Install the electronic key on the transmitter or take care of its presence on UDE transmitter.

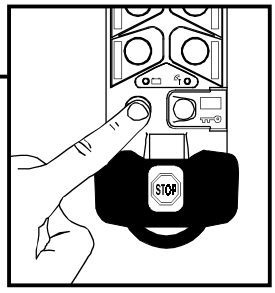
4- Copy electronic key identity code to UDEE transmitter memory, **see procedure on § 3.5.4**.



5- Unlock the transmitter stop palmswitch button.

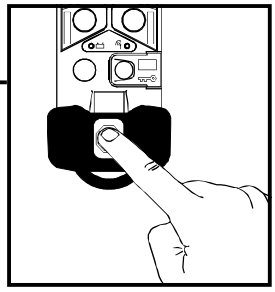


6- Press the green «On/Horn» button until the receiver is started up (safety relays are activated).



7- Use the radio remote control to control the equipment.

To stop the radio remote control :
press the **UDEE** transmitter stop palmswitch button.



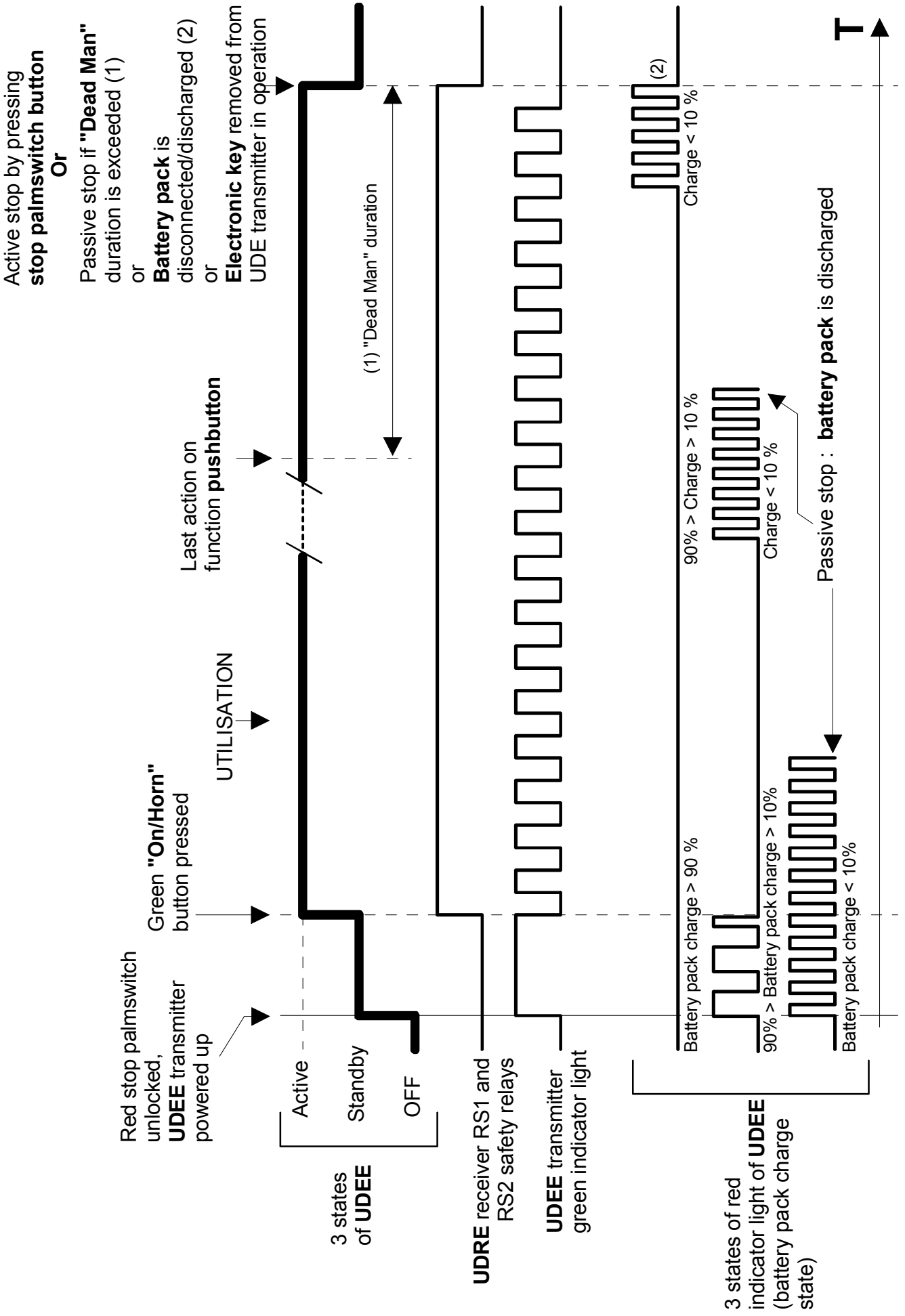
NB : if this procedure is not observed the transmitter indicates an error with the red and green indicator light :

- «**3 flashes error type**» (The green and red leds flash **3** times, mark a break, then flash **3** times etc.) : resume identity code copy procedure described in § 3.5.3.

- «**5 flashes error type**» (The green and red leds flash **5** times, mark a break, then flash **5** times etc.) : Stop or startup error (make sure that the pack battery is correctly inserted in the transmitter housing and resume the radio remote control startup procedure).

See startup block diagram on next page

3.4- Functioning block diagram



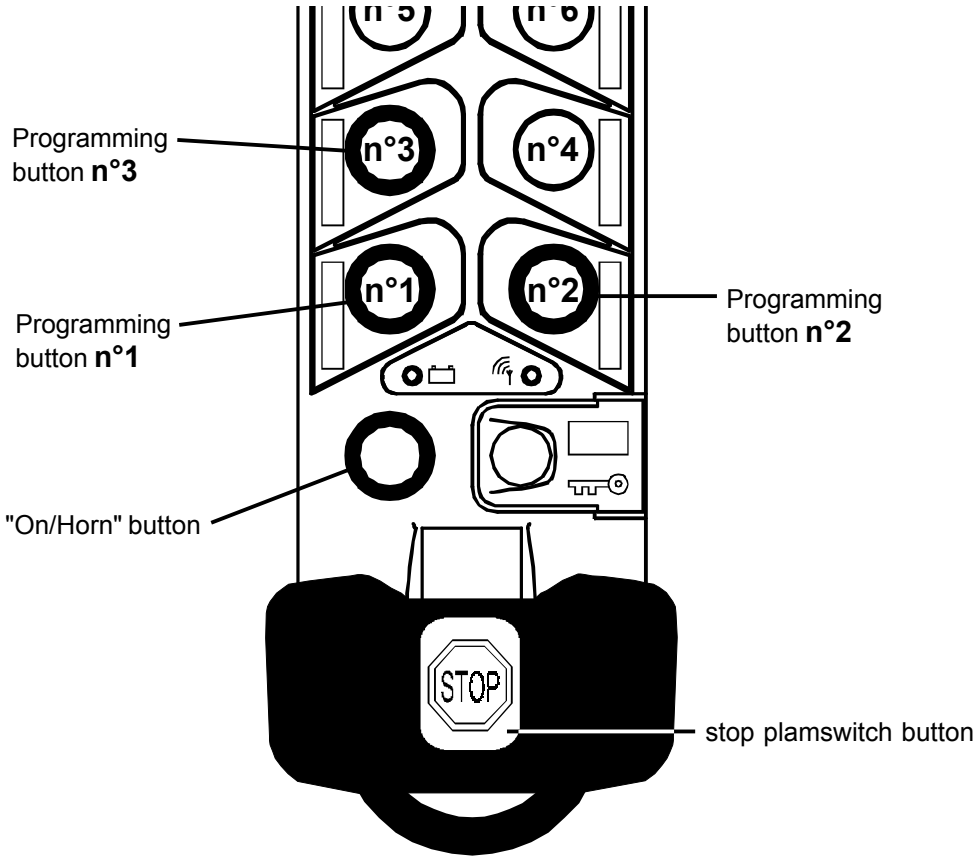
3.5- UDEE/UDRE system configuration and parameter setting

The following parameters are configurable from the **UDEE** transmitter unit :

- Transmit frequency (radio channel number selection).
- The "Dead man" function duration (01 to 98 minutes and infinite).
- Copy of electronic key identity code to transmitter memory.

These configuration operations use procedures implementing buttons n°1, n°2, n°3, stop plamswitch and "On/Horn" without having to open the transmitter or the receiver.

By a specific operating mode, the person in charge of the equipment can **lock** or **unlock** the access to the programming of Transmit frequency and "Dead man" function duration by locking or unlockin the electronic key (see §3.5.1).



3.5.1 Procedure: "Locking-unlocking" the electronic key (access to programming of transmitter **UDEE**)

The transmit radio frequency and the "Dead man" function duration are saved into the electronic key. Procedure below enables authorization (electronic key unlocked) or prohibition (electronic key locked) of any modification of these 2 parameters.

1- Switch off the UDRE receiver.
2- Insert the electronic key in the UDEE transmitter unit.
3- Holding buttons n°1, n°2 and n°3 pressed, unlock the stop palmswitch button (fig.1).
4- Release the buttons.
Indicator lights statuses:
- electronic key **locked** : red indicator light on, green indicator light off.
- electronic key **unlocked** : red and green indicator lights on.

5- Select «locked» or «unlocked» by pressing button n°2; the selected mode is shown by the indicator lights (fig.2&3).
6- Validate the selected mode by pressing the "On/Horn" button (fig.4).
7- The UDEE transmitter saves the new mode in the electronic key and switches off the indicator lights.
8- Exit the "locking - unlocking" configuration mode by pressing the stop palmswitch button (fig.6).

Remark: If an operator attempts to program the frequency or the "dead man" function duration with the electronic key locked, the UDEE transmitter will indicate an error by its indicator lights (red and green) which will flash in alternation.

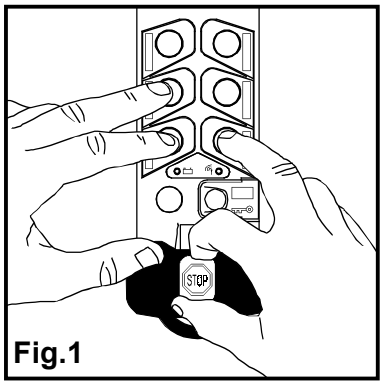


Fig.1

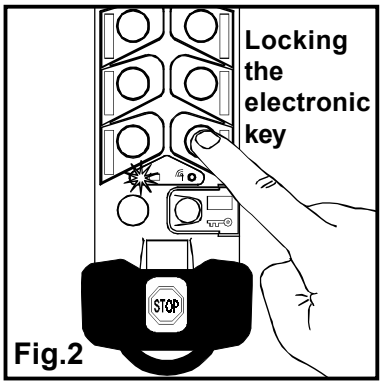


Fig.2

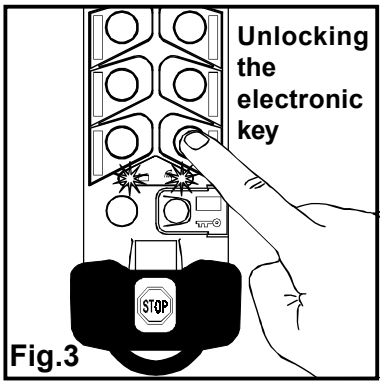


Fig.3

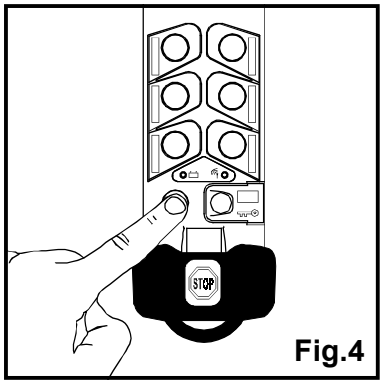


Fig.4

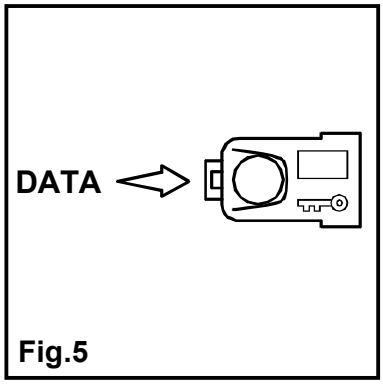


Fig.5

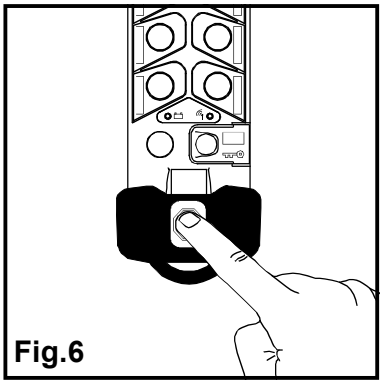


Fig.6

3.5.2 Procedure : working radio frequency channel programming

1- Switch on the **UDRE** receiver.
2- Insert the electronic key in the **UDEE** transmitter unit.
3- Holding buttons n°1 and n°2 pressed, unlock the stop palmswitch on the transmitter (fig.1).
The radio channel already selected is indicated by two flashing indicator lights on the transmitter which represent the tens (red) and units (green).

> **If transmitter red and green indictor lights flash in alternation :**
> The electronic key is locked. Press the stop palmswitch button and follow procedure described on chapter §3.5.1. Start again this procedure at point Nb.3.

4- Select the new channel using buttons n°1 and n°2 (fig.2&3).
Press button n°1 to increment the tens and button n°2 to increment the units.
During these operations, the newly selected channel is displayed by the 2 indicator lights on the transmitter which flash accordingly.
5- Once the desired channel is selected (between 01 and 64 for 911-918MHZ bands), press the "On/Horn" button to validate your selection (fig.4).
Briefly pressing "On/Horn" button : the transmitter sends the selected radio channel number to the receiver and saves its new working radio channel (fig. 5).
By pressing and holding the "On/Horn" button (3 seconds) : the transmitter sends the selected channel number to the receiver (on each of the radio link channels between 01 to 64 for 911-918MHZ bands) and saves its new working channel. Wait until the transmitter indicator lights no longer flash (around 30 seconds) (fig. 5)
(this longer procedure is preferable and should be performed when you are not familiar with the initial working channel of the receiver).
6- Exit the "frequency" programming mode by pressing the stop palmswitch button (fig.6).
7- Check that the UDRE receiver has changed channel by performing the startup procedure.

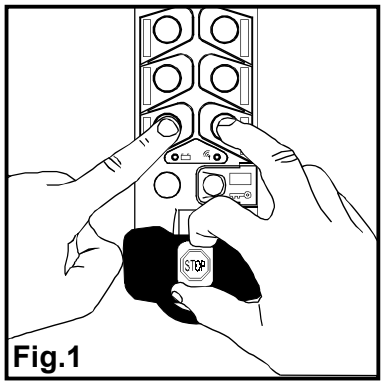


Fig.1

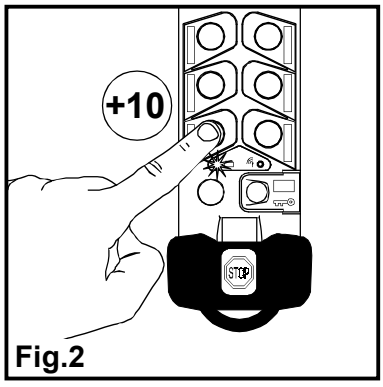


Fig.2

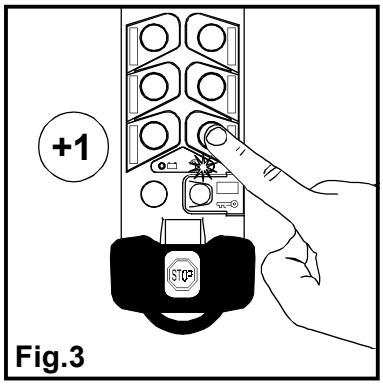


Fig.3

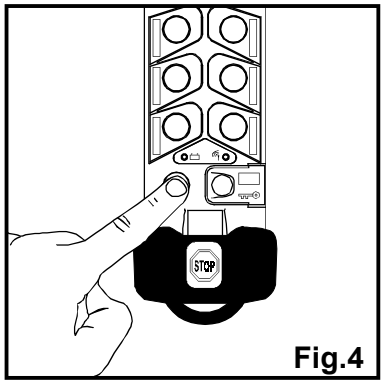


Fig.4

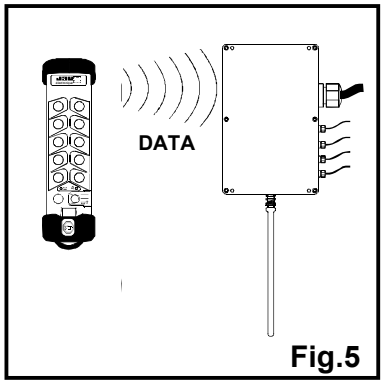


Fig.5

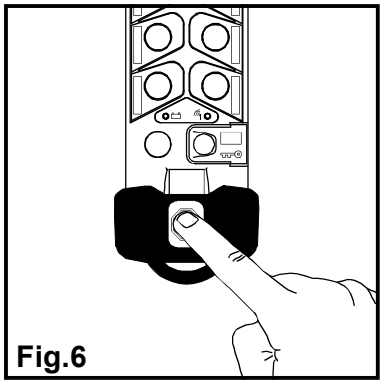


Fig.6

3.5.3 Procedure : "Dead man" function time programming
(Automatic shutdown of transmitter **UDEE**)

1- Switch off the UDRE receiver.
2- Insert the electronic key in the **UDEE** transmitter unit.
3- Holding buttons n°1 and n°3 pressed, unlock the stop palmswitch button on the transmitter (fig.1).
The "dead man" time is displayed by two flashing indicator lights on the transmitter representing the tens (red) and the units (green) of the number of minutes.

If transmitter red and green indictor lights flash in alternation :
The electronic key is locked. Press the stop palmswitch button and follow procedure described on chapter §3.5.1. Start again this procedure at point Nb.3.

4- Select the new time using buttons n°1 and n°2 (fig.2&3).
Press button n°1 to increment the tens and button n°2 to increment the units.
During these operations, the new time selected is displayed by the two indicator lights on the transmitter.
5- Once you have selected the desired "dead man" time (between 01 and 99), press the «On/ Horn» button to validate your selection (fig.4).

Caution: No. 99 corresponds to an infinite "dead man" time
> This function is then deactivated and forgetting to switch off the transmitter (by pressing the stop palmswitch button) will result in complete discharge of the battery pack.

6- Exit the "dead man" time programming mode by pressing the stop palmswitch button (fig.6).

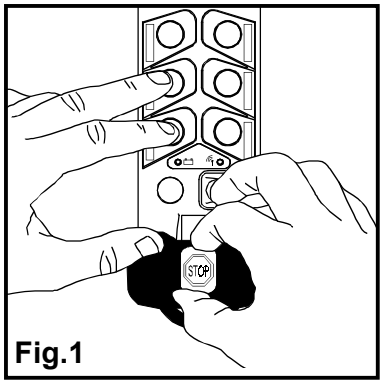


Fig.1

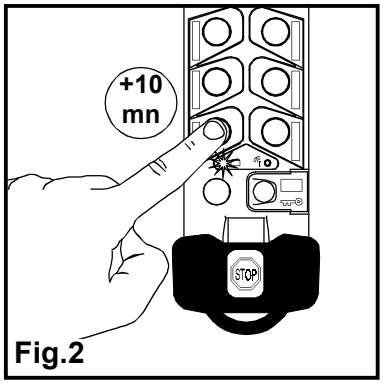


Fig.2

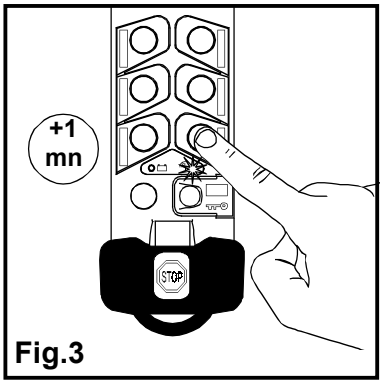


Fig.3

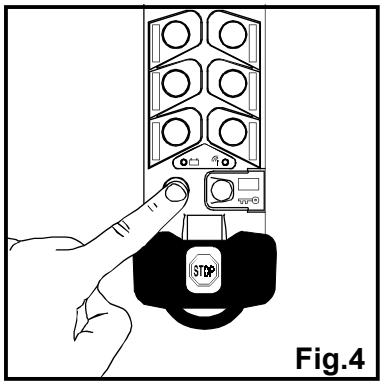


Fig.4

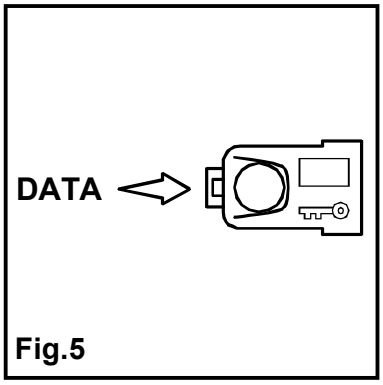


Fig.5

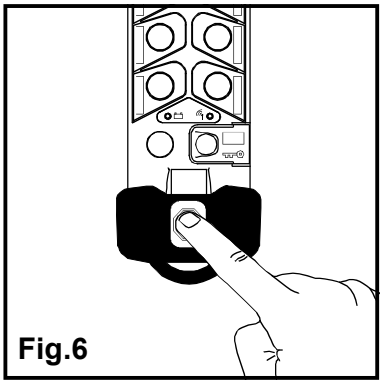


Fig.6

3.5.4 Procedure: "Copying electronic key identity code to **UDEE** transmitter memory"

Apply this procedure when :

- starting the radio remote control for the first time
- using a maintenance transmitter
- changing the electronic key

Reminder :
To use the UDEE/UDRE radio remote control system, the identity code contained in the transmitter memory **must match** the identity code in the electronic key which is itself identical to that of the receiver.

If a maintenance transmitter is used or if you change electronic key, the information contained in the electronic key must be copied in the **UDEE** transmitter memory.

Conditions for using this procedure :
The configuration of the backup transmitter buttons must be identical to that described in the electronic key (or the original transmitter).

1- Switch off the UDRE receiver
2- Insert the electronic key in the UDEE transmitter unit.
3- While holding buttons n°2 and n°3 pressed, unlock the transmitter emergency stop button (fig. 1): the 2 indicator lights on the transmitter will flash rapidly.
4- Press the "On/Horn" button to perform automatic programming of the identity code: the two indicator lights on the transmitter go off (fig. 2).
5- The "identity code" information is copied from the electronic key to the transmitter memory (fig. 3).
6- Exit the programming mode by pressing the stop palmswitch button (fig.4).

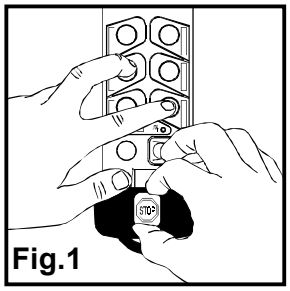


Fig.1

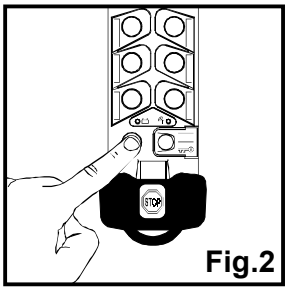


Fig.2

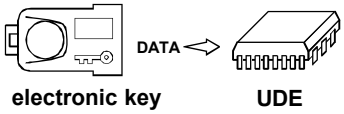


Fig.3

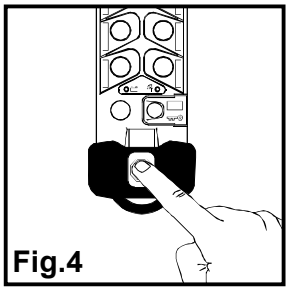


Fig.4

3.6- **UDRE** receiver configuration

The following parameters can be configured on the receiver :

- **Transmitter button interlockings :**
  Factory configured or using a PC via serial link option (ref.:**UDWR32**) with PC software ***DialogUD*** (ref.:**UDWR36**).

- **Transmitter buttons / receiver function relays correspondence :**
  Factory configured or using a PC via serial link option (ref.:**UDWR32**) with PC software ***DialogUD*** (ref.:**UDWR36**).

- **Transmit radio frequency :**
  The radio reception frequency (channel No.) can be programmed in two ways:

  - By the transmitter matched to the receiver implementing the transmitter frequency programming procedure, see §3.5.2.
  - By using a PC via serial link option (ref.:**UDWR32**) with PC software ***DialogUD*** (ref.:**UDWR36**).

  The receiver reception frequency (channel No.) can be read :

  - By using a PC via serial link option (ref.:**UDWR32**) with PC software ***DialogUD*** (ref.:**UDWR36**).

4- Use and operation

4.1- Reminder : General safety rules

A radio remote control is considered as a machine control device and as a safety component used to stop a machine as specified by the EEC Machinery Directive. All applicable rules must therefore be observed to ensure safe, correct operation of such devices.

- **For maximum safety** when using the radio remote control, we recommend that the operator carefully follow the instructions provided in this manual.

- **The operator must be appropriately trained and certified** to operate machines by radio remote control.

- **The operator must have uninterrupted visibility of the manoeuvre which he is performing.** When the operator's direct field of view is inadequate, the lifting machinery must be equipped with auxiliary devices to improve visibility.
  When several machines are being moved simultaneously, the equipment must be fitted out to limit to consequences of a possible collision.

- **To avoid any risks of electrocution, don't open the receiver case when powered.**

- **Never leave the transmitter lying around anywhere, in particular when it is powered up.**

- **Never leave** the radio control transmitter on the ground or on a metal surface. If doing so becomes indispensable, press the stop palmswitch on the radio control.

- **If several radio controls are used at the same site**, different radio frequencies should be used, spaced by at least two channels (for example, channels 5, 7, 9, etc.). The more space there is between the chosen radio channels, the less the risks of disturbance are.

- **For safety reasons, remove the electronic key** when not in use. Store it in a safe and tracked down place.

- **Do not forget to recharge the battery pack** when discharged.

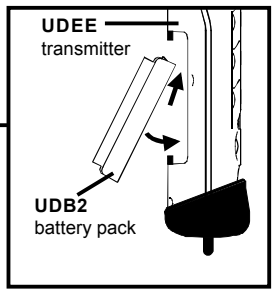
- **In the event of a malfunction**, immediately shut down the installation by pressing the stop palmswitch on the transmitter and remove the electronic key.

- **Service your equipment** and perform all the periodic checks as may be required by the intensity with which your equipment is used. Follow necessarily the instructions of cleaning described in the chapter "Servicing".

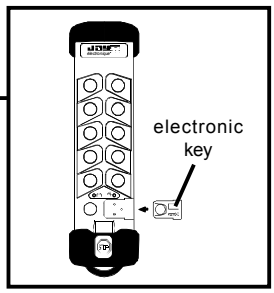
4.2- Radio remote control start up

1- Switch ON the **UDRE** receiver.

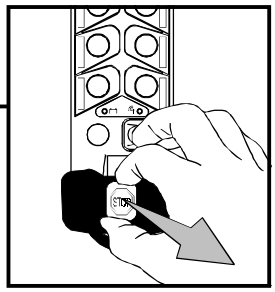
2- Plug the **UDB2** battery pack into **UDEE** transmitter housing. (Take care that **UDB2** battery pack is loaded and is well connected to **UDEE** transmitter back.)



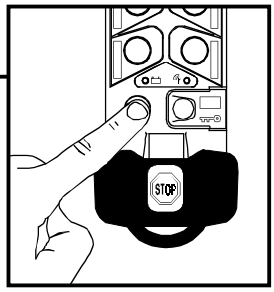
3- Install the electronic key on the transmitter or take care of its presence on UDE transmitter.



4- Unlock the transmitter stop palmswitch button.

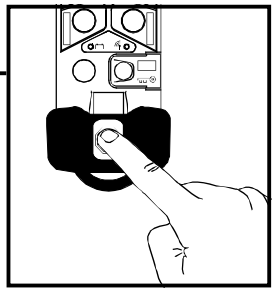


5- Press the green «On/Horn» button until the receiver is started up.



6- Use the radio remote control to control the equipment.

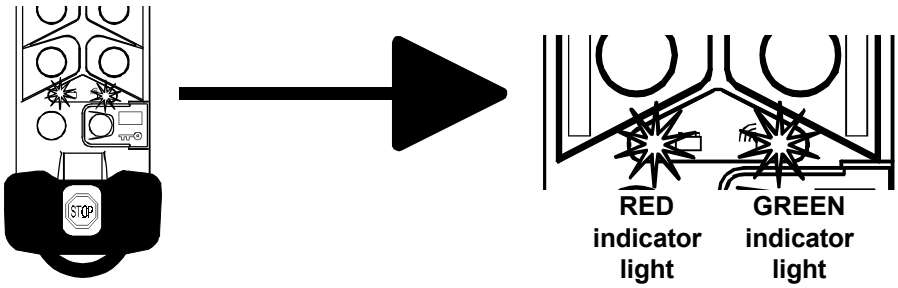
To stop the radio remote control :
press the **UDEE** transmitter stop palmswitch button.



NB : If during this procedure, both UDEE transmitter indicator light begin flashing, please contact the technical person in charge of the installation.

4.3- Product indicator lights function

4.3.1 **UDEE** transmitter indicator lights



Error messages

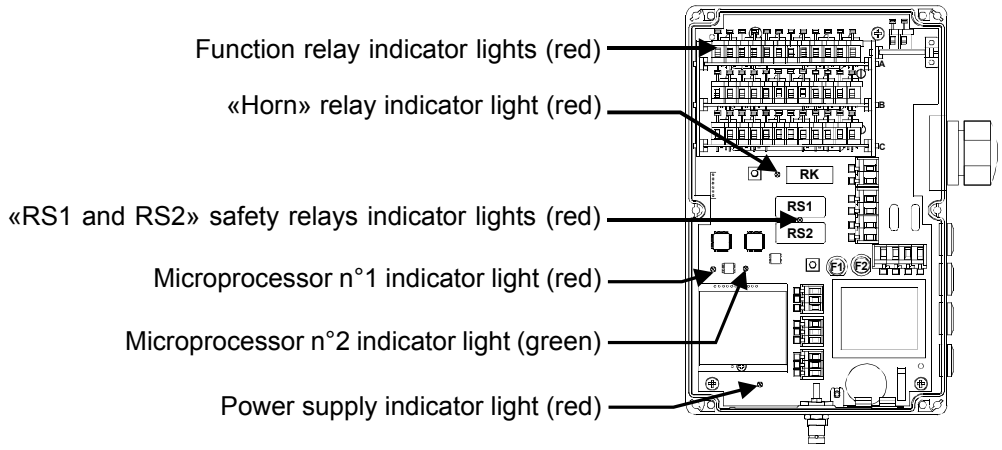
Transmitter state (The transmitter stop palmswitch is unlocked)	**Red indicator light** / **Green indicator light**	**Possible causes of failure**	**Possible remedies**
Before or after "On/horn" button is pressed	**continuously OFF**	- Battery pack is discharged or disconnected - Internal electronic failure	- Check battery pack load or - Contact the technical person in charge of the installation
Before or after "On/horn" button is pressed	**continuously ON**	- Electronic key is not connected to transmitter - Bad connection of the electronic key - Electronic key failure - Internal electronic failure	- Install electronic key on tranmitter before powering up the transmitter or - Contact the technical person in charge of the installation
Before or after "On/horn" button is pressed	**flash in a alternative way**	- Access to the transmitter programming is prohibited (the electronic key is locked)	- If the transmit frequency or "Dead man" function duration must be changed, the electronic key must be unlocked. Follow procedure described in §3.5.1. or - Contact the technical person in charge of the installation
Before "On/horn" button is pressed	**3 flashes**	- The transmitter identity code is different from that contained in the electronic key - Internal electronic failure	- Reprogramming is required, see procedure in §3.5.4. or - Contact the technical person in charge of the installation
Before or after "On/horn" button is pressed	**4 flashes**	- The button configuration is different from that contained in the electronic and the physical configuration on the transmitter - One or several function buttons are defective - Internal electronic failure	- Contact the technical person in charge of the installation
Before "On/horn" button is pressed	**5 flashes**	- Micro power cuts due to a bad battery pack connection - Internal electronic failure	- Check that battery pack is correctly inserted in transmitter housing or - Contact the technical person in charge of the installation
Before "On/horn" button is pressed	**6 flashes**	- Internal electronic failure	- Contact the technical person in charge of the installation
Before "On/horn" button is pressed	**7 flashes**	- Internal electronic failure	- Contact the technical person in charge of the installation
Before "On/horn" button is pressed	**8 flashes**	- Internal electronic failure	- Contact the technical person in charge of the installation

Battery pack charge level

Transmitter state (stop palmswitch button unlocked)	**Red indicator light**	**Green indicator light**	**Function or corresponding message**
Before "On/horn" button is pressed	OFF	ON	Battery pack charge > 90%
Before "On/horn" button is pressed	Flashes SLOW	ON	90% > Battery pack charge > LOW BATT level
Before "On/horn" button is pressed	Flashes FAST	ON	Battery pack charge < or = LOW BATT level
After "On/horn" button is pressed	OFF	Flashes	**Radio transmission** Battery pack charge > LOW BATT level
After "On/horn" button is pressed	Flashes FAST	Flashes	**Radio transmission** Battery pack charge < or = LOW BATT level

«LOW BATT level» = low battery (battery pack charge level lower than 10%), the battery pack must be reloaded.

4.3.2 **UDRE** indicator lights



Name and color of indicator light	Mode	Indication	Message	Status
Microprocessor n°1 indicator light (RED)	*Normal*	Indicates validity of identity code	No message reception	OFF
			Message reception with correct identity code	OFF
			Message reception with wrong identity code	Regular flashes
	Serial link	"RS232 Mode"	The receiver programming is in progress	ON
Microprocessor n°2 indicator light (GREEN)	*Normal*	Indicates radio reception quality	No radio message reception	OFF
			Poor radio reception	Flashing
			Good radio reception	ON
	Serial link	"RS232 Mode"		OFF
"Horn" relay ind.light (RED)	All	Indicates "Horn" relay state	Not activated (OFF)	OFF
			activated (ON)	ON
Power supply ind.light (RED)	All	Indicates receiver power supply state	Receiver switched OFF	OFF
			Receiver switched ON	ON
Safety relays ind.light (RED)	All	Indicates safety relays state	Not activated (OFF)	OFF
			activated (ON)	ON
Function relays ind.light (RED)	All	Indicates each function relays state	Not activated (OFF)	OFF
			activated (ON)	ON

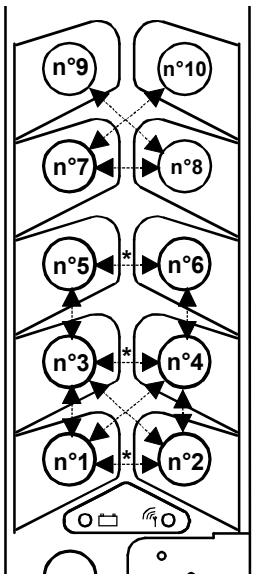
Error messages

Micro n° 1 indicator light **- RED -**	Micro n° 2 indicator light **- GREEN -**	**Possible causes of failure**	**Possible remedies**
OFF (Mainboard power supplied but power supply red indicator light remains OFF)		- Melted fuses - Wrong power supply wiring - Internal electronic failure	- Check fuse state and calibre - Check power supply wiring diagram according to receiver model or - Contact the technical person in charge of the installation
2 flashes **3 flashes** **4 flashes** **5 flashes** **6 flashes** **7 flashes**		- Internal electronic failure	- Contact the technical person in charge of the installation

5- Technical data

5.1- Function button interlockings

The following function button interlocking configurations are possible:



(**UDEE** transmitter front panel view)

1st button of interlocked pair	1nd button of interlocked pair	Acronym	
Button n°1	Button n°2	B1-B2	*
Button n°1	Button n°3	B1-B3	
Button n°1	Button n°4	B1-B4	
Button n°2	Button n°3	B2-B3	
Button n°2	Button n°4	B2-B4	
Button n°3	Button n°4	B3-B4	*
Button n°3	Button n°5	B3-B5	
Button n°4	Button n°6	B4-B6	
Button n°5	Button n°6	B5-B6	*
Button n°7	Button n°8	B7-B8	
Button n°7	Button n°10	B7-B10	
Button n°8	Button n°9	B8-B9	
Button n°9	Button n°10	B9-B10	

*= Standard interlocking configurations defined in sales reference for **UDRE** receiver (see §2.3.2 «product identification»).

For each of the desired interlocking configurations, simultaneous action on the two buttons will result in three operating modes which depend on the programs defined :

- **program «1» :** By pressing the 2 button pair, the two commands are deactivated (corresponding relays set to OFF).

- **program «2» :** The first button of the interlocked pair has priority.
(ex.: button n°1 and button n°2 interlocked: when these two buttons are pressed simultaneously, only button n°1 is acknowledged).

- **program «3» :** The 2nd button of the interlocked pair has priority.
(ex.: button n°2 and button n°4 interlocked: when these two buttons are pressed simultaneously, only button n°4 is acknowledged).

- **program «X» :** special (according to a customization data sheet).

5.2- Correspondence between «transmitter function buttons and receiver relays»

☞ In its standard configuration, the "buttons-relays" are assigned naturally by the increasing order of the button numbers and relay numbers :

- Each "**BPDV**" button type pair is assigned either 3 relays (2 movement relays and a third relay for high speed), or 4 relays. This information is contained in the **UDRE** receiver product reference data (see § «product identification»).

☞ For non-standard "button-relay" configurations, be sure to properly fill in the configuration sheet located in the **UDRE** cover.

5.3- **UDEE** transmitter technical characteristics

Mechanical and environment withstand characteristics	
Housing	ABS Choc, yellow - IP65 - Mechanical button protection
Weight (with battery pack)	"10+2 button version" : 490 g
Dimensions	"10+2 button version" : 70x53x276 mm
Operating temperature range	- 20°C to + 50°C
Storage temperature range **without battery pack** **with battery pack**	 - 30°C to +70°C - 30°C to +35°C
Attachment when idle	Wall or belt by fastening strap
Electrical and radio characteristics	
Power supply	Plug-in NiMH battery
Endurance (25°C) with buttons typical average use	In 911-918MHz bands : 20hours / 50% transmit time
Transmit radio frequency (see list in appendix)	64 programmable frequencies in 911-918 MHz bands
Transmit power (built-in antenna)	<94 dBµV/m in 911-918MHz
Modulation	FM
Average range (1)	100m in typical industrial environment 300m in unobstructed area
Functionnal characteristics	
Function button type	- 10 function buttons : - double speed pushbutton (2 steps) **"BPDV"** - 1 pushbutton "On/Horn" - 1 active priority emergency stop palmswitch
"Dead man" function (Automatic shutdown of UDE transmitter)	Time is user-programmable
Indicator lights	1 red "battery level" and "diagnostic" indicator light 1 green "On" and "diagnostic" indicator light

(1) = Range will vary according to environment conditions of transmitter and reception antenna (metal frameworks, walls …).

5.3.1- Identity code

UDEE transmitter and **UDRE** receiver are linked by an **identity code**.

A receiver can only recognise and execute commands generated by the associated transmitter (with electronic key containing the receiver identity code).

- The receiver identity code is a unique, fixed code (it can't be reprogrammed).
This identity code is contained in the electronic key and can be copied to a transmitter by a trained and authorized user (see procedure in § 3.5.4)

Identity codes have 65536 different combinations.

5.3.2- Electronic key

The electronic key used on the UDEE/UDRE radio remote control system has a dual function :

- It enables start-up of the transmitter by limiting access to the remote control to trained and authorized persons only.
- It contains all the information required for operation of the product, including :
  - the system identity code
  - the last frequency programmed *
  - the "dead man" function duration *
  - the transmitter button configuration
  - the button mask (special function)
  - and the option register (micro-speed etc...)

* = reprogrammable by a trained operator, see §3.5

When the key is removed, it prevents unauthorized use of the transmitter. For this reason, it should be removed (like the battery pack) when the remote control is put away.

Preferably, the electronic key should be removed after pressing the stop palmswitch button. Removal of the key before the stop palmswitch button button is pressed will result in a fault indication (2 flashes) and passive shutdown of the receiver.

If necessary, it can be used to stop the system.

The transmitter cannot be started up without its electronic key.

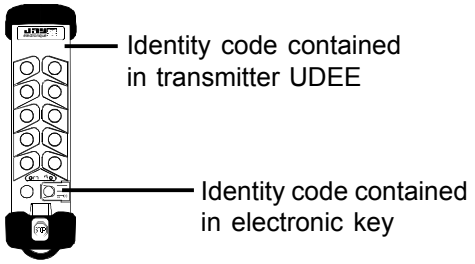
The transmitter UDEE also has an internal memory containing an identity code.

- If identity code of the electronic key matches the identity code stored in the UDEE, the transmitter can be started up.

- If the identity code of the electronic key and that of the UDEE do not match, the transmitter indicates the problem by its two indicator lights (3 flashes). In this case, perform the programming procedure described in §3.5.4.

UDEE can be started up provided :

Transmitter identity code
=
Electronic key identity code



In the event of a transmitter failure :
You can recover the electronic key and connect it on a maintenance transmitter (button configuration should be the same as that of the failed transmitter, otherwise, buttons that are different will be ineffective).

To perform this operation, you must reprogram the key identity code in the new transmitter UDEE as described in the procedure in §3.5.4.

if your electronic key is lost :
You can order another electronic key (reference **UDWE22X**) making sure to specify the following information on the order :

- The unique 6-digit number of the old key (written on the cover page of this manual when you unpacked your product).

or, if you do not have key number :

- the associated receiver identity code (on receiver descriptive label) and transmitter button configuration

This information will allow you to receive an electronic key identical to the old one containing all the parameters indicated above for your radio remote control.

5.3.3- "Dead man" function

The "Dead man" safety function deactivates the **UDEE** transmitter (radio transmission cut off) when the pushbuttons (**function buttons BPDV** or **"On/Horn"**) have not been actuated for a duration of ***N*** minutes or seconds.

The ***N*** parameter is user-configurable and can take the values **01** to **98** minutes

On delivery, the duration is defined for 4 minutes.

- If the ***N*** value configured is **99** minutes, the transmitter considers that the dead man duration is infinite (until the battery pack is entirely discharged).

Restarting the transmitter after the "Dead man" function has been activated:

- Press the stop palmswitch button on the transmitter.
- Follow startup procedure in §4.2

Changing the dead man duration :

The dead man duration or unit ***N*** can be modified by a trained operator by performing the procedure described in § 3.5.3.

5.4- **UDRE** receiver technical characteristics

Mechanical and environment withstand characteristics	
Housing	ABS, Grey - IP65
Weight	2 kg (approx.)
Dimensions	160x250x120 mm (without antenna and cable gland)
Operating temperature range	- 20°C to + 50°C
Storage temperature range	- 30°C to + 70°C
Cable lead-outs	Power supply : 1 M16 caps (Ø 5 to 7 mm cables) Control outputs : 1 M32 plastic cable gland (Ø 20 to 26 mm cables)
Connection	Spring-type terminal strips for 0.08² to 2.5² section wires
Radio characteristics	
Characteristics complying with FCC part 15	
Reception frequency (see list in appendix)	64 programmable UHF channels in 911-918 MHz bands
Antenna (BNC plug-in type)	ref: **VUB984**, 1/2 wave in 911-918MHz
Sensitivity	< -100dBm
Electrical characteristics	
Power supply and consumption (1) (with 2 safety relays and 8 control relays pulled in)	**AC version** 115VAC, -15% to +10%, 180mA 230VAC, -15% to +10%, 85mA
Control	1 "Horn" relay and 18 function relays
Safety	2 safety relays with linked and guided contacts
Response time	On start-up : 0,5s max. On control : 55 ms max.
Active shutdown time	145 ms max.
Passive shutdown time	1,1 s max.
Indicator lights	1 red indicator light "power on" 1 red + 1 green indicator lights for diagnostic 1 red indicator light for relay status
Protections	Power supply : Against overcurrents by fuse

(1) = The number of function relays controlled simultaneously is limited to 10 relays connected to UDRE receiver..

A large label in the housing cover gives the following information to facilitate configuration and maintenance of the UDEE/UDRE system :

- connection point numbers
- wiring indication
- fuse characteristics
- indicator light functions
- table showing the "Buttons/Relays/Functions" configurations for the application and the interlocking configuration.

5.4.1- Connection to relays

Connections are made on spring terminals with connection points identified by numbers.

The flexible wire section is between 0.08 mm square and 2.5 mm square.

No common line is provided on the printed circuits (all contacts are potential-free).

An accessory, referenced : **UDWR12** with 16 connection points for easy connection of the common lines (supplied as a standard feature with the receiver).

5.4.2- Relay characteristics

Summary table

Relay function	Number of relays	Number of connection points per relay
Safety relays	2	2 (1 T contact)
"On / Horn"	1	2 (1 T contact)
Control / Movement	6, 12 or 18 according to number of relay boards inserted in receiver	2 (1 T contact)

Safety relays

The two safety relays are activated when **UDEE** transmitter «On/Horn» button is pressed.

These relays are auto-maintained until **passive stop** (electronic key removed when transmitter is in functioning, or battery pack discharged/disconnected from transmitter, or radio interferences) or **active stop** (when transmitter stop palmswitch is pressed).

- Contacts : AgNi10+Au5µm
- Maximum power at cosphi=1 : 2000 VA
- Maximum current switching : 8 A
- Maximum voltage switching : 250 VAC
- Minimum current / voltage advised switching : 50 mA / 12 VDC
- 100 000 switching cycles at 250 VAC, 8 A, cosphi=1
- 100 000 switching cycles at 24 VDC, 6 A
- Tests per EN 60947-5-1 :
  DC13 at 2 A / 24 VDC
  AC15 at 3 A / 250VAC

«Horn» and control relays

The **«Horn» relay** is activated when **UDEE** transmitter «On/Horn» button is pressed. This relay isn't auto-maintained.

«Control» relays are active when transmitter function buttons are pressed and once UDEE/ UDRE system started up.

- Contacts : AgNi 0,15
- Maximum power at cosphi=1 : 2000 VA
- Maximum current switching : 8 A
- Maximum voltage switching : 400 VAC
- Minimum current / voltage advised switching : 50 mA / 12 VDC
- 100 000 switching cycles at 250 VAC, 8 A, cosphi=1
- 50 000 switching cycles at 24 VDC, 8 A
- Tests per EN 60947-5-1 :
  DC13 at 0,5 A / 24 VDC
  AC15 at 3 A / 250VAC

Number of switching cycles on various contactors

Contactor type	Physical unit switched by relay	Number of switching cycles	
		Safety relays	"Horn" and "control" relay
CA2DN LC1D09 LC1D18 LC2D09	Switching under 230VAC (70VA,cosphi=0,75)	$4,5 \times 10^6$	2×10^6
	Switching under 110VAC, (70VA,cosphi=0,75)	$4,5 \times 10^6$	1×10^6
	Switching under 48VAC (70VA,cosphi=0,75)	$4,5 \times 10^6$	$0,5 \times 10^6$

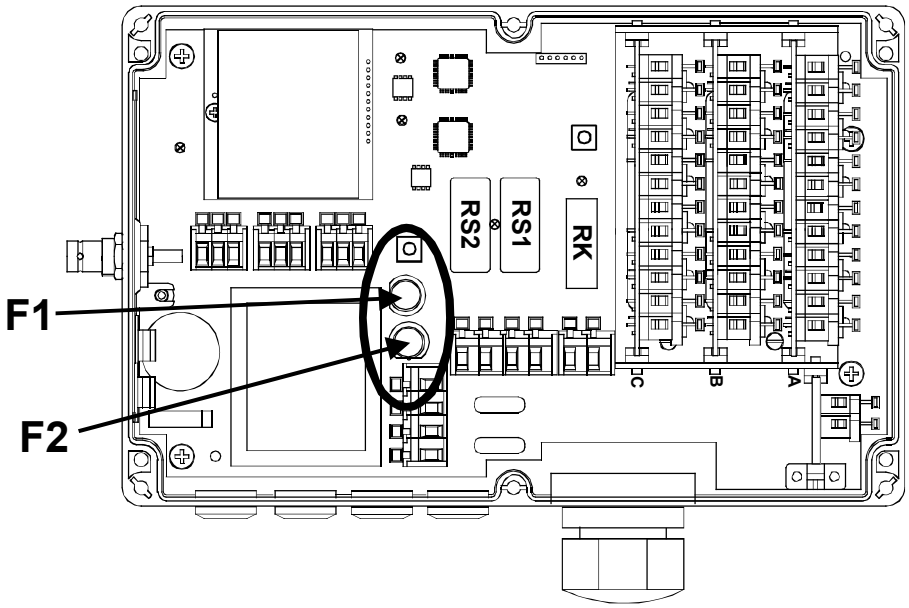
5.4.3- Protection of receiver board and relays

Protection of power supplies

- AC versions :

- Against overcurrents : 1 fuse on phase.
- Non-reversible thermal protection of transformer (in the event of overloads at secondary).

Fuse characteristics



Element	Fuse characteristics (5x20)	Loaction of fuse to be used
Receiver supplied with 115 VAC	315 mA / 250 VAC / T	**F2**
Receiver supplied with 230 VAC	160 mA / 250 VAC / T	**F1**
Safety relays	No protection	/
"Horn" relay	No protection	/
"Control" relays	No protection	/

5.5- **UDB2** Battery pack technical characteristics

Mechanical, functional and environmental characteristics	
Housing	ABS Choc, yellow, plug-in IP40
Dimensions	40x96x23 mm
Storage temperature range	-30°C to +35°C
Charging temperature range	0°C to +45°C
Complete slow charging time	14 hours
Indicator lights	Charging : 1 red light indicator on battery pack Charge status : 1 red light indicator on transmitter
Charging voltage	10 to 30 VDC

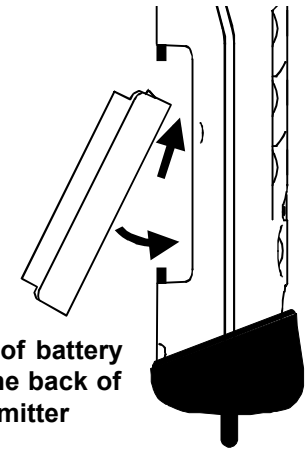
5.5.1- Battery pack storage precaution

UDB2 battery pack must be stored charged in a proper and dry area with specified temperature range on above table.

5.5.2- Precaution when inserting battery pack in transmitter unit

Whenever changing the battery pack, check that it is properly secured in its housing in the back of the transmitter.

If not, a type 5 fault caused by power supply micro-cutouts can occur (following fault list generated by the transmitter)

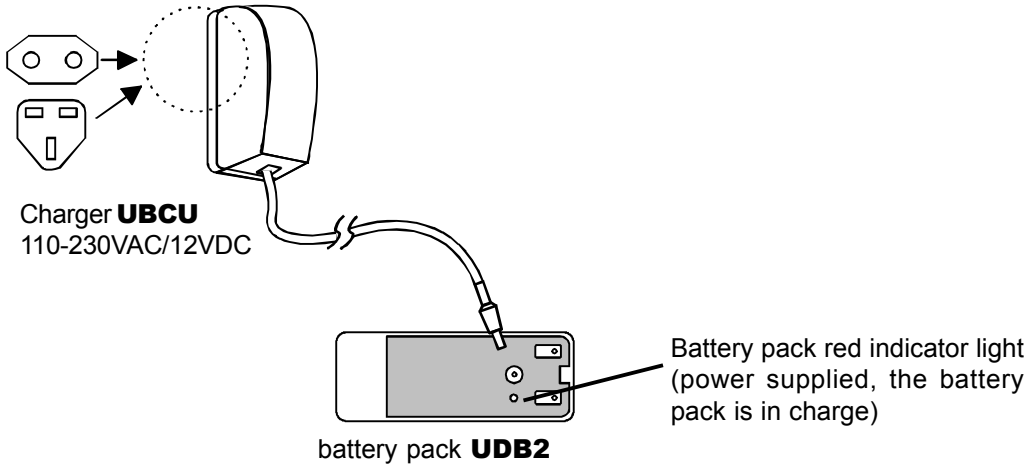


Insertion of battery pack in the back of transmitter

5.5.3- Display of battery pack charge state

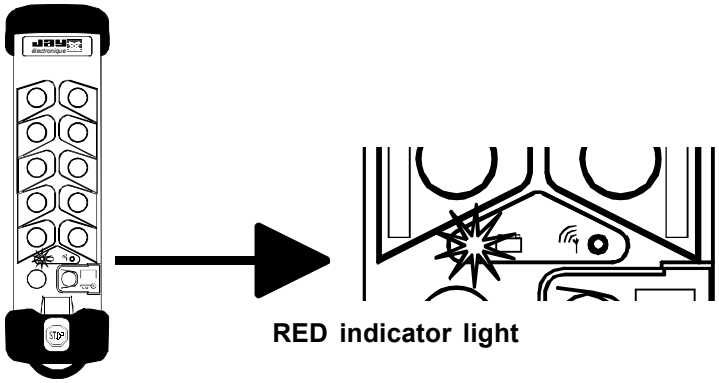
Charging the **UDB2** battery pack

The red battery pack indicator light shows that battery pack is well supplied from the charger. This indicator light does not swho the load level



Only **UBCU** charger or **UBC1** connector, from Jay Electronique are perfectly suited to charge the **UDB2** battery pack.

UDEE transmitter red indicator light



Two battery charge status display functions are provided on the transmitter :

- **When the remote control is powered up (stop palmswitch button out), the red indicator light on the transmitter shows the battery pack charge level :**

  Red indicator light off : ..... Battery pack charge > à 90%

  Red indicator light flashes slowly : .. Battery pack charge is between 90% and 10 %

  Red indicator light flashes quickly : .. The battery pack must absolutely be charged (battery pack charge < 10%)

- During operation of the remote control (radio transmission), a **LOW BATT** (battery low level, charge < 10%) indication is given by the red indicator light which flashes quickly. This indication is used to inform the operator that the remote control will soon be unavailable (within around 15 minutes).

6- Servicing

BEFORE STARTING ANY SERVICING OPERATION, SWITCH OFF THE MAIN POWER SUPPLY FOR THE SYSTEM CONTROLLED.

Servicing the UDEE transmitter :

⚠ - **Housing of the UDEE transmitter must not be opened.** The UDEE transmitter can be dismanteld only be a trained staff, in a "controlled" environment, spare parts can be changed only by identical and original parts.

⚠ - **If one of the membranes of the function buttons or the seal of the transmitter is damaged, the UDEE must not be any more used until replacement of these tightness spare parts.**
In opposite case, any liquid, any dust or any foreign body can damage the transmitter.

- The attention of the user is attracted to the risks of the use of the remote control in an environment containing solvents of polymers or glues which can degrade the good functioning of transmiiter mechanical organs.

- Verify regularly the good state of the transmitter, paying a special attention to the function button membranes, to the electronic key connector and to the battery pack connector.

- Clean the transmitter by eliminating any foreign body.
Only use non aggressive cleaning product on base of soapy solution.

Servicing the UDRE receiver :

Check the following points:

- Wiring of receiver to electrical unit on machine.
- Control relay contacts.
- Correct operation of stop circuits, active and passive.
- Condition of cover seal, tightening of screws and cable glands and tightness of antenna, check the antenna connection and check that it is clean and free of any oxidation.

- Clean the receiver by eliminating any foreign body.
Only use non aggressive cleaning product on base of soapy solution.

- **To check operation of the active stop function** (UDEE/UDRE system started up) : simply press the UDEE transmitter stop palmswitch button. Receiver safety relays should immediately de-energise.

- **To check operation of the passive stop function** (UDEE/UDRE system started up) : simply remove the electronic key **or** battery pack from the transmitter **or** wait until "Dead man" function duration is exceeded ; receiver safety relays should de-energise within 2 seconds.

7- Special functions

By its high degree of adaptability, the **UDEE/UDRE** series remote control is able to satisfy all the needs for non-standard functions.

Following consultation and validation of a customer request, our customer service will print out a customisation sheet for the remote control.

The "non-standard" functions which can be covered by a customisation sheet are :

- Masking of certain function buttons by electronic key.
- Duration of "Man-dead man" function temporization different than 4mn programmed on delivery.
- Other function button interlocking
- Other button/relay match-ups.

If your remote control is covered by a customisation sheet, we strongly recommend that you set it aside in a safe location for information which may be needed for subsequent commissioning and maintenance operations.

8- Warranty and FFC compliance

All our devices are guarantied 2 years as of the date of manufacture indicated on the product, wear parts not included. Repair, modification or replacement of a unit during the warranty period will not give rise to extension of the period.

8.1- Limits of warranty

The warranty does not cover defects resulting from :

- transport
- false manoeuver or non-observance of connection diagrams when setting the equipment into service
- insufficient supervision or servicing, utilization not complying with the specifications detailed in the technical manual and, as a general rule, storage, operation or environment conditions (atmospheric, chemical, electrical or other conditions).
- Conditions not specified on order of the equipment

The warranty shall not apply subsequent to any modifications or additions to the equipment performed by the customer without written approval by JAY Electronique.

The JAY Electronique responsability during the warranty period is limited to material and construction defects. This warranty comprises repair in the JAY workshops or replacement, free of charge, of parts recognized to be defective following expert inspection by the Jay Technical Department.

The warranty shall not give rise to any compensation for damage claims.

Any disputes relative to a supply or settlement thereof shall be ruled by the COURT OF COMMERCE OF GRENOBLE FRANCE, solely competent, even in the event of an Appeal or a plurality of defendants.

8.2- Limits of FCC compliance

UDEE/UDRE complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

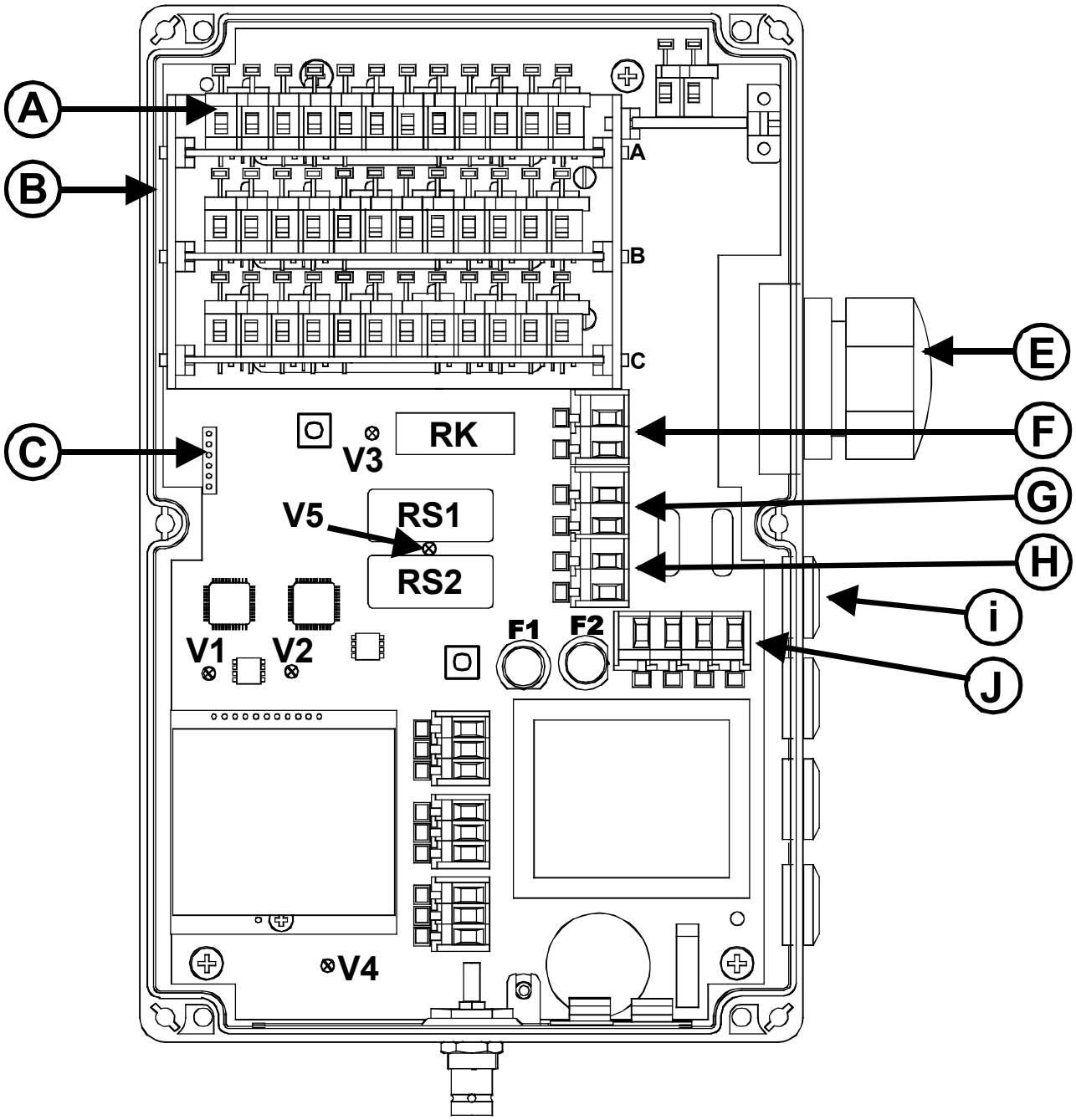
The user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix ..... A

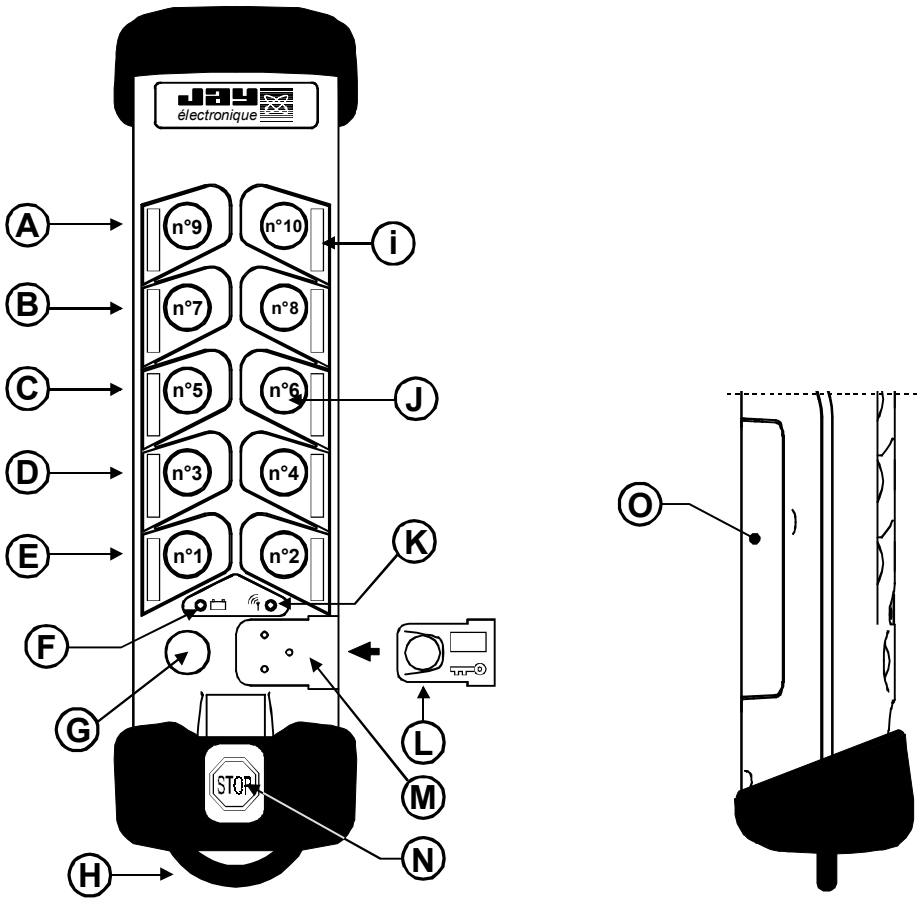
Receiver **UDRE**



A- Relay board(s) (up to 3 relay boards with 6 relays)
B- Summary table of the buttons-relays correspondence
C- Connector for RS232 serial link board (accessory)
E- «Control» cable gland
F- «On/Horn» (RK) relay terminals strips
G- «Safety relay n°1» (RS1) terminals strips
H- «Safety relay n°2» (RS2) terminals strips
i- «Power supply» cable passage
J- «Power supply» terminal strips
V1- red indicator light "wrong identity code + diagnostic"
V2- green indicator light "radio link established + diagnostic"
V3- «On/Horn» (RK) relay red indicator light
V5- «Safety relays n°1 and n°2» (RS1 and RS2) red indicator light
V4- «receiver power supply» red indicator light
F1- Fuse
F2- Fuse

UDRE receiver terminal strips	
Terminal number	**Function**
3 x 1 to 12	Function relay board (A, B, C)
21	**Power supply :** Neutral / 0 v
22	**Power supply :** 230VAC
23	**Power supply :** 115VAC
24 - 25	Safety relay n°1 (RS1)
26 - 27	Safety relay n°2 (RS2)
28 - 29	"Horn" relay (RK)

Transmitter **UDEE**

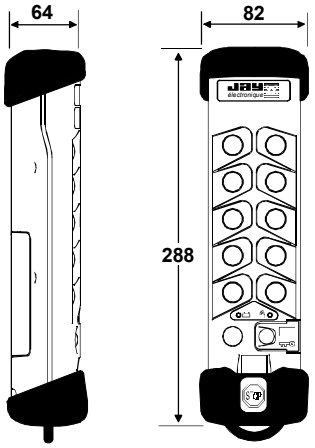


A- Button row n°5
B- Button row n°4
C- Button row n°3
D- Button row n°2
E- Button row n°1
F- Red indicator light «battery charge level + diagnostic»
G- «On/Horn» green button
H- Ring for shoulder strap or carrying clip
i- Function label
J- Function buttons
K- Green indicator light «ON + diagnostic»
L- Electronic key
M- Electronic key location
N- Stop palmswitch button
O- **UDB2** battery pack inserted in transmitter back

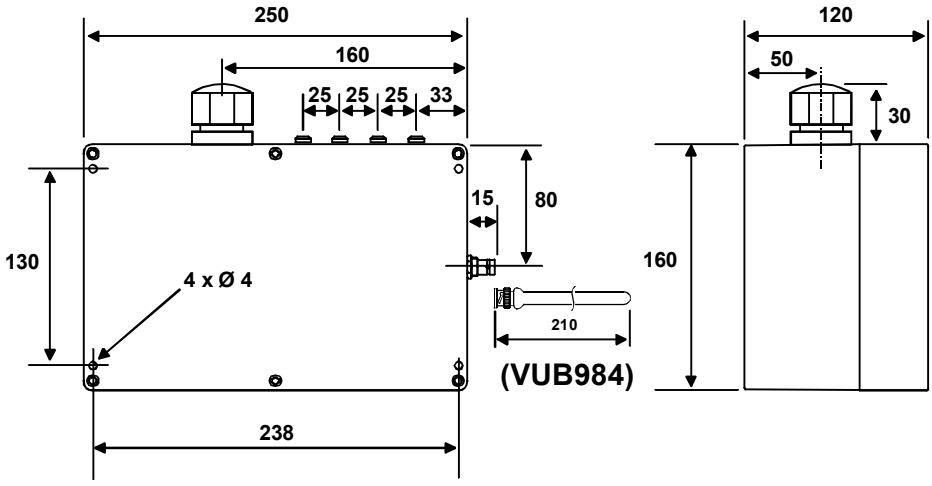
Appendix C

Dimensions

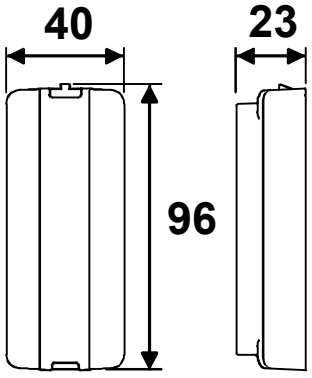
Transmitter **UDEE**



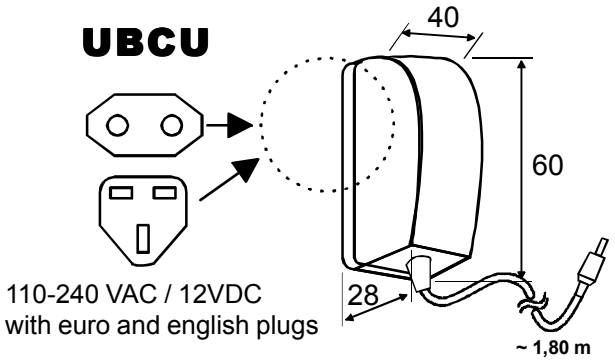
Receiver **UDRE**



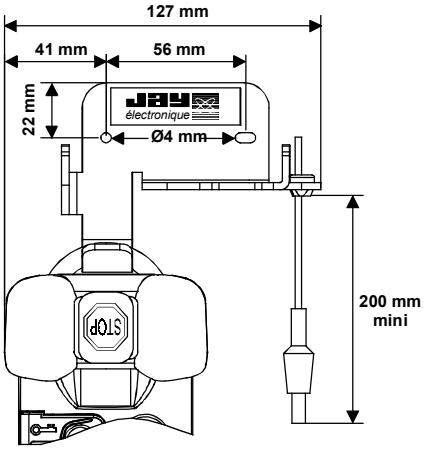
Battery pack **UDB2**

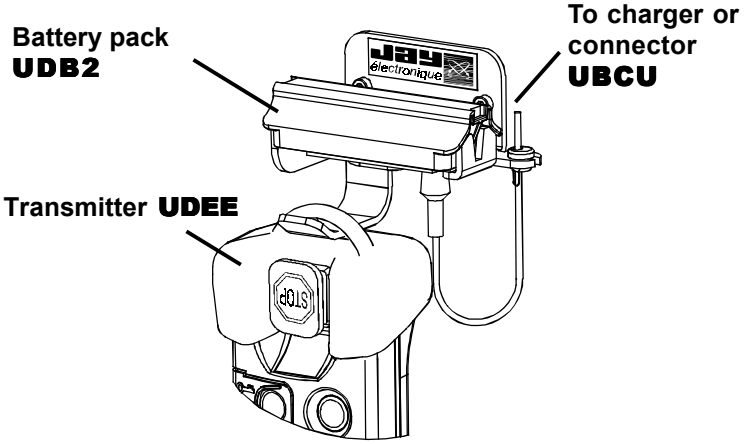


Charger **UBCU**

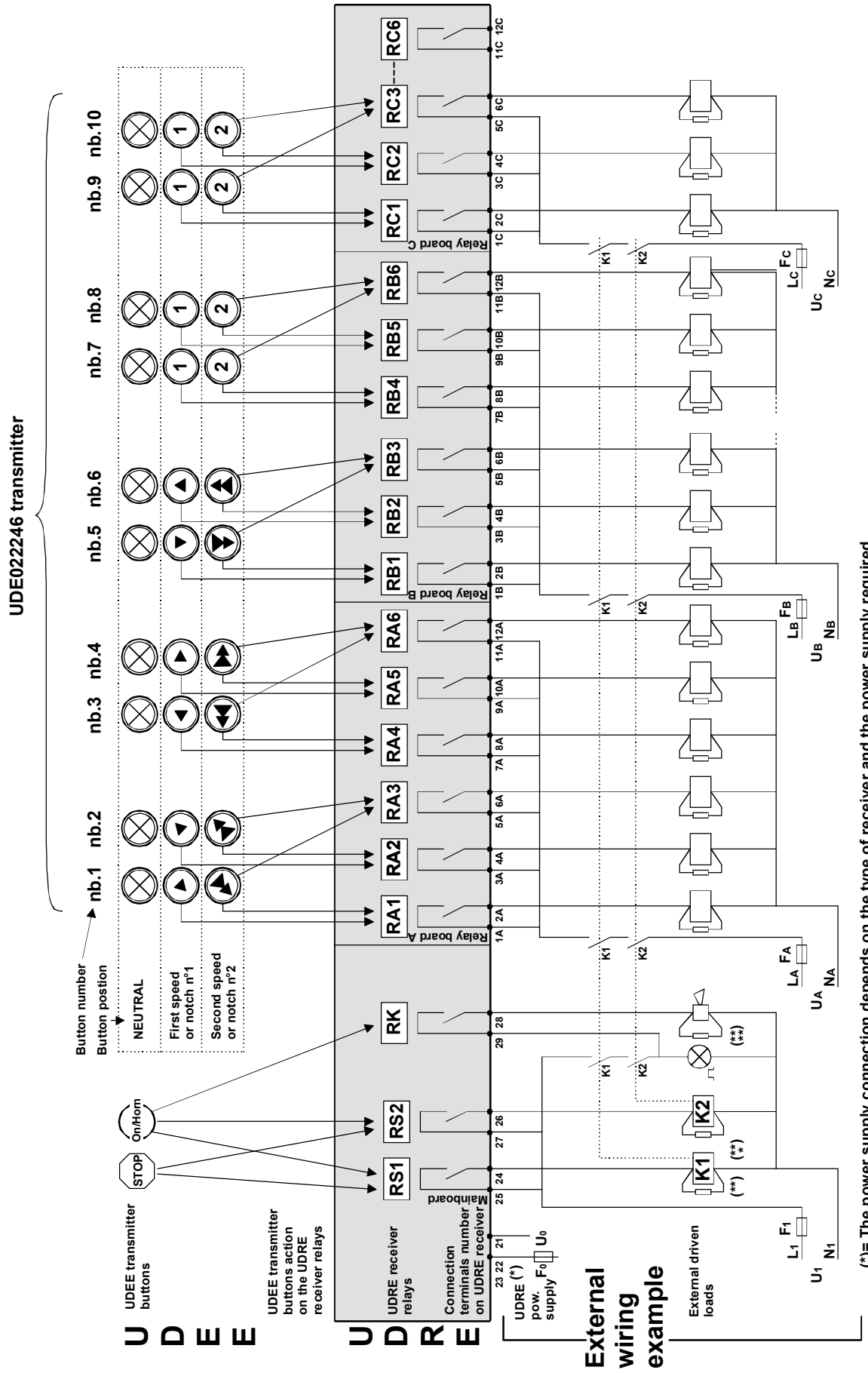


Wall support **UDC1**





Wiring example, transmitter UDEE22222 with receiver UDRECB00-011



Appendix ..... E

If several radio controls are used at the same site, different radio frequencies should be used, spaced by at least two channels (for example, channels 5, 7, 9, etc.).

911-918 MHz

Channel nb	Frequency MHz		Channel nb	Frequency MHz		Channel nb	Frequency MHz	
01	911,800	(1)	23	914,000	(1)	45	916,300	(1)
02	911,900	(1)	24	914,100	(1)	46	916,400	(1)
03	912,000	(1)	25	914,300	(1)	47	916,500	(1)
04	912,100	(1)	26	914,400	(1)	48	916,600	(1)
05	912,200	(1)	27	914,500	(1)	49	916,700	(1)
06	912,300	(1)	28	914,600	(1)	50	916,800	(1)
07	912,400	(1)	29	914,700	(1)	51	916,900	(1)
08	912,500	(1)	30	914,800	(1)	52	917,000	(1)
09	912,600	(1)	31	914,900	(1)	53	917,100	(1)
10	912,700	(1)	32	915,000	(1)	54	917,200	(1)
11	912,800	(1)	33	915,100	(1)	55	917,300	(1)
12	912,900	(1)	34	915,200	(1)	56	917,400	(1)
13	913,000	(1)	35	915,300	(1)	57	917,500	(1)
14	913,100	(1)	36	915,400	(1)	58	917,600	(1)
15	913,200	(1)	37	915,500	(1)	59	917,700	(1)
16	913,300	(1)	38	915,600	(1)	60	917,800	(1)
17	913,400	(1)	39	915,700	(1)	61	917,900	(1)
18	913,500	(1)	40	915,800	(1)	62	918,000	(1)
19	913,600	(1)	41	915,900	(1)	63	918,100	(1)
20	913,700	(1)	42	916,000	(1)	64	918,200	(1)
21	913,800	(1)	43	916,100	(1)			
22	913,900	(1)	44	916,200	(1)			

(1) Frequencies only available for United States

Appendix ..... F

Declaration of CE conformity

(Available also in downloadable version and in other languages on our web site **www.jay-electronique.fr**)

Translated from French

CE DECLARATION OF CONFORMITY

The manufacturer :

JAY électronique
176 rue Lavoisier
MONTBONNOT ST MARTIN
38334 ST ISMIER Cedex
FRANCE

Declares that the radio remote control described in its instruction manual and designated as :

UDE / UDR

complies :

- with the requirements of the European Directive of the Council of Europe dated June 22nd 1998, concerning the harmonization of the legislations of the member states, relative to machines (98/37/CE of June 22 1998), with specific reference to appendix I of the directive 98/37/CE concerning the main requirements of health and safety relative to the design and the construction of machines and safety components.
  - with the standard EN 954-1 (1995) concerning the main requirements of health and safety relative to the design and the construction of machines for the category 3.
  - with the standard EN 60204-32 (1999) concerning the safety of machinery –Electrical equipment of machines Part 32 :Requirements for hoisting machines

  on the « safety priority stop » function.

- With the requirements of the European Directives of the Council of Europe of March 9th 1999, concerning the harmonization of the legislations of the member states, relative to radio equipment and telecommunications terminal equipment (99/5/CE of March 9th, 1999) with particular reference to:

- article 3.1 a concerning health and safety protection, with the reference to the standard EN60947-5-1 (05/1999)

- article 3.1 b concerning the protection requirements with respect to electromagnetic compatibility, with reference to the standard ETS300-683 (1997)

- article 3.2, concerning the protection requirements for the efficient use of the spectrum allocated and to avoid harmful interference.
To this end, the manufacturer declares that all radio tests have been done according to the non-harmonised standard EN300220-1 (11/1997). The notified body number 0165 :

ART / Autorité de Régulation des Télécommunications,
7 square Max Hymans
75730 PARIS Cedex 15 – FRANCE
tel : (33 1) 40 47 70 00

has evaluated the UDE transmitter device conformity (file 98367 RD) according to the procedure described in annex 4 of the 99/5/CE directive

Signatory :

Name	:	M.Givois
Position	:	Quality Manager
Place and date	:	Grenoble, 19.06.2003

Signature : *signed on original*

PRELIMINARY
Document

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