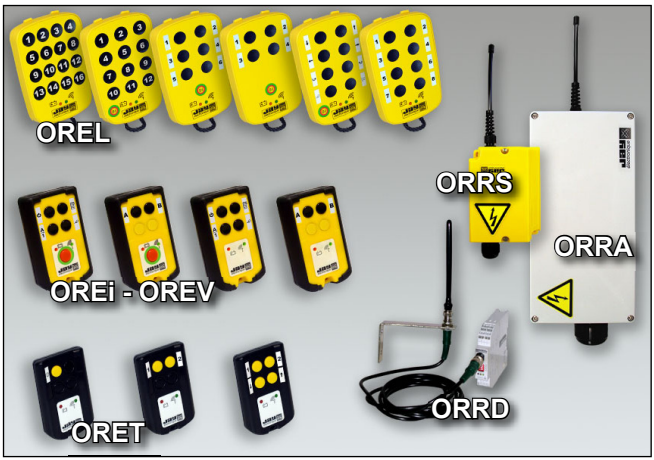
Installation and user technical manual

Orion



Radio remote controls

Table of contents

1 - General safety rules and precautions

A radio remote control is considered as a machine control device. 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 follows the instructions provided in this manual.

IMPORTANT :

It is the installer's responsibility to make sure that the safety level of this radio remote control (models with relay / On-Off button: category B per EN954-1) is consistent with the risk presented by the application. As may be required, the installer must check for the presence of an emergency stop palmswitch on the equipment.

IMPORTANT :

Before use, it is indispensable to modify and to personalize the setting of the transmitter and receiver to insure the uniqueness of the installation (see chapter «*Device configuration*»).

- **If several radio controls are used on 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 **(1)**.

- **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 controlled equipment must be equipped with auxiliary devices to improve visibility. When several machines are being moved simultaneously, the equipment must be fitted out to limit the consequences of a possible collision.

- **Do not forgetr** to replace batteries or recharge accus when discharged.

- **Service your equipment**, and perform all periodic checks as may be required by the intensity with which your equipment is used.

(1) = The programming of another radio channel number **can only be done** with a transmitter equipped with an «On/Off» button.

2 - Presentation of Orion series

Thank you for choosing our **Orion** radio remote control system !

Jay Electronique's **Orion** radio remote control line is designed to satisfy the needs of a wide range of standard and industrial applications, including simple and multifunction applications..

The **Orion** line comprises a broad range of transmitters and receivers, providing different types and numbers of functions, satisfying a variety of requirements.

This product line also incorporates numerous features and significant technological breakthroughs :

- European frequency band of 433-434 MHz with 18 possible frequencies
- Simultaneous commands
- Programming of different functions by jumpers in receiver, or using buttons on transmitter, thus enabling numerous possibilities:
    - identity code,
    - association of transmitter(s) / receiver(s),
    - association of transmitter button(s) / receiver(s) relays,
    - operating mode,
    - command interlocking,
    - radio frequency channel (on some models),
    - duration of timing for «Standby» function (on some models).
- compact, light-weight, watertight and sturdy transmitters and receivers.
- mechanical protection for buttons
- «on/off» button (on some models)

These radio remote controls fully satisfy the safety requirements of the current applicable and draft standards and comply with the following European directives :

-**Machinery Directive**

-**RTTE :** microwave equipment and telecommunication terminals (low voltage, electromagnetic compatibility, radio-electric spectrum).

For all questions relative to installation or use of the **Orion Series** products, contact our **customer service department** (Monday to Friday) :

Tel : *+33.(0)4.76.41.44.00*

Fax : *+33.(0)4.76.41.44.44*

Email : *customer.service@jay-electronique.com*

3 - Operating

3.1- Operating principle

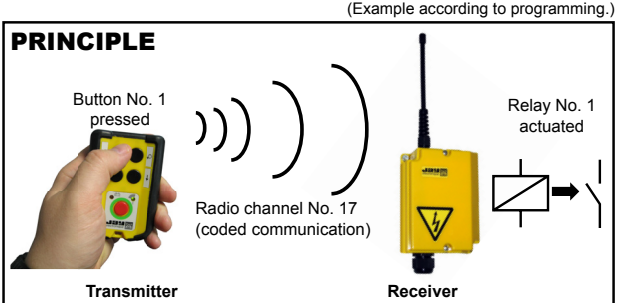
Orion Series provides remote control of one or several receivers equipped with relays.

The transmitter and receiver communicate by radio waves on a specific channel with a customized code (identity code).

The radio link is momentary; it is only active when the button on the transmitter is pressed.

Each relay of the receiver can be programmed to ensure a specific function according to the application.

(Example according to programming.)



3.2- Product configuration principle

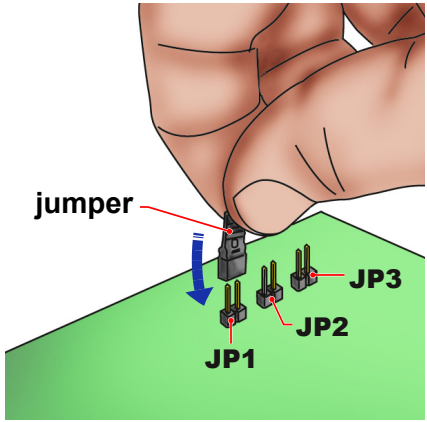
All the configurations and functional customisations on the products described in the «***Product configuration***» section are performed on :

- the transmitter : using the function buttons, the « On/Off » button (depending on model) and an internal DIP switch.

- the receiver : using 3 encoding jumpers (**ORRS** and **ORRA** receivers) or programming microswitches (**ORRD** receiver) **JP1** **JP2** and **JP3**, as well as three LEDs **V1** **V2** and **V3** (ORRA ORRS ORRD), provided for dialogue with the user during programming procedures (**V1** is the receiver power indicator and stays on steady when the receiver is supplied).

The encoding jumpers used with the **ORRS** and **ORRA** receivers must be used to define the settings corresponding to the desired programming (several jumpers are supplied with the products) :

jumper



3.3- Operation of “On/Off” button

Certain transmitter models are equipped with an **“On/Off”** button used to:

- Switch on and off the transmitter, thus preventing any unintentional actions on the function buttons.
- Control a “**RM**” relay in the receiver (depending on model and only when the receiver receives the change of state command).

The transmitter models equipped with this button have two user-definable functions :

- Transmitter automatic shutdown (“**standby** function”)
- Modification of working radio channel

Transmitters with «On/Off» button

Transmitters without «On/Off» button

3.4- Operation of «RM» relay

Certain receiver models are equipped with an « **RM** » relay.
This relay can be directly activated and deactivated using the transmitter « On/Off » button (available depending on model) ; it can also be activated at the same time as a function relay (common relay).

Descriptions of 2 operating modes for this relay :

Mode 1 (by default) : «On/Off»

Note : the transmitter must be equipped with an **« On/Off »** button

- The «**RM**» relay contact is closed and remains closed on the 1st push on the transmitter **«On/Off»** button*.
- The contact opens in case of radio jamming (>1s) while a transmitter function button is pressed, and remains open until radio link is re-established.
- The contact opens and remains open if the transmitter **«On/Off»** button is pressed a second time*.

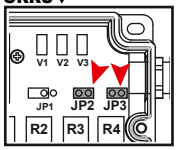
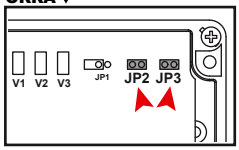
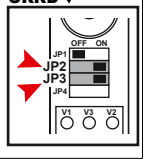
* = Only if the radio link between the transmitter and the receiver is possible

Mode 2 : «Common relay»

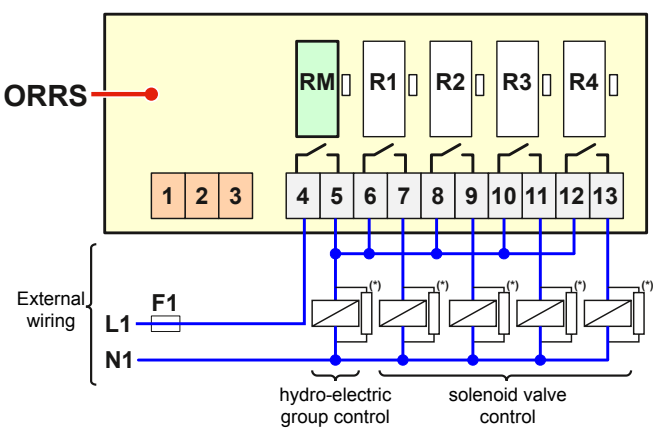
Note : this operating mode does not require a transmitter equipped with an **«On/Off»** button ; refer to the programming procedure in the «***Configuration of RM relay***» section.

- The «**RM**» relay contact is closed when at least one of the function relays is activated.
- The contact opens if none of the function relays is active or if the receiver is switched off or in case of radio jamming (>1s) while a transmitter function button is pressed.

To use this functionning mode :

1	Switch off the receiver
2	**ORRS and ORRA receivers :** install the jumpers **JP2** and **JP3** to configure the settings. **ORRD receiver :** set the microswitches **JP2** and **JP3** to the «ON» position **ORRS ▼**  **ORRA ▼**  **ORRD ▼** 
3	Switch on the receiver

Example of use of «RM» relay, programmed with mode 2 «*Common relay*» for receiver ORRS42••• :



(*) = Interference suppression devices

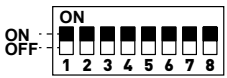
4 - Default configuration on delivery

4.1- Instructions before use

The **Orion** transmitters and receivers are supplied with certain parameters pre-set in factory to allow immediate use of the equipment.

☞ However, **it is indispensable to customise these settings** to ensure the uniqueness of your installation and to familiarise yourself with the complete range of functions provided by the Orion series (see chapter «***Product configuration***»).

4.2- Orion transmitters delivery configuration

Identity code (internal DIP-switch)	ON - ON - ON - ON - ON - ON - ON - ON 
Group of identity codes (only for OREV transmitter)	01
Radio channel (1)	Channel nb.17 (434,700 MHz)
Radio power (2)	Level nb.4
« Standby » function (3)	4 mn

(1) = The programming of another radio channel number **can only be done** with a transmitter equipped with an «On/Off» button.

(2) = The radio transmit power **is only modifiable with the OREV transmitters** equipped with an « On/Off» button.

(3) = Automatic shutdown of remote control, **only available with a transmitte**r equipped with an «On/Off» button.

4.3- Orion receivers delivery configuration

Transmitter buttons / receiver relays association **(All the default assignments have been defined using the identity code : «ON - ON - ON - ON - ON - ON - ON - ON»)**	Receiver on DIN rail **ORRD22•••** (2+1 or 3 relays) : - Transmitter buttons B1 and B2 assigned to relays R1 and R2 - «On/R3» relay set for «On» relay» Receiver **ORRS21•••** (2 relays) : - Transmitter buttons B1 and B2 assigned to relays R1 and R2 Receiver **ORRS42•••** (4+1 relays) : - Transmitter buttons B1 to B4 assigned to relays R1 to R4 Receiver **ORRA82•••** (8+1 relays) : - Transmitter buttons B1 to B8 assigned to relays R1 to R8 Receiver **ORRAH2•••** (16+1 relays) : - Transmitter buttons B1 to B16 assigned to relays R1 to R16
Radio channel (1)	Channel nb.17 (434,700 MHz)
Relay operating mode	**«Continuous make contact»** Mode (After having realized a transmitter button / receiver relay association, when transmitter button is pressed, relay in the receiver is activated, when button is no longer pressed, the relay is deactivated)
Interlocking of conflicting commands	No interlocking programmed

(1) = The programming of another radio channel number **can only be done** with a transmitter equipped with an «On/Off» button

5 - Product references

5.1- Transmitters ORE

Number of function buttons / Transmitter model	Standard (1)	Industrial (1)	Industrial with «On/Off» button (2)	Multifunctions (2)	Multifunctions with «On/Off» button (2)
1	ORET11SL1	/	/	/	/
2	ORET21SL1	OREI21SL1 OREV21SL1	OREI22SL1 OREV22SL1	/	/
4	ORET41SL1	OREI41SL1 OREV41SL1	OREI42SL1 OREV42SL1	/	OREL42SL1
6	/	/	/	/	OREL62SL1
8	/	/	/	OREL81SL1	OREL82SL1
12	/	/	/	/	ORELD2SL1
16	/	/	/	ORELH1SL1	/

(1) = Delivered with 2 AAA batteries

(2) = Delivered with 3 AAA batteries, can be used with 3 AAA accumulators. These transmitters, when they are equipped with AAA accus, can be directly reloaded on a **ORCL•** charger support. The charger support must be separately ordered.

5.2- Receivers ORR

Number of function relays / Receiver model / type of power supply	Rail DIN 12VDC 24VDC 24VAC	Industrial small model 12VDC 24VDC 24VAC 48VAC	Industrial small model 115VAC	Industrial small model 230VAC	Industrial large model 12VDC 24VDC	Industrial large model 24VAC 48VAC	Industrial large model 115VAC 230VAC
2	/	ORRS21L1F	ORRS21L1T	ORRS21L1U	/	/	/
2+1 (3)	ORRD22L1C	/	/	/	/	/	/
3		/	/	/	/	/	/
4+1 (3)	/	ORRS42L1F	ORRS42L1T	ORRS42L1U	/	/	/
8+1 (3)	/	/	/	/	ORRA82L14	ORRA82L1A	ORRA82L1B
16+1 (3)	/	/	/	/	ORRAH2L14	ORRAH2LA	ORRAH2L1B

(3) = «**RM**» Relays

5.3- Transmitter accessories

Reference	Description
OWE10	Carrying clip (on support OWE01, belt, pocket ..) **(see installation in *appendix G*)** (1)
OWE20	Neck strap
OWE13	Case for standard (ORET) or industrial (OREi) transmitter
OWE14	Case for standard (ORET) or industrial (OREi) transmitters
OWE30	Protective foam for multifunction (OREL) transmitter
UBWE34	Case for multifunction (OREL) or industrial (OREV) transmitters
OWE01	Mounting support for all transmitter models with carrying clip
ORCL	Mounting support for multifunction transmitter (OREL)
ORCL1	12-24 VDC (vehicle connector) / 9 VDC charger support unit + 3 accumulators AAA type, for multifunction transmitters (OREL) with accumulators
ORCLU	230 VAC (EU, UK, US plugs) / 9 VDC charger support unit + 3 accumulators AAA type, for multifunction transmitters (OREL) with accumulators
OWE301	60 black/white rectangular function labels for standard, industrial and multifunction transmitters (4, 6 or 8 buttons) (1)
OWE403	96 black/white round labels for multifunction transmitters (12 or 16 buttons) (1)

(1) = 1 accessory is supplied with transmitter.

5.4- Receiver accessories

Reference	Description
OWR01	BNC plug-in antenna kit **(see installation kit in *appendix E*)** (2)
OWR02	Internal antenna kit **(see installation kit in *appendix F*)** (3)
OWR38	Fastening Kit for ORRS receiver by 2 magnetic contacts
UDWR38	Fastening Kit for ORRA receiver by 4 magnetic contacts
VUB084	1/4 wave antenna straight, 433MHz band, BNC (4)
VUB086	1/2 wave antenna straight, 433MHz band, BNC (4)
VUB060	90 ° BNC elbow for antenna VUB084 or BNC antenna extension (4)(5)
VUB170	0,5m extension for BNC antenna (4)
VUB105	2m extension for BNC antenna + mounting bracket (4)
VUB125	5m extension for BNC antenna + mounting bracket (4)
VUB131	10m extension for BNC antenna + mounting bracket (4)

(2) = BNC antenna and BNC extension to be ordered separately.
(3) = 1 kit is supplied with industrial receivers.
(4) = Except for the DIN rail model which comes with a BNC antenna connector as a standard feature, the other receiver models require the plug-in antenna kit **OWR01** for use of an antenna or a plug-in antenna extension.
(5) = Not suitable for direct connection to antenna **VUB086** ; in this case, use an intermediate extension type **VUB1••**.

6 - Technical characteristics

6.1- Orion transmitters (ORE)

	 Standard (ORET)	 Industrial (OREI)	 Industrial (OREV)	 Multifunction (OREL)
Housing material	ABS	ABS	ABS	ABS
Housing color	black	yellow / black	yellow / black	yellow
Degree of protection	IP40	IP65	IP65	IP65
Weight (with batteries or accu.)	65 g.	75 g.	105 g.	160 g.
Number of command buttons	1, 2 or 4	2 or 4	2 or 4	4, 6, 8, 12 or 16
Identity code	256 codes possible, programmable by microswitches on transmitter	256 codes possible, programmable by microswitches on transmitter	4096 codes possible. Code programmable by microswitches + 1 button in transmitter	256 codes possible, programmable by microswitches on transmitter
Power supply	2 batteries 1,5 V type AAA			3 batteries 1,5 V AAA or 3 accumulators AAA NimH
Autonomy	**All versions with batteries : :** 1 year (used 50 times per day with impulses of 5 seconds) **Multifunction transmitters with accumulators :** 42 h for 50 % use time			
Charging time (supplied with accus.)	/	/	/	< 3 hours
Safety	/	1 «On/Off» button (depending on model)		
Mechanical protection	/	Built-in protected foam		Protective foam: **OWE30** (optional accessory)
Storage	Cases, references : **OWE13** or **OWE14** (optional accessories)		Case, ref. : **UBWE34** (optional accessory)	Case, ref. : **UBWE34** (optional accessory)
Operating mode	Simultaneous commands			
Radio link	Momentary (when command button pressed)			
Transmission module (1)	18 frequencies per device with On/Off button			
Transmission frequ. (1)	UHF 433,100 MHz to 434,740 MHz - FM Modulation			
Transmission power (1)	< 1 mW (5 power levels adjustable on transmitter **OREV**)			
Average range (2)	150m in unobstructed area 50m in typical industrial environment			
Temperature ranges	**Operating :** -20° C to + 50° C **Storage :** -30° C to + 70° C **Charging (OREL transmitter with accumulators) :** 0°C to +40°C			
Battery or accumulator charge level indication	2 indication levels by a red indicator light : **Red indicator light off =** batteries or accumulators charge is > à 10% **Red ind. light flashes =** batteries must be replaced or accu. must be charged			
Other indication	**Model without «On/Off» button :** A green indicator light comes on and flashes while the function button is pressed. **Model with «On/Off» button :** A green indicator light come on and flashes when the transmitter keypad is active.			

(1) = UNo licence required. Supplied programmed for channel No. 17 in standard configuration. **REMINDER:** The transmitter radio channel can only be changed on the ORE transmitters equipped with an «On/Off» button.See Frequencies list in ***appendix H***.

(2) = The range will vary according to the environment conditions, the position of the reception antenna (see section covering « Position of receiver and antenna ») and the orientation of the transmitter (the range will be lower in the event of metal obstacles such as : frameworks, partitions, enclosures, etc.) Range can be limited on **OREV** transmitter

6.2- Charger supports

IMPORTANT : The charger supports can only be used with the **Multifunction Orion transmitters** (**OREL**xxxxx) equipped with AAA accumulators.
DO NOT CHARGE THE BATTERIES.

	 **Charger support (ORCL)**
Material, housing color and tightness	ABS, Yellow, IP20
Weight	400 g.
Supply by vehicle connector	12 to 20 VDC
Supply by «European» or «UK» connector	230 VAC
Output voltage and current	9 VDC, 300 mA
Temperature ranges	**Storage :** - 30°C to + 70°C **Charging :** 0°C to + 40°C
Length of cable between voltage adapter and charger support	1,70 m approximately

ORCL1 / vehicle plug
(12-24VDC > 9VDC)
delivered with 3 accus AAA

ORCLU / EU, UK and US plugs
(230VAC > 9VDC)
delivered with 3 accus AAA

To recharge the Multifunction transmitter with accumulators :

1. Supply the charger support
2. if present, push on «On/Off» button to switch off the transmitter (red and green indicator lights are OFF).
3. Place the transmitter on the charger support.

During the charging operation, the green indicator light on the transmitter ( ) comes on steady and the red indicator light shows the charge level ( ) :

Red indicator light flashing : fast charge

Red indicator light on steady : slow or up-keep charge (transmitter accumulator charge level is > or = 60%)

Radio controls cannot be generated when the transmitter is charging.

6.3- Orion receivers (ORR)

	 Rail DIN (**ORRD**)	 Industrial (small model) (**ORRS**)	 Industrial (large model) (**ORRA**)
Housing material	PC-GF	ABS	ABS
Housing color	Grey	Yellow	Grey
Tightness	IP20	IP65	IP65
Maximum weight	220 g.	350 g.	1200 g.
Number of command outputs	3 or 2+1 (1)	2 or 4+1 (1)	8+1 (1) or 16+1 (1)
Power supply	12 VDC (-25%/+25%) 24 VDC (-10%/+30%) 24 VAC (+10%/-15%)	**ORRS••••F model** 12 VDC (9 to 20VDC) 24 VDC (20 to 75VDC) 24 VAC (+10%/-15%) 48 VAC (+10%/-15%) **ORRS••••T model** 115 VAC (+10%/-15%) **ORRS••••U model** 230 VAC (+10%/-15%)	**ORRA••••4 model** 12 VDC (9 to 20VDC) 24 VDC (20 to 28VDC) **ORRA••••A model** 24 VAC (+10%/-15%) 48 VAC (+10%/-15%) **ORRA••••B model** 115 VAC (+10%/-15%) 230 VAC (+10%/-15%)
Max. consumption	75 mA for DC 3,5 VA for AC	180 mA for DC 5 VA for AC	260 mA for DC 11 VA for AC
Min. consumption	320mW for 12/24 VDC	23 mA for 12VDC 350mW for 24VDC	23 mA for 12VDC 350mW for 24VDC
Mounting	Snap-on fastener on symetrical DIN rail EN 50 022	2 holes M4 exterior	4 holes M4 interior
Cable entry	/	1 or 2 plastic cable glands (depend on model): PG 13,5 (ø 8 to 12 mm)	1 plastic cap : PG M16 (ø 5 to 7 mm) 1 plastic cable gland : PG M32 (ø 20 to 26 mm)
Connection to equipment	Junction blocks (for cable 2,5 mm2)		
« Power supply » indicator light	1 green indicator light	1 green indicator light	1 green indicator light
« Radio reception » indicator light	1 yellow indicator light	1 green indicator light	1 green indicator light
« Programming » indicator light	1 red indicator light	1 red indicator light	1 red indicator light
« Relay activated » indicator light	no indication	1 red indic. light per relay	1 red indic. light per relay
Antenna	External by BNC plug	1/4 wave fixed antenna (2) or internal (3)	
Tuner, Sensitivity	UHF 433,100 MHz to 434,740 MHz, < 2µV		
Operating temperature range	- 20°C to + 50°C		
Storage temperature range	- 30°C to + 70°C		
Identity code	256 identity codes possible, programmable by teaching on associated transmitter. With maximum per relay of : : - 10 identification codes for different transmitters on Rail DIN (**ORRD**) and industrial «small model» receivers (**ORRS**) - 4 identification codes for different transmitters on industrial «large model» (**ORRA**) receivers		
Output command type	by relay with 1 NO contact (1 NC contact or 1 bistable contact possible by programming)		
Output response time	50 ms		
Operating mode	Continuous or bistable (by programming jumper or microswitch)		
Interlocking	Programmable by jumper or microswitch		
Additional function	1 «**RM**» relay (depending on receiver model) Cat. B safety stop according to EN954-1 if controlled by transmitter «**On/Off**» button		

(1) = «**RM**» relay

(2) = Plug-in feature possible by BNC plug on industrial receivers, with kit ref : **OWR01** (see installation in ***appendix E***).

(3) = Antenna integration possible in industrial receiver housings, with kit ref : OWR02 (delivered with the receivers). Beware, the range is divided by 2 in this case. (see installation in ***appendix F***).

6.3.1- Relays : control limitation

The maximum number of relays activated at the same time is limited to :

	 Rail DIN (**ORRD**)	 Industrial (small model) (**ORRS**)	 Industrial (large model) (**ORRA**)
The maximum number of relays activated at the same time is limited to	**3 relays :** 3 function relays or 2 function relays + 1 RM relay	**4 relays :** 4 function relays or 3 function relays + 1 RM relay	**9 relays :** 9 function relays or 8 function relays + 1 RM relay

All commands exceeding the maximum number of relays which can be activated simultaneously will be ignored.

6.3.2- Relays : technical characteristics

«**RM**» relay and **function** relays :

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	100 mA / 12 VDC
Switching cycles at 250 VAC, 8 A, cosphi=1	100 000
Switching cycles at 24 VDC, 8 A	50 000
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	**Physical unit switched by relay**	**Number of switching cycles** (for «RM» relay and function «relays»)
CA2DN **LC1D09** **LC1D18** **LC2D09**	Switching at 230VAC (70VA,cosphi=0,75)	2×10^6
	Switching at 110VAC, (70VA,cosphi=0,75)	1×10^6
	Switching at 48VAC (70VA,cosphi=0,75)	$0,5 \times 10^6$

6.3.3- Protection of receiver board and relays

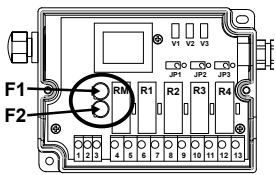
- Protection of power supply :

Against overcurrents : 1 fuse on phase (ORRS and ORRA).

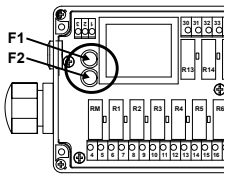
Against polarity inversions in the case of 12VDC power supply.

- Fuse characteristics :

Industrial receiver
«small model»
ORRS



Industrial receiver
«large model»
ORRA

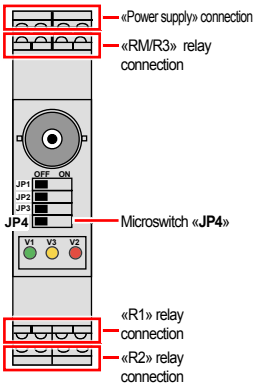


Component	Characteristics of fuse and location to be used for **ORRS** Receiver	Characteristics of fuse and location to be used for **ORRA** Receiver
Board supplied with 12 VDC	250 mA / 250 VAC / T - **F2**	315 mA / 250 VAC / T - **F2**
Board supplied with 24 VDC	500 mA / 250 VAC / T - **F1**	250 mA / 250 VAC / T - **F1**
Board supplied with 24VAC	500 mA / 250 VAC / T - **F1**	1,6 A / 250 VAC / T - **F2**
Board supplied with 48VAC	500 mA / 250 VAC / T - **F1**	800 mA / 250 VAC / T - **F1**
Board supplied with 115VAC	100 mA / 250 VAC / T - **F1**	315 mA / 250 VAC / T - **F2**
Board supplied with 230VAC	62 mA / 250 VAC / T - **F1**	160 mA / 250 VAC / T - **F1**
- Function relays - «**RM**» relay	No protection	No protection

6.3.4- Particularity of ORRD receiver on DIN rail

The **ORRD** receiver mounted on DIN rail has an «**RM/R3**» relay whose function is selected using the programming microswitch **JP4**.

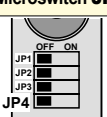
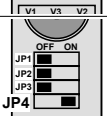
This relay can take the «**RM**» relay function (see chapter ***Operation of «RM» relay***) or the control relay No. 3 function «**R3**».



Position of JP4 et comportement du relais «RM/R3» :

- When microswitch **JP4** is set to the «**OFF**» position, the «**RM/R3**» relay is considered as a «**RM**» relay..

- When microswitch **JP4** is set to the «**ON**» position, the «**RM/R3**» relay becomes the third function relay «**R3**» with operation and programming similar to that of relays **R1** and **R2**.

Microswitch **JP4** position		«**RM/R3**» relay function
	**JP4** on OFF	«**RM**» relay
	**JP4** on ON	«**R3**» relay

Note :
The program settings for relay **R3** are saved in the event that microswitch **JP4** is set to the «**OFF**» position.

7 - Product configuration

7.1- Configuration steps to be respected ~ 10 mn

☞ Before final installation and use, we recommend that you configure the units with customized settings as detailed in steps 1 to 7. These steps must be performed on an insulated work surface in the workshop.

Step 1	Programmation du nouveau code d'identité de l'émetteur > see chapter ***Transmitter identity code programming***	
Step 2	**standard configuration** **Standard** association of transmitter buttons with receiver relays : button nb.1 > relay nb.1, button nb.2 > relay nb.2 etc... (Previous settings are automatically erased) > see chapter ***«Standard» Transmitter / Receiver association***	**or** **Customized configuration** Receiver pre-settings erased > see chapter ***Receiver parameter erasing procedure*** **Customized** association of transmitter buttons with receiver relays > see chapter ***«Customized» Transmitter / Receiver association***
Step 3 **(Optional)**	Operating mode programming procedure for function relays > see chapter ***Programming of relay operating modes***	
Step 4 **(Optional)**	Interlocking of conflicting commands programming procedure > see chapter ***Programming of conflicting command interlocking***	
Step 5 **(Optional)**	Radio channel programming procedure > see chapter ***Programming of conflicting command interlocking***	
Step 6 **(Optional)**	«Standby» function time programming procedure > see chapter ***«Standby» function time programming (Automatic shutdown of transmitter)***	
Step 7	Proceed to the installation on site by respecting the installation recommendations described in chapter ***Installation and use recommendations***	

7.2- Transmitter identity code programming

Transmitter and receiver are linked by a **radio channel** and an **identity code**.

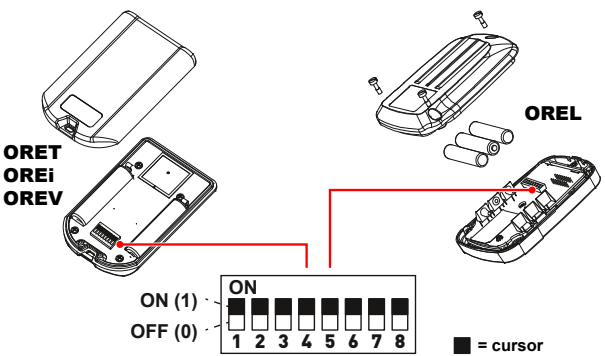
During the «association» programming procedure, one or several relays of the receiver(s) are going **«to learn»** the identity code of one or several transmitters.

This identity code is programmed on the transmitter, it is freely chosen by the user to personalize its installation :

ORET, OREi et OREL : 256 possible codes

OREV : 4096 possible codes (see next section)

The ORE transmitter is equipped with a 8 cursors 2 states DIP switch («ON» or «OFF») to program the identity code.



By default (in the delivery) the transmitter identity code is :

ON - ON - ON - ON - ON - ON - ON - ON

(11111111 binary = 255 decimal)

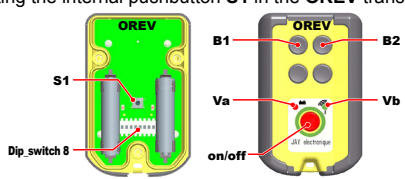
We strongly recommend that you change this code to ensure the uniqueness of your installation and avoid any unintentional commands from another system which may already be installed.

7.2.1- Special features of OREV transmitter

The **OREV** transmitter provides a significant choice of possible identity codes : 4096 (instead of 256 codes for the other transmitter models). This large number of codes is obtained by mixing the « **Identity code group** » (16 groups max.) and the codes programmed using the **8-cursor DIP-Switch** (256 codes).

OREV transmitter identity code	=	Group number (01 to 16)	+	8-cursor DIP_Switch code (256 possibilities)

The **identity code group** is chosen by special programming implementing the internal pushbutton **S1** in the **OREV** transmitter :



Note : steps 2 to 4 are not necessary if the default identity code group on delivery (01) is preserved.

1	Open the housing of the **OREV** transmitter
2	Press button **S1** ; the **Va** and **Vb** indicator lights will flash alternately
3	Press function button **B1** to enter the group programming mode. The number of the identity code group currently used by the **OREV** transmitter is replicated by the **Va** and **Vb** indicator lights : **RED indicator light Va :** indicates tens (if On = group No. > 10) **GREEN indicator light Vb :** indicates units The code group number is incremented each time button **B1** is pressed ; from n° 1 to n°16, then n°1 etc...
4	**Validate** the identity code group by pressing button **B2** (or the «**On/Off**» button if used). or **Cancel** by pressing internal button **S1**
5	Compose a code using the **8-cursor DIP_switch**
6	Close the housing of the **OREV transmitter**

7.3- «Standard» Transmitter / Receiver association

This procedure is used to :

- Automatically erase the previous settings in the receiver,
- Store, in the receiver, the new identity code programmed on the transmitter,
- Programm the receiver on the transmitter radio channel,
- Perform a standard association of the transmitter buttons with the receiver relays as follows :

Button n°1 of the transmitter allocated to the **relay n°1** of the receiver,

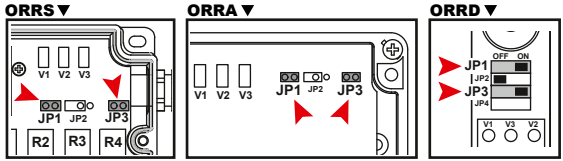
Button n°2 of the transmitter allocated to the **relay n°2** of the receiver,

Button n°3 of the transmitter allocated to the **relay n°3** of the receiver

etc...

This programming procedure erases all the button/ relay associations, interlock functions, relay operating modes of the previously programmed relays and radio channel setting.

It is possible that the receiver is associated with an unwanted transmitter.
During all the duration of the association procedure, it is recommended not ot used any other Orion transmitter.

1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure.
2	**ORRS and ORRA receivers :** install the jumpers **JP1** and **JP3** to configure the settings. **ORRD receiver :** set the microswitches **JP1** and **JP3** to the «ON» position **ORRS ▼** **ORRA ▼** **ORRD ▼** 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step
4	- **V2** and **V3** (ORRA / ORRS / ORRD) LEDs are blinking. - The receiver waits for an identity code reception (pressure on a transmitter function button) to auto-configure its relays.
5	If transmitter is equipped with an «**On/Off**» button, switch on the transmitter.
6	Press on one transmitter button (anyone) and maintain button pressed to associate transmitter with the receiver, until receiver LEDs **V2** and **V3** (ORRA / ORRS / ORRD) go off. The receiver has received the command to assign the buttons and identity code of the transmitter to the function relays.
7	**ORRS and ORRA receivers :** switch off the receiver and remove the **JP1** and **JP3** jumpers. **ORRD receiver :** set the **JP1** and **JP3** microswitches to the «OFF» position

If no transmitter button is activated during this programming procedure, the receiver parameter settings (buttons / relay association, interlocking and operating mode previously programmed) will not be erased.

7.4- «Customized» Transmitter / Receiver association

Once transmitter identity code was chosen and programmed, receiver relays must be associated to transmitter buttons. **Transmitter and receiver have to be on the same operating radio channel.**

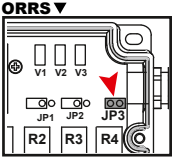
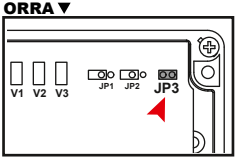
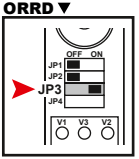
IMPORTANT :

each receiver relay can learn a maximum of :

ORRS and ORRD receivers : 10 different «button numbers + identity codes»

ORRA receivers : 4 different «button numbers + identity codes»

In case of association programming error, the receiver memory can be erased by following the procedure described in chapter *Receiver parameter erasing procedure*.

1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure
2	**ORRS and ORRA receivers :** install the jumper **JP3** to configure the settings. **ORRD receiver :** set the microswitch **JP3** to the «ON» position **ORRS ▼**  **ORRA ▼**  **ORRD ▼** 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step

4

- **V2** and **V3** (ORRA / ORRS / ORRD) are ON steady.
- The receiver is waiting for an order from the transmitter to start the buttons / relay assignment

5

If the transmitter has a «**On/Off**» button, turn on the transmitter.

6

- Press on and release any transmitter function button
- **V3** (ORRA / ORRS / ORRD) **goes OFF,** the programming procedure starts

V2 blinks 1 time
the receiver is waiting for a "button number and identity code" to "assign" them to its relay n°1

- Press on transmitter **button n°1** (i.e) within 6,5 seconds
- The receiver records the assignment : "button nb.1 + identity code (xxxxxxxx)" / relay nb.1

if no button is pressed within 6,5s the receiver selects the relay n°2

V2 blinks 1 times
the receiver is waiting for a "button number and identity code" to "assign" them to its relay n°2

- Press on transmitter **button n°2** (i.e) within 6,5 seconds
- The receiver records the assignment : "button nb.2 + identity code (xxxxxxxx)" / relay nb.2

if no button is pressed within 6,5s the receiver selects the relay n°**X**

V2 blinks X times
the receiver is waiting for a "button number and identity code" to "assign" them to its relay **X**

- Press on transmitter **button n°Y** (i.e) within 6,5 seconds
- The receiver records the assignment : "button nb.**Y** + identity code (xxxxxxxx)" / relay nb.**X**

(1)

V2 and V3 (ORRA / ORRS / ORRD) blink in a alternative way then go OFF
The last relay of the receiver has been assigned, the procedure is ended.

ORRS and ORRA receivers : Switch off the receiver
ORRD receiver : set the microswitch **JP3** to the «ON» position

(1) = Special case of ORRA receiver with number «X» > 9
In this case, the number of the relay to be programmed is given by the flashing indicator lights **V2** and **V3** (ORRA / ORRS / ORRD) **V2** indicates the tens, and **V3** the units (i.e. : **V2** flashes once and **V3** flashes 5 times: the receiver is on standby for a «button + identity code» assignment for its relay No. 15).

7

If other associations are required, repeat the procedure in step N°3

8

Once you have completed the associations :
ORRS and ORRA receivers : switch off the receiver and remove the jumper **JP3**
ORRD receiver : set the microswitch **JP3** to the «OFF» position

7.5- Multi-receiver selection modes

This operating mode is used to select the receiver(s) to be controlled from the transmitter.

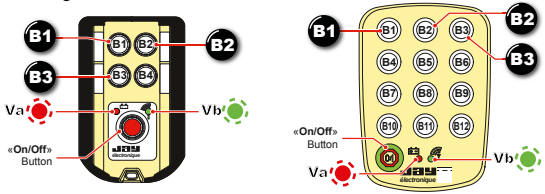
Only the OREV and OREL transmitters with at least 4 function buttons and the « On/Off » button allow for use of the multi-receiver selection mode

2 modes are proposed :

Fixed channel multi-receiver selection mode.

Auto channel multi-receiver selection mode.

Accessing the multi-receiver selection modes :

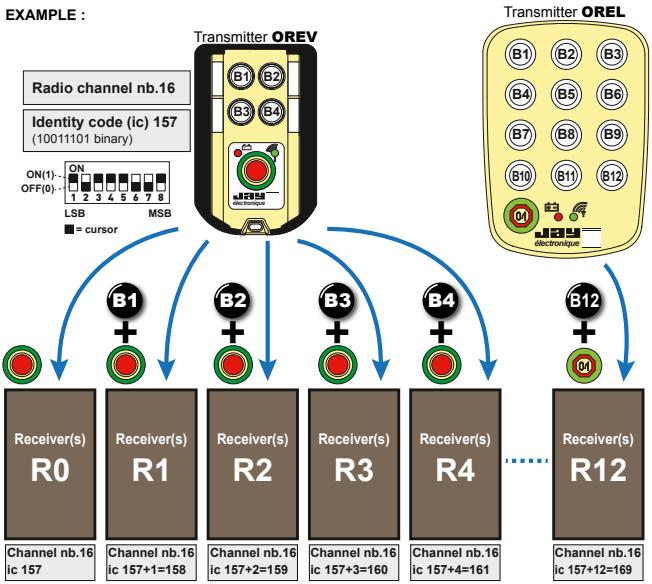


1	Simultaneously press and hold the **B1** and **B2** buttons, then press the «**On/Off**» button on the transmitter and hold the 3 buttons in for 1 second, then release them. The **Va** and **Vb** indicator lights of the transmitter are on ; the transmitter is on standby for the choice of programming mode (the standby period lasts around 3 seconds, after which the transmitter shuts down).
2	Press the **B3** button to enter the « **change operating mode** » function The green **Vb** indicator light indicates the current operating mode by flashing : **1 flash** = normal mode **2 flashes** = fixed channel multi-receiver selection mode **3 flashes** = auto channel multi-receiver selection mode. Each time the **B3** button is pressed, the operating mode is modified.
3	Validate the operating mode by pressing the «**On/Off**» button.

7.5.1- Fixed channel multi-receiver selection mode

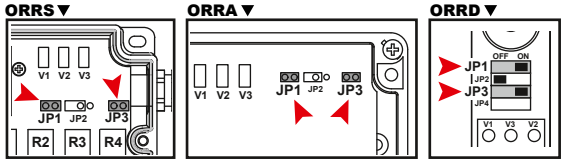
This mode is used to control receivers on the same radio channel.

OPERATING PRINCIPLE :



ASSOCIATION METHOD AND PROCEDURE :

After you have chosen an identity code (8-cursor DIP_switch) and possibly an identity code group for the **OREV** transmitter, the transmitter / receivers are successively associated for each receiver (see next page).

1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure
2	**ORRS and ORRA receivers :** install the jumpers **JP1** and **JP3** to configure the settings. **ORRD receiver :** set the microswitches **JP1** and **JP3** to the «ON» position **ORRS ▼** **ORRA ▼** **ORRD ▼** 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step
4	- **V2** and **V3** (ORRA ORRS ORRD) LEDs are blinking. - The receiver waits for an identity code reception (pressure on a transmitter function button) to auto-configure its relays.
5	Press **Bx** then press the « **On/Off** » button (for the **Rx** association) or on the « **On/Off** » button only (for R0 association), then release the buttons. **x** = 1 to 12
6	Press on one transmitter button (anyone) and maintain button pressed to associate transmitter with the receiver, until receiver LEDs **V2** and **V3** (ORRA ORRS ORRD) go off. The receiver has received the command to assign the buttons and identity code of the transmitter to the function relays.
7	**ORRS and ORRA receivers :** switch off the receiver and remove the **JP1** and **JP3** jumpers. **ORRD receiver :** set the **JP1** and **JP3** microswitches to the «OFF» position
8	Repeat the association procedure for each receiver to be associated

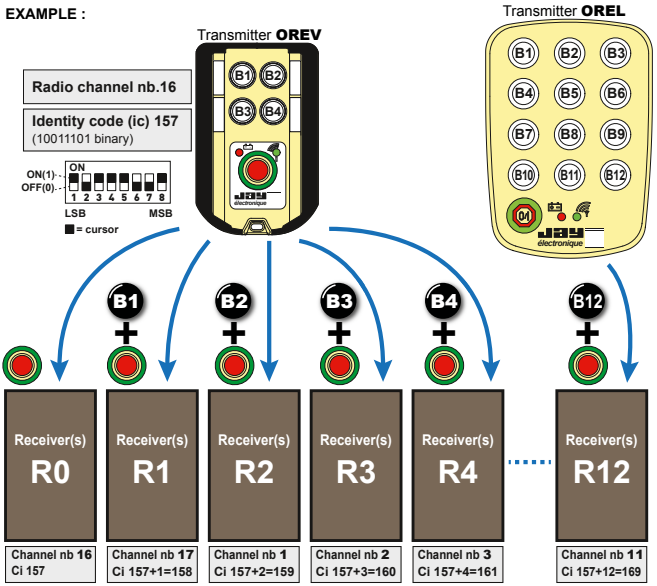
7.5.2- Auto channel multi-receiver selection mode

This mode is used to control receivers on different channels (transmitter automatically changes radio channel for each « function button + «**On/ Off**» button combination).

This mode allows you to use several transmitters at the same time.

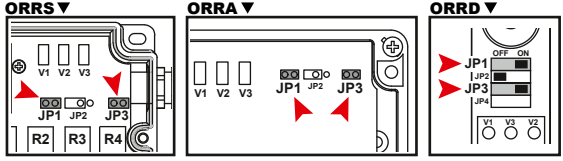
Radio transmit channel N° 18 will not be used.
The channels will be automatically programmed from 1 to 17.

OPERATING PRINCIPLE :



ASSOCIATION METHOD AND PROCEDURE :

After you have chosen an identity code (8-cursor DIP_switch) and possibly an identity code group for the OREV transmitter, the transmitter / receivers are successively associated for each receiver (see next page).

1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure
2	**ORRS and ORRA receivers :** install the jumpers **JP1** and **JP3** to configure the settings. **ORRD receiver :** set the microswitches **JP1** and **JP3** to the «ON» position **ORRS ▼** **ORRA ▼** **ORRD ▼** 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step
4	- **V2** and **V3** ORRA ORRS ORRD LEDs are blinking. - The receiver waits for an identity code reception (pressure on a transmitter function button) to auto-configure its relays.
5	Press **Bx** then press the « **On/Off** » button (for the **Rx** association) or on the « **On/Off** » button only (for R0 association), then release the buttons. **x** = 1 to 12
6	Press on one transmitter button (anyone) and maintain button pressed to associate transmitter with the receiver, until receiver LEDs **V2** and **V3** ORRA ORRS ORRD go off. The receiver has received the command to assign the buttons and identity code of the transmitter to the function relays.
7	**ORRS and ORRA receivers :** switch off the receiver and remove the **JP1** and **JP3** jumpers. **ORRD receiver :** set the **JP1** and **JP3** microswitches to the «OFF» position
8	Repeat the association procedure for each receiver to be associated

7.6- Programming of relay operating modes

There are three operating modes for receiver function relays :

Mode 1 Continuous make contact	Mode 2 Continuous break contact	Mode 3 Bistable (on/off)
The contact of receiver relay remains closed so long as the corresponding control button on the transmitter remains pressed. The contact opens if the transmitter button is released, or if the transmitter is switched off or if there is a radio jamming (>1s).	The contact of receiver relay remains open so long as the corresponding control button on the transmitter remains pressed or receiver is switched off. The contact closes if the transmitter button is released, or if there is a radio jamming (>1s).	The receiver relay is closed the first time the corresponding control button on the transmitter is pressed, and maintained until the second time the control button is pressed (when the receiver is switched OFF, the relay state is not saved). **If the transmitter is equipped with an «On/Off» button :** The state of the bistable relay is maintained if the transmitter is shutdown («On/Off» button pressed or "Standby" time elapsed).

General remark :
The relay contacts are «opened» when the receiver is switched OFF. Once the receiver is switched ON, only relays programmed with **Mode 2** are activated.

Changing the relay operating :

- A transmitter/receiver association must have been realized.
- This procedure requires transmitter and receiver.

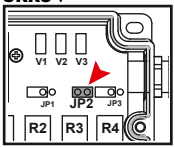
1

ORRS and ORRA receivers : Switch off the receiver
ORRD receiver : the receiver can remain powered up throughout the procedure

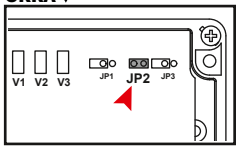
2

ORRS and ORRA receivers : install the jumper **JP2** to configure the settings.
ORRD receiver : set the microswitch **JP2** to the «ON» position

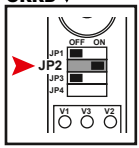
ORRS ▼



ORRA ▼



ORRD ▼



3

ORRS and ORRA receivers : Switch on the receiver
ORRD receiver : go to the next step

4

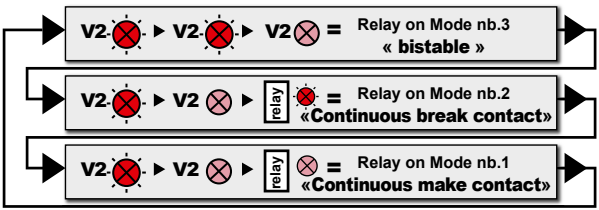
V2 and **V3** ORRA ORRS ORRD LEDs blink 3 times then go off.

5

If the transmitter has a «**On/Off**» button, turn on the transmitter.

6

Press and maintain the pressure (approximately 2 seconds) before releasing the transmitter button wich associated relays must have a personalized operating mode. Each maintained pressure (2 seconds) then loosened on the button will change the current operating mode of associated relay(s), **V2** indicates the current mode:



Remark : If the pressure on the transmitter button is not maintained for a long time (approximately 2 seconds) before being loosened V3 ORRA ORRS ORRD remains switched on, indicating that the order of modification did not correctly take place

7

Once the programming procedure is finished :
ORRS and ORRA receivers : switch off the receiver and remove the **JP2** jumper
ORRD receiver : set the **JP2** microswitch to the «OFF» position

7.7- Programming of conflicting command interlocking

This procedure allows to forbid conflicting actions activated by the simultaneous pressure of two transmitter function buttons.

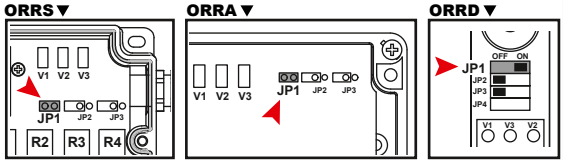
Relays concerned by the interlocking will be deactivated (**OFF state**) if an interlocking is detected..

IMPORTANT :

This programming procedure uses the receiver **JP1** jumper / microswitch.

Every time **JP1** jumper (ORRS and ORRA) is put in short circuit **JP1** microswitch (ORRD) is set on «ON» position, previously programmed interlockings are erased.

- A transmitter / receiver association must have been realized..
- This procedure requires transmitter and receiver.

1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure
2	**ORRS and ORRA receivers :** install the jumper **JP1** to configure the settings. **ORRD receiver :** set the microswitch **JP1** to the «ON» position ORRS ▼ ORRA ▼ ORRD ▼ 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step
4	**V2** and **V3** ORRA ORRS ORRD LEDs blink 2 times then go off.

5	If the transmitter has a «**On/Off**» button, turn on the transmitter.
6	Press simultaneously on both transmitter buttons controlling relays that must be interlocked. **V2** and **V3** ORRA ORRS ORRD LEDs blink alternatively, then go off, The receiver recorded the interlocking of two relays.
7	Repeat point n°6 if other interlocking must be realized.
8	**Once the programming procedure is finished :** **ORRS and ORRA receivers :** switch off the receiver and remove the **JP1** **ORRD receiver :** set the **JP1** microswitch to the «OFF» position

7.7.1- Particularity of the «bistable ON/OFF» relay operating mode

In the «**bistable**» relay operating mode, the conflicting commands are not necessarily simultaneously emitted, in that case a priority is given to the last pressed button.

Example: interlocking between the button no.1 and the button no.2 in «bistable» relay operating mode.
An impulse on the button no.1 activates the relay no.1 (and remains activated), an impulse on the button no.2 deactivates the relay no.1 and activates the relay no.2.

7.7.2- Particularity of ORRA industrial receiver, «large model»

The interlocking functions are distributed among 4 relay groups :

Group 1 : relay nb.1 (R1) to relay nb.4 (R4),
Group 2 : relay nb.5 (R5) to relay nb.8 (R8),
Group 3 : relay nb.9 (R9) to relay nb.12 (R12),
Group 4 : relay nb.13 (R13) to relay nb.16 (R16)..

The interlocking functions can only be programmed for this receiver on relays belonging to a **same group**.

Example : interlocking is possible between relay R1 and relay R3 but not possible between relays R1 and R6.

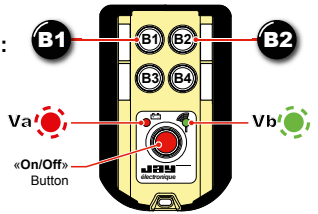
7.8- Radio channel programming procedure

Only transmitters equipped with «On/Off» button allow the user to modify and consult the operating radio channel.

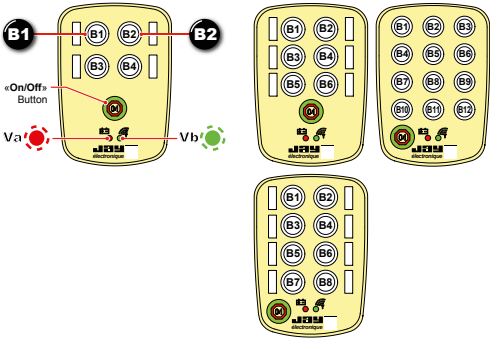
On the other transmitter models (without «**On/Off**» button), the radio frequency is fixed to nb.17 - 434,700 MHz.

- A transmitter / receiver association must have been realized.
- This procedure is realized by the transmitter with buttons B1, B2 and «**on/off**».
- The receiver will stay ON during the procedure to receive the channel modification command

Industrial transmitters :



Multifunction transmitters :



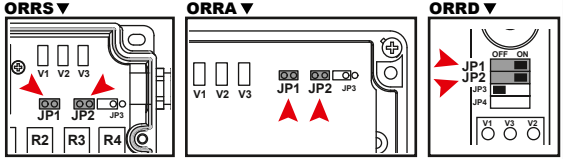
See list of available radio frequencies (channels) in ***appendix H***

1	**Switch OFF the transmitter** (**Vb** green LED goes OFF).
2	**Switch ON the receiver**
3	Simultaneously press and hold buttons **B1** and **B2** then press the «**On/Off**» button on the transmitter; keep the three buttons pressed for 1 second, then release the 3 buttons. **Va** and **Vb** transmitter LEDs come on steady,The transmitter is waiting for a programming choice (this waiting time lasts 4 seconds, after, the transmitter switches itself off).
4	Press **B1** button to enter in **«radio channel changing»** mode **Va** and **Vb** indicate the transmitter current radio channel. **Va** red LED indicates the tens («On» = 10, «Off» =0), **Vb** green led indicates the units by flashing. **Example :** **Va** is light on, and **Vb** flashes 7 times, goes off, then flashes 7 times etc... the current radio channel number is «17» (434.700MHz)
5	Press **B1** to increment the radio channel number (01 to 18)
6	Once the desired channel is selected, press the «on/of» button to validate your choice. **Briefly pressing «On/Off» button (<1s) :** the transmitter sends the selected radio channel number to the receiver and saves its new working radio channel. **By pressing and holding the «On/Off» button (during 3 seconds) :** **(This procedure should be performed when you are not familiar with the initial working channel of the receiver)** he transmitter sends the selected channel number to the receiver on each of the radio link channels (01 to 18), and both equipment save the change. The procedure is finished when **Va** and **Vb** go off (around 10s).

7.8.1- Reading the current receiver radio channel

- The reading of the receiver radio channel number is done from the receiver by **JP1** and **JP2** jumper/microswitch and **V2** and **V3** ORRA / ORRS ORRD LEDs.

See list of available radio frequencies (radio channels) in ***appendix H***

1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure
2	**ORRS and ORRA receivers :** install the jumpers **JP1** and **JP2** to configure the settings. **ORRD receiver :** set the microswitches **JP1** and **JP2** to the «ON» position **ORRS ▼** **ORRA ▼** **ORRD ▼** 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step
4	**V2** and **V3** ORRA / ORRS ORRD LEDs indicate the current receiver radio channel number. **V2** (red) indicates the **tens**, «ON» = 10, «OFF» = 0 **V3** ORRA / ORRS ORRD (green) indicates the **units** by flashing. **Example :** **V2** «OFF», and **V3** ORRA / ORRS ORRD flashing 6 times, the current radio channel number is «06» (433.600MHz).
5	**ORRS and ORRA receivers :** switch off the receiver and remove the **JP1** and **JP2** jumpers. **ORRD receiver :** set the **JP1** and **JP2** microswitches to the «OFF» position

7.9- Modification of radio power

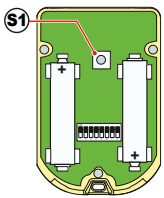
It is the user's responsibility to adjust the radio transmit power to limit or adapt the range in accordance with the application and the desired endurance.

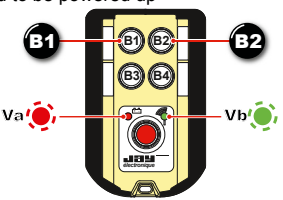
Only the OREV transmitters will allow the user to modify and look-up the radio transmit power level (levels 1 to 5). On the other transmitter versions, the radio transmit power is defined for level 4 of 5.

The average range in open space depends on the environment conditions, the position of the reception antenna and the orientation of the transmitter, but is relative as indicated below :

Radio power	Average range
Level 5	180 m
Level 4	140 m
Level 3	90 m
Level 2	40 m
Level 1	10 m

- The procedure for modification and look-up of the radio transmit power is performed on the transmitter using buttons **B1**, **B2** and internal button **S1**.
- The receiver does not need to be powered up



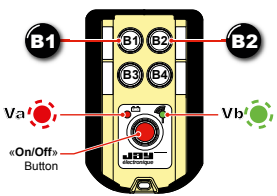


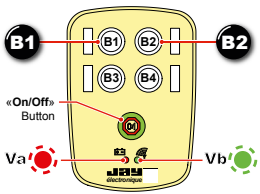
1	Open the housing of the **OREV** transmitter
2	Press button **S1** ; the **Va** and **Vb** indicator lights flash alternately
3	Press function button **B2** to enter the « modify/look-up radio transmit power» mode : The radio power level currently used by the **OREV** transmitter is replicated by the green **Vb** indicator light (number of flashes from 1 to 5). The value of the radio transmit power level is incremented by 1 each time button **B1** is pressed.
4	**Validate** the radio power level by pressing button **B2** (or by pressing the « **On/Off** » button if used). or **Cancel** by pressing internal button **S1**
5	Close the housing of the **OREV** transmitter

7.10-Programming the « Standby » time delay

Only transmitters equipped with «On/Off» button allow the user to view or to modify the duration of the «Standby» function temporization.

- This procedure is realized by the transmitter with buttons B1, B2 and «**On/Off**» button.
- The receiver does not need to be powered up





1	Simultaneously press and hold buttons B1 and B2 then press the «**On/Off**» button on the transmitter; keep the three buttons pressed for 1 second, then release the 3 buttons. **Va** and **Vb** transmitter LEDs come on steady,The transmitter is waiting for a programming choice (this waiting time lasts 4 seconds, after, the transmitter switches itself off).
2	Press B2 button to enter in «**Standby function time**» mode **Vb** LED indicates the current duration : 1 flash, off, 1 flash etc... = 4mn 2 flashes, off, 2 flashes etc... = 15mn 3 flashes, off, 3 flashes etc... = 60mn 4 flashes, off, 4 flashes etc... = infinite time (function is deactivated) **Only on OREV and OREL transmitters :** 5 flashes, off, 5 flashes etc... = 30s
3	Press B2 to modify the duration, each pressure on the button increments the duration..
4	Once the desired duration is selected, press the «**on/off**» button to validate your choice. The transmitter saves the changing.

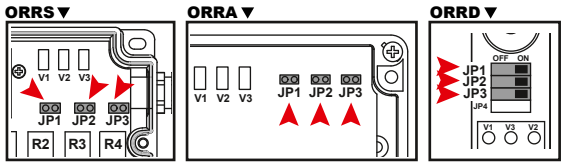
7.11 - Receiver parameter erasing procedure

This procedure has the following effects :

- Erasing of all programmed transmitter(s) / receiver(s) associations,
- Erasing of all programmed interlockings,
- All relays operating mode turn by default mode : «Continuous make contact».

Only the radio channel setting is preserved

■ The receiver parameter erasing procedure is done from the receiver by **JP1**, **JP2** and **JP3** jumpers/microswitches.

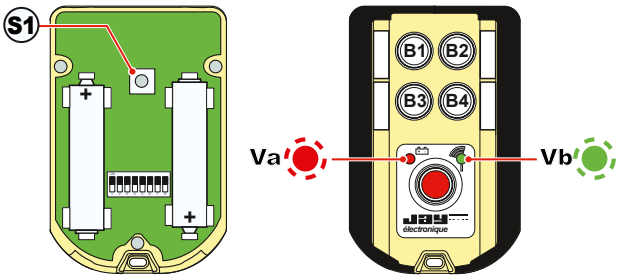
1	**ORRS and ORRA receivers :** Switch off the receiver **ORRD receiver :** the receiver can remain powered up throughout the procedure
2	**ORRS and ORRA receivers :** install the jumpers **JP1**, **JP2** and **JP3** to configure the settings. **ORRD receiver :** set the microswitches **JP1**, **JP2** and **JP3** to the «ON» position. **ORRS ▼** **ORRA ▼** **ORRD ▼** 
3	**ORRS and ORRA receivers :** Switch on the receiver **ORRD receiver :** go to the next step
4	**V2** and **V3** ORRA ORRS ORRD LEDs flash 5 times during the parameter erasing, then go off (except on **ORRD** DIN rail receiver, indicator lights stop to blink for a few time and re-start to blink 5 times etc...). All the receiver parameters (except the radio channel setting) are erased.
5	**ORRS and ORRA receivers :** switch off the receiver and remove the **JP1**, **JP2** and **JP3** jumpers. **ORRD receiver :** set the **JP1**, **JP2** and **JP3** microswitches to the «OFF» position.

7.12-Clearing the OREV transmitter parameters

This procedure returns the **OREV** transmitter to its « factory » configuration (default configuration on delivery), with the following settings :

- Identity code group N°1,
- Radio transmit power level 4,
- «Normal» operating mode,
- Radio channel N°17,
- «Standby» time delay period of 4min.

■ The procedure for clearing the parameters of the **OREV** transmitter is performed using internal button **S1** of the transmitter.



1	Open the housing of the **OREV** transmitter.
2	Press and hold button **S1** for around 10 seconds. The **Va** and **Vb** indicator lights of the transmitter flash alternately. Clearing and re-programming of the « factory » parameters of the transmitter is completed when the **Va** and **Vb** indicator lights go off.
3	Close the housing of the **OREV** transmitter.

8 - Installation and use recommendations

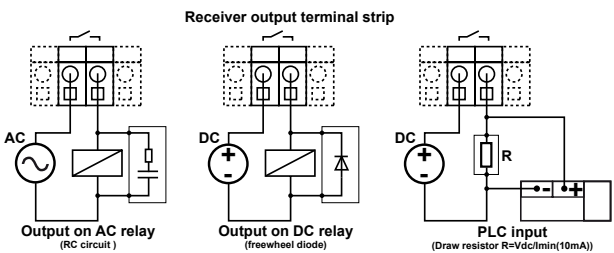
Experience shows that the functional efficiency of the system basically depends on the quality of the installation :

- Interference suppression,
- Choice of operating frequency,
- «Continuous NC or NO» relay operating mode,
- Minimum and maximum current of relay outputs,
- Location of the controlled equipment
- Position of receiver and antenna,
- Quality of wiring of receiver and associated systems,
- Electrical power supply protection.

8.1- Interference suppression

In the event of inductive loads on the receiver 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.
A draw resistor should also be used on the controller inputs.

Examples of protection system to be used:



8.2- Choice of operating radio frequency

To ensure good operating quality, it is important that the radio channel used be free 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 radio 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.

8.3- «Continuous NC or NO» relay operating mode

If a system is used in continuous mode with the control buttons maintained pressed and the operator moving about, transmission interruptions can occur due to the dispersion and propagation of radiowaves which must be taken into account in accordance with the application.

8.4- Minimum and maximum current of relay outputs

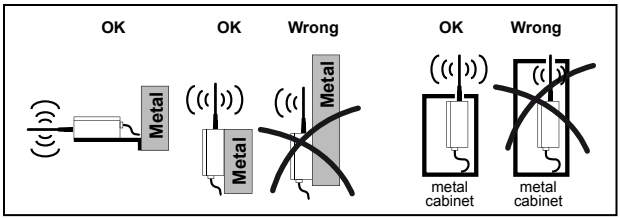
Be sure not to exceed the minimum and maximum characteristics specified in chapter ***Technical characteristics***, by installing, if necessary, an additional load or intermediate relays (auxiliary contacts in electrical cabinet for power control, for example).

8.5- «Multifunction» transmitters equipped with accumulators and charger support (ORCL•)

When transmitters are equipped with accumulators, please charge them for approximately 3 hours before a first use.

8.6- Receiver and antenna positions

The industrial receivers **ORRS** - **ORRA** should be mounted as close as possible to the control cabinet and should be sheltered from shocks and weather.

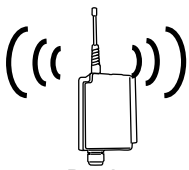


As a general rule :

- Since the UHF waves will go through metal barriers, the antenna must not be placed in an enclosure forming a shield (metal cabinet, wall made of reinforced concrete, metal framework or wall, etc.).
- Any obstacle located between the transmitter and the antenna will result in a loss of range.
- Insofar as possible, the antenna should :
  - be placed as near as possible to the point of transmission,
  - be pointed downward, upward or horizontally, knowing that the best radio lobe is indicated on the above diagrams.
  - be oriented to have a direct line of sight or a minimum number of obstacles between the transmission and reception points.

  It must never cross through a wall, not even an insulating wall.
- Note that the best range is obtained by tilting the transmitter as indicated in the diagram below :

Transmitter



Receiver

If the above requirements cannot be observed (case of ORRD receiver installed in cabinet), an external antenna must be used with extension (BNC connection). External antenna and extension must be ordered separately, see chapter ***Receiver accessories***.

For the **ORRS** and **ORRA** receivers, use of an external antenna requires that the user purchases and installs the plug-in antenna kit, reference : **OWR01**. see kit installation in ***appendix E***.

Type of receiver installation (with plug-in antenna)	Reference suggestion of antenna and extension to be used
Outside installation	Antenna **VUB084** or antenna **VUB086** (possible use of extension with support **VUB105/VUB125/VUB131**)
Installation on vehicle	Antenna **VUB084** + extension with support **VUB105/VUB125/VUB131** or antenna **VUB086** + extension with support **VUB105/VUB125/VUB131**
Installation in plastic cabinet	**ORRA** and **ORRS** : antenna **VUB084** or antenna **VUB086** **ORRD** : antenna **VUB084** + 90° BNC bend **VUB060**
Installation in metal cabinet	Antenna **VUB084** + extension 0,5m **VUB170** or antenna **VUB086** + extension 0,5m **VUB170**

8.7- Product wiring

8.7.1- Wiring recommendations

To avoid any risks of electrocution, do not open the receiver housing when receiver is power supplied.

- Use control components with integrated noise suppression system.
- Do not place cables of different classes side by side.
- A minimum space (20 cm) should be observed between the different classes:

Classe 1 : Radio, antenna cable (case of an antenna extension),
Classe 2 : Mains for power supply of various units,
Classe 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.

8.7.2- Wiring the receiver ORR

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

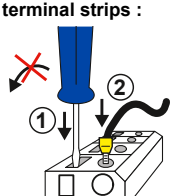
DO NOT FORCE-INSERT THE WIRE IN THE TERMINAL ; THE TERMINAL STRIP IS NOT AN « AUTOMATIC CONNECTION» TERMINAL STRIP.

To open the ORRS and ORRA connection terminal strips :

1. Vertically insert the screwdriver (flat tip screwdriver of 1.5 to 3 mm width) in the slot located opposite the wire,

2. Insert the wire,

3. Remove the screwdriver.



9 - Servicing

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

Servicing the ORE transmitter :

- **Housing of the ORE transmitter must not be opened.** Except to modify the identity code or to change batteries, in that case, open the transmitter housing in a clean place, dry and exempt from dust.

- **If one of the function buttons or the seal of the transmitter is damaged (or in an incorrect position), the transmitter 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 transmitter mechanical parts.

- Verify regularly the good state of the transmitter, paying a special attention on the function buttons, batteries / accumulators, the tightening of housing screws the seal (multifunction transmitter OREL).

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

Servicing the ORR receiver :

Verify regularly the following points:

- Wiring of receiver to electrical unit on machine.
- Control relay contacts.
- Condition of cover seal and its correct position,
- tightening of screws and cable glands (ORRS and ORRA) and tightness of antenna.
- If accessory **OWR01** (external BNC antenna connector for ORRA and ORRS receiver) is used, check the antenna connection and check that it is clean and free of any oxidation.

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

10 - Waste recycling and management

When your unit has reached the end of its service life, be sure to dispose of it appropriately. The unit can be disposed of, at no cost, in a specific waste collection centre as organised by the local authorities, or it can be turned over to a distributor who will handle proper disposal of the unit.

Electronic waste sorting will prevent possible negative impact on the environment resulting from inappropriate elimination of electronic waste and will allow proper processing and recycling of the materials forming the unit, representing significant savings in terms of energy and resources.

Worn batteries and storage cells :

Batteries and storage cells contain heavy metals which are toxic and poisonous for the environment.
These must never be disposed of in urban waste bins.

Worn batteries and storage cells must be grouped and placed in special bins provided for this purpose at :

- Waste disposal centres, where containers for this purpose are available,
- All city halls
- Major department stores
- As a general rule, with local craftsmen and store keepers providing this service.

11 - Warranty

All our devices are guarantied 2 years as of the date of manufacture indicated on the product, wear parts not included. No repair, modification or replacement of a product during the warranty period can be understood as an extension of the warranty period.

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 JAYElectronique.

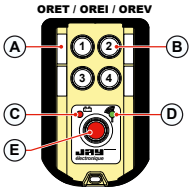
The JAY Electronique responsability during the warranty period is limited to material and construction defects. This warranty comprises repair in the JAY workshops or replacement, free of charge, of parts recognized to be defective following expert inspection by the Jay Technical Department.

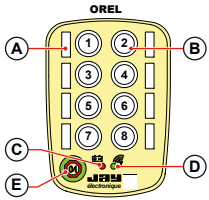
The warranty shall not give rise to any compensation for damage claims.
Any disputes relative to a supply or settlement thereof shall be ruled by the COURT OF COMMERCE OF GRENOBLE, solely competent, even in the event of an Appeal or a plurality of defendants.

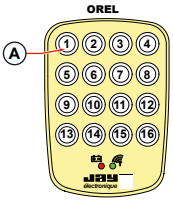
- Annexes
- Appendix
- Anhang

A - Emetteurs ORE : vues détaillées
A - Transmitters ORE : detailed views
A - Detaillierte Sicht des Senders ORE

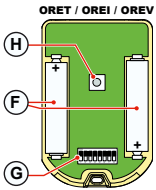
Face avant / *Front view* / *Vorderseite*

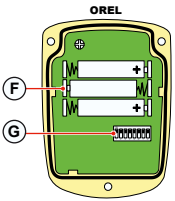






Vue interne / *Internal view* / *Interne*





Français

- **A-** Emplacement pour étiquette
- **B-** Boutons de fonction
- **C-** Voyant rouge **Va** «niveau batterie + lecture canal radio (dizaine)»
- **D-** Voyant vert **Vb** «bouton de fonction appuyé ou clavier actif + lecture canal radio (unité) + lecture temporisation fct MV»
- **E-** Bouton «**Marche/arrêt**» disponible sur certaines versions d'émetteur.
- **F-** Piles/accus 1,5V de type AAA
- **G-** DIP switch 8 curseurs pour la programmation du code d'identité
- **H-** Bouton **S1** «programmation» - uniquement présent sur modèle émetteur **OREV**

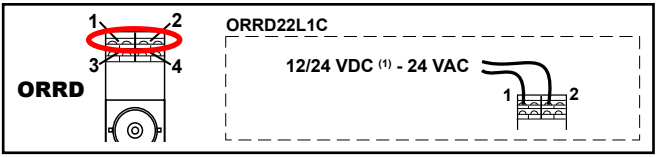
English

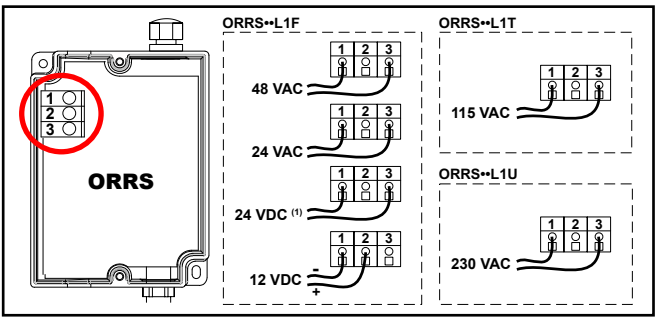
- **A-** Location of function label
- **B-** Function buttons
- **C-** Red LED **Va** «Battery level + radio channel indic. (tens)»
- **D-** Green LED **Vb** «function button pressed or transmitter keypad active + radio channel indic (units) + Standby fct duration indic.»»
- **E-** «**On/Off**» button (available on some transmitter models).
- **F-** 1,5V AAA battery / accu
- **G-** 8 cursors DIP switch, identity code programming
- **H-** Button **S1** «programming» - only present on transmitter model **OREV**

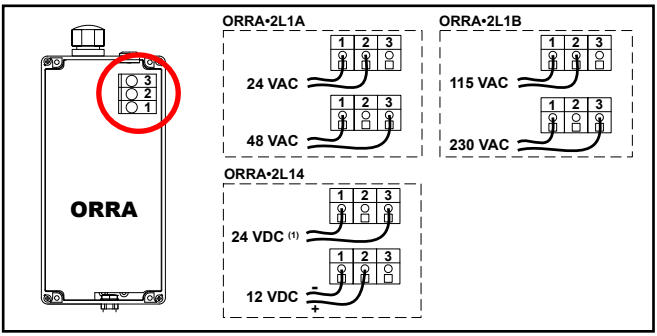
Deutsch

- **A-** Funktionsetikett
- **B-** Funktionstasten
- **C-** Rote LED **Va** «Batteriestatus + Angabe des Funkkanals (Zehner)»
- **D-** Grüne LED **Vb** «Funktionstaste gedrückt oder Sendertastatur aktiv + Angabe des Funkkanals (Einer) + Angabe Standby-verzögerung»
- **E-** Taste «**Ein/Aus**» verfügbar bei einigen Senderausführungen.
- **F-** Batterien/Akkus 1,5V type AAA
- **G-** DIP Switch 8 Microswitch zur Programmierung des Identitätscodes
- **H-** Taste **S1** «Programmierung» - nur auf **OREV** Sendermodell

B - Raccordement alimentation récepteur
B - Receiver power supply connection
B - Anschluss der Stromversorgung ORR

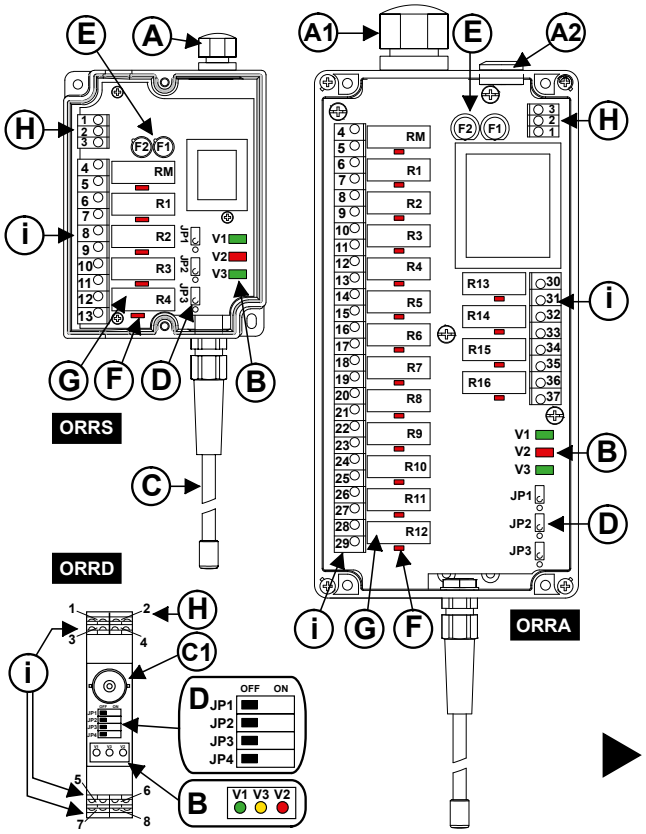






(1) = Pas de polarité à respecter / No polarity to be respected / Nicht polarität

C - Vues détaillées des récepteurs
C - Receivers ORR : detailed views
C - Detaillierte Innenansicht des Empfängers



Français

A- Presse étoupe «Alimentation + Commande»
A1- Presse étoupe «Commande»
A2- Bouchon, passage facultatif «Alimentation»
B- Voyants :
V1= Voyant vert «Alimentation»
V2= Voyant rouge «Programmation»
V3= Voyant «Liaison radio établie + Programmation»
ORRA-ORRS : voyant vert, **ORRD :** voyant jaune
C- Antenne fixe
C1- Connecteur BNC pour antenne et rallonge BNC
D- Cavaliers / microswitchs de programmation
E- Fusible alimentation
F- Voyant des relais (allumé = relais activé)
G- Relais :
RM= Relais «RM» (disponible sur certaines version de récepteur)
Rx= Relais de commande (le nombre de relais diffère suivant la version du récepteur ORR)
H- Bornier «Alimentation»
i- Borniers des contacts des relais de commande

English

A- Cable gland «Power supply + Control»
A1- Cable gland «Control»
A2- Cap, «Power supply» optional passage
B- Indicator lights :
V1= Green LED «Power on»
V2= Red LED «programming»
V3= LED «Radio link established + programming»
ORRA-ORRS : green LED, **ORRD :** yellow LED
C- fixed Antenna
C1- BNC connector for plug-in antenna and extension
D- Programming jumpers / microswitches
E- Power supply fuse
F- Relay indicator lights (on = relay activated)
G- Relays :
RM= «RM» relay (depending on receiver model)
Rx= Control relays (number of relays differ according to version of receiver ORR)
H- «Power supply» terminal strips
i- Control relay terminal strips

Deutsch

A- PG-Verschraubung «Stromversorgung/Steuerung»
A1- PG-Verschraubung «Steuerung»
A2- Plastikkorken, Facultatives Durchgang «Strom.»
B- Kontrolleuchten :
V1= Grüne LED «Stromversorgung»
V2= Rote LED «Programmierung»
V3= LED «Empfang Funkverbindung + «Programmierung»
ORRA-ORRS : Grüne LED, **ORRD :** Rote LED
C- Antenne
C1- BNC-Steckplatz für abnehmbare Antenne
D- Programmierung Jumper / Microswitch
E- Strom. Sicherungen
F- Rote Kontrolleuchten (Leuchtet = Relais aktiviert)
G- Relais :
RM= «RM» Relais (Relais je nach Version des Empfängermodells vorhanden)
Rx= Steuerrelais (die Anzahl der Relais schwankt je nach ORR Empfängerversion)
H- Anschlussklemmen Stromversorgung
i- Kontaktklemmen der Steuerrelais

Borniers des récepteurs **ORRS** et **ORRA**
ORRS and **ORRA** receiver terminal strips
ORRS und **ORRA** Anschlussklemmen

Numéro de borne *Terminal number* *Anschlussnummer*	*Fonction* *Function* *Funktion*
1 - 2 - 3	Alimentation (1) Power supply (1) Stromversorgung (1)
4 - 5	Relais «RM» «RM» relay «RM» Relais"
6 - 7	- Relais / Relay R1
8 - 9	- Relais / Relay R2
10 - 11	- Relais / Relay R3
12 - 13	- Relais / Relay R4
14 - 15	- Relais / Relay R5 (2)
16 - 17	- Relais / Relay R6 (2)
18 - 19	- Relais / Relay R7 (2)
20 - 21	- Relais / Relay R8 (2)
22 - 23	- Relais / Relay R9 (2)
24 - 25	- Relais / Relay R10 (2)
26 - 27	- Relais / Relay R11 (2)
28 - 29	- Relais / Relay R12 (2)
30 - 31	- Relais / Relay R13 (2)
32 - 33	- Relais / Relay R14 (2)
34 - 35	- Relais / Relay R15 (2)
36 - 37	- Relais / Relay R16 (2)

Borniers du récepteur **ORRD**
ORRD receiver terminal strips
ORRD Anschlussklemmen

Numéro de borne *Terminal number* *Anschlussnummer*	*Fonction* *Function* *Funktion*
1 - 2	Alimentation (1) Power supply (1) Stromversorgung (1)
3 - 4	- Relais «**RM**» ou relais de fonction R3 (3) - «**RM**» relay or function relay R3 (3) - «**RM**» Relais oder Funktionsrelais R3 (3)
5 - 6	- Relais / Relay R1
7 - 8	- Relais / Relay R2

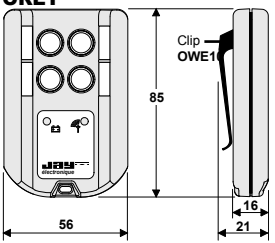
(1)= Voir raccordements en Annexe **B**.
See connections in appendix **B**.
Siehe Anschlüsse im Anhang **B**.

(2)= Relais présent suivant la version et le modèle du récepteur.
Relay presence according to receiver model and version.
Relais je nach Version des Empfängermodells vorhanden.

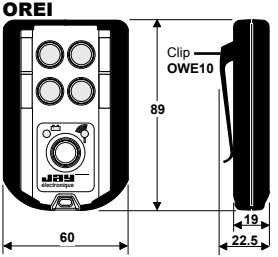
(3) = Sélection du relais par le microswitch JP4.
Relay selection by JP4 microswitch.
Relaisauswahl durch Microswitch JP4.

D - Dimensions
D - Dimensions
D - Abmessungen

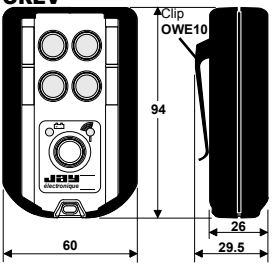
ORET



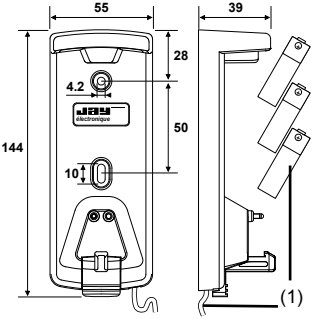
OREI



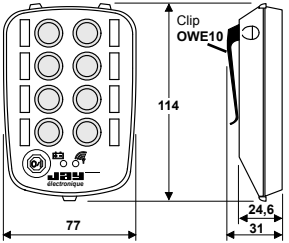
OREV



ORCL

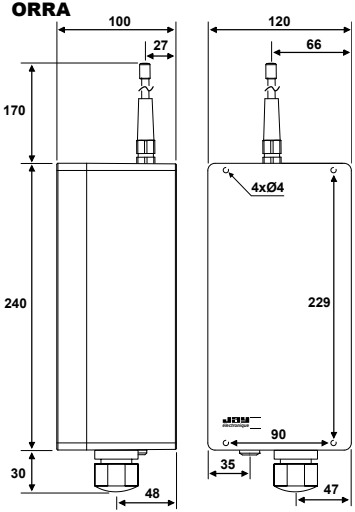


OREL

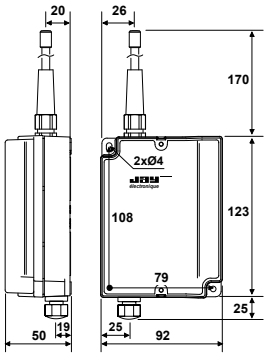


(1) = Filerie et accumulateurs présents uniquement dans les kits supports chargeurs ORCL1, ORCLU et ORCLW
Wires and accumulators supplied only with charger support ORCL1, ORCLU and ORCLW
Kabel und Akkumulatoren in den Kits Ladehalterung ORCL1, ORCLU und ORCLW

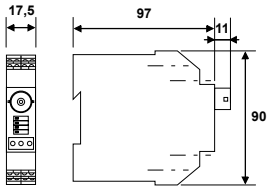
ORRA



ORRS

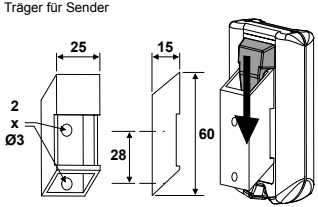


ORRD

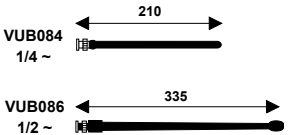


OWE01

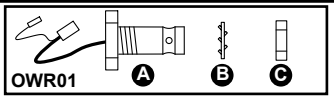
Support émetteur
Transmitter support
Träger für Sender



Antennes débrochables BNC
BNC Plug-in antennas
BNC Abnehmbare Antenne
(ORRD / ORRA&ORRS + kit OWR01)

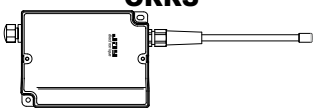


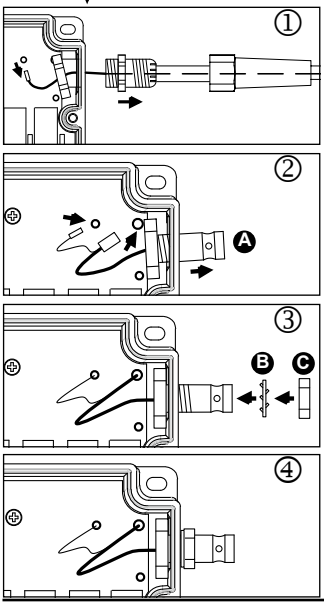
E - OWR01 : Kit antenne externe
E - OWR01 : External antenna kit
E - OWR01 : Abnehmbare Antenne BNC Kit



Récepteur / *Receiver / Empfänger*

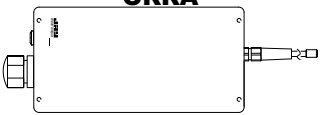
ORRS

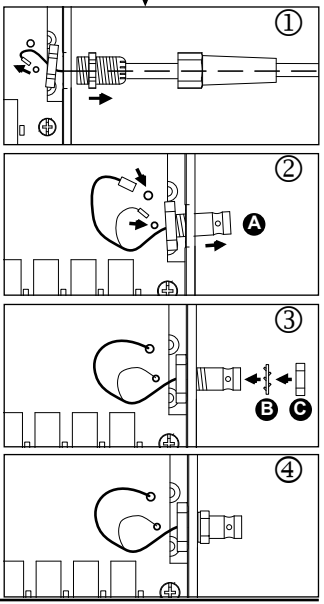




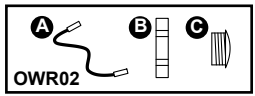
Récepteur / *Receiver / Empfänger*

ORRA



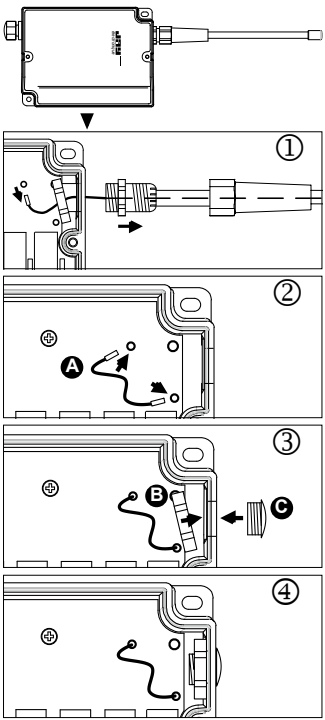


F - OWR02 : Kit antenne interne
F - OWR02 : Internal antenna kit
F - OWR02 : Inneres Antenne Kit



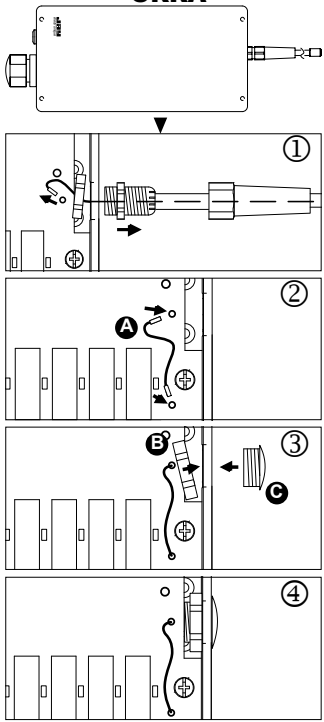
Récepteur / *Receiver / Empfänger*

ORRS

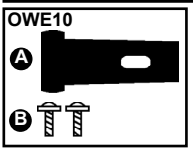


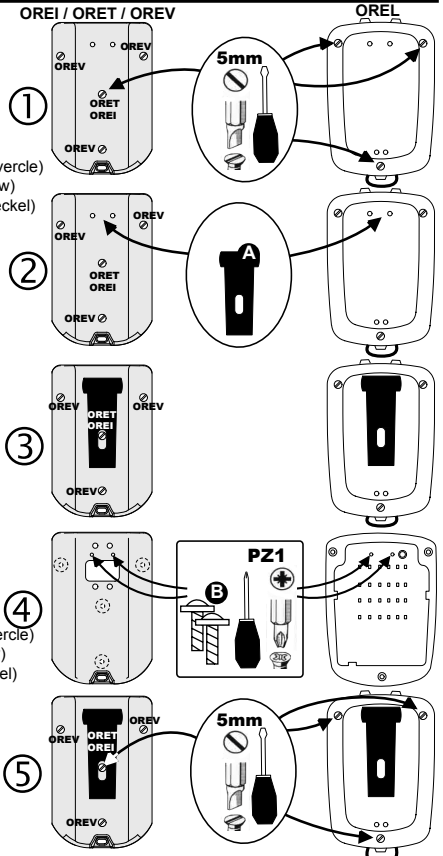
Récepteur / *Receiver / Empfänger*

ORRA



G - OWE10 : Clip d'accrochage
G - OWE10 : Carrying clip
G - OWE10 : Trageclip





H - Liste des canaux radio disponibles
H - List of available radio frequencies
H - Liste der verfügbaren Frequenzen

Fr

RAPPEL

Le canal radio des émetteurs et récepteurs **Orion** peut être modifié **uniquement** avec des émetteurs équipés du bouton «marche/arrêt».

Si plusieurs radiocommandes travaillent sur le même site, il convient d'utiliser des fréquences radio différentes espacées d'au moins 2 canaux (par exemple canaux 5, 7, 9,. ….). Bande 434 Mhz, intervalle entre canaux adjacents : 0,100MHz

Gb

REMINDER

The programming of radio channel number can **only be done** with a transmitter equipped with an «On/Off» button.

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.).
434 MHz band with adjacent channel intervals of 0,100MHz

De

ERINNERUNG

Die Programmierung einer anderen Funkkanalnummer kann **ausschließlich** über einen Sender erfolgen, der mit einer «Ein/Aus»-Taste ausgestattet ist.

Wenn mehrere Funkfernsteuerungen am gleichen Ort eingesetzt werden, muß auf unterschiedlichen Funkfrequenzen gesendet werden, die mindestens 2 Kanäle auseinander liegen (zum Beispiel Kanäle 5, 7, 9,. ….).
434 MHz band mit Kanalabstand : 0,100MHz

Canal Channel Kanal	Fréquence Frequency Frequenz (MHz)
01	433,100
02	433,200
03	433,300
04	433,400
05	433,500
06	433,600
07	433,700
08	433,800
09	433,900

Canal Channel Kanal	Fréquence Frequency Frequenz (MHz)	
10	434,000	
11	434,100	
12	434,200	
13	434,300	
14	434,400	
15	434,500	
16	434,600	
17	434,700	(1)
18	434,740	

(1) = Emetteurs et récepteurs programmés sur le canal n°17 à la livraison.
Receiver and transmitter programmed on radio channel nb.17 on delivery
Sender / Empfänger - Standardmäßig auf Kanal Nr. 17 programmiert.

DRAFT a

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