

RS Series Wireless enabling handle



Installation and User Manual



- TRANSLATED IN ENGLISH FROM
ORIGINAL FRENCH VERSION (332190D-revision05-FR)

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Reference serial model submitted to approval: April 2014

1 Safety rules and general safety guidelines

Under the terms of the European Machinery Directives, the wireless enabling handle is understood as a control unit and as a safety component used to stop a system. All applicable safety rules must be observed when installing and using the wireless enabling handle.

The instructions given in this manual must be observed to ensure safe use of the wireless enabling handle.

The unit must only be used by appropriately trained operators qualified to use the product.

The operator must have uninterrupted visibility of the manoeuvre which he is controlling with the enabling handle.

The wireless enabling handle should never be left unattended in any random location.

The location of the charger RSCP must be clear of any obstructions that prevent the reload of the wireless enabling handle. The load will be carried out inside, in a dry place (protection against moisture IP 20).

If several wireless enabling handles are used on the same site, they should be configured with different radio frequencies spaced by at least two channels (for example, channels 5, 7, 9 ...) or by five channels when several systems are being used within a radius of 10 meters.

In the event of a malfunction, immediately stop the installation by fully pressing and releasing the trigger on the enabling handle.

The enabling handle is designed to meet the requirements of Machinery Directive 2006-42 on the basis of the following standards:

- EN ISO 13849-1 (2015) for the performance level e (Category 4)
- EN 61508-1-7 (2010) and EN 62061 :2005 + Cor. :2010 + A1 :2013 + A2: 2015 for SIL 3

The enabling handle is equipped with a system detecting it on its charger which inhibits operation of the equipment if the handle is not placed on its charger after it has been used.

The enabling handle is designed for an intensive use.

2 Product identification data

The "RADIOSAFE wireless enabling handle" comprises :

- **The wireless enabling handle :**
Ref (handle with 2-position trigger) : **RSEP4A-*** or **RSEP4B-***
or
Ref (handle with 3-position trigger) : **RSEP40-*** or **RSEP41-***

Supplied with :

- A battery
- A handle configuration software (supplied on USB key-card)
- The installation and user manual (supplied on USB key-card)

- **A charger :** Ref.: **RSCP-***

- **A radio receiver :** Ref. **RSRB*400-***

Supplied with :

- A SIM card
- A ¼ wave antenna, ref. : **VUB084**
- A BNC elbow connector, ref. : **VUB060**
- A 50 cm antenna extender, ref. : **VUB170**



3 Theory of operation

The receiver (R) is integrated in the machine control unit.

The wireless enabling handle (P) transmits, by radiowave, the trigger operating request (G) and possible commands generated using the buttons (B).

The receiver (R) enables (or not) operation (F) of the machine (M) and transfers the commands (O) assigned to the buttons.

The receiver (R) stops operation of the machine in the following cases :

Case 1 - Trigger (G) released or clenched (in the case of the 3-position trigger) on wireless enabling handle (P) during use ;

During use, the wireless enabling handle transmits a stop command as soon as the user releases or clenches the trigger.

→ Safety shutdown following stop request or operator incident.

Case 2 - Radio link (L) interrupted during use ;

During use, the wireless enabling handle operates with a continuous radio link with the receiver. If the link is interrupted more than 300ms, the receiver automatically stops the system.

→ Safety shutdown prior to loss of control of the stop function.

Case 3 - Procedure for picking up or setting down wireless enabling handle on charger not observed (C) ;

The wireless enabling handle has been removed from its charger and the trigger has not been activated within the required period of time.

→ Safety shutdown subsequent to incorrect use of wireless enabling handle.

Case 4 - A secure access area (Z) has been opened without a prior access request;

The access to the area has been opened without prior request by the user, or following a defined time delay for opening of the secure area access.

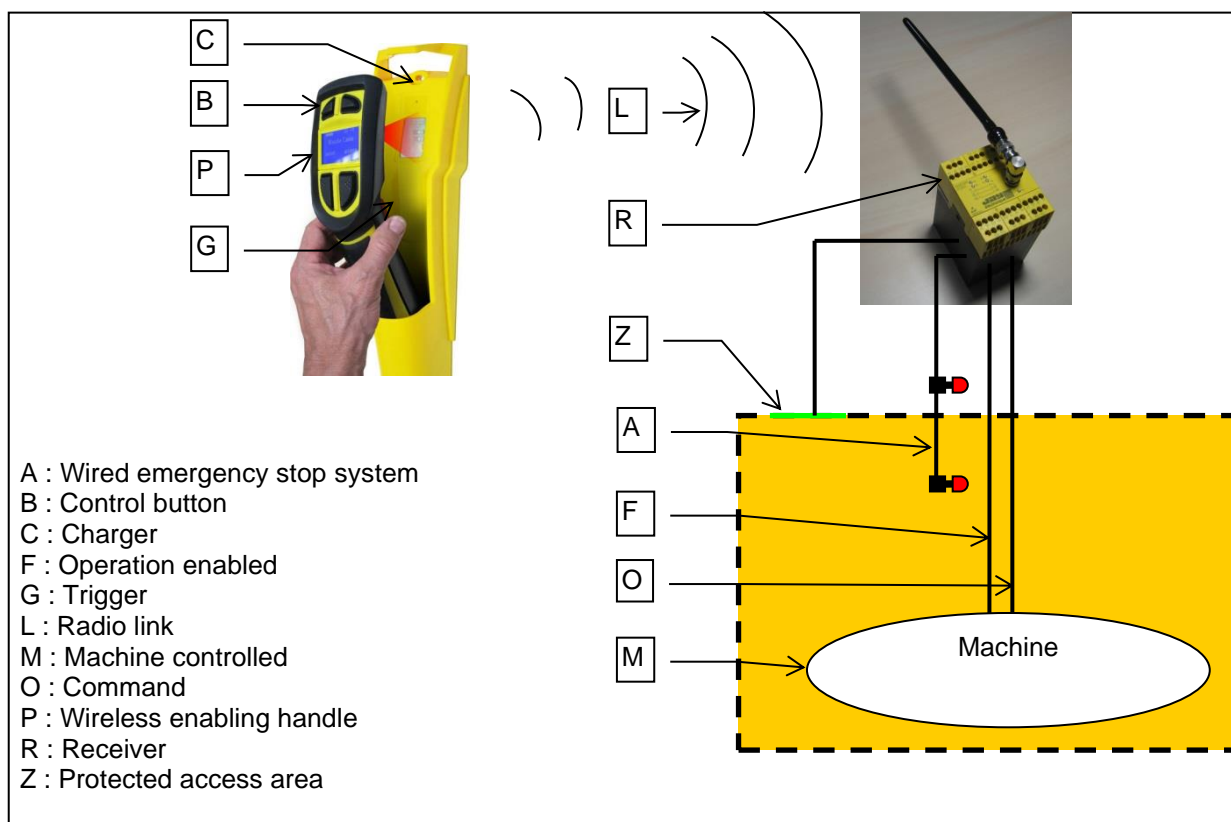
→ Safety shutdown following detection of intrusion into a secure area.

Case 5 - A wired emergency stop system (A), if used, has been opened ;

The wired emergency stop system(s), connected to the receiver, has been opened.

→ Safety shutdown of machine subsequent to activation of wired emergency stop system(s).

Case 6 - Detection of a fault (see section : « **Faults communicated by receiver** »)



> See « Procedures » in section 11.

4 Check of functions, initial start-up

This section is aimed at familiarising you with the product.

Detailed procedures are given to allow you to simulate operation of the equipment in its « ex-factory » configuration.

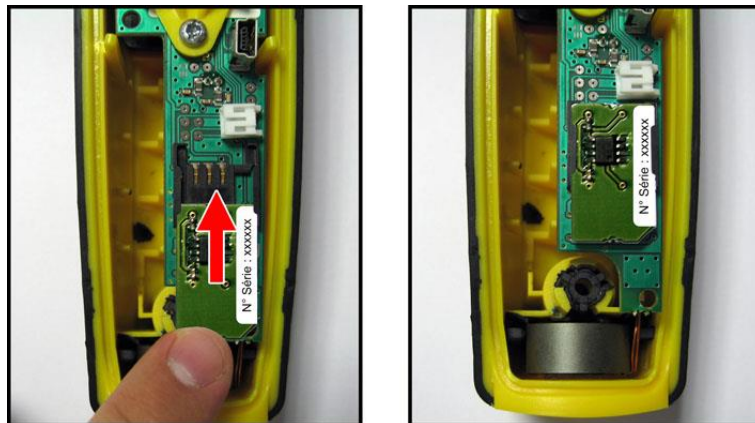
4.1 « Ex-FACTORY » parameters

Operating mode : 4 control buttons
Radio channel number : 64 (434,675MHz)
Transmit power level : Set to maximum for all handle models
Handle configuration lock : « deactivated »
Time delay (1) : "A" selectors set to « 5 » (10 seconds)
Receiver application program : "B" selector set to « 0 » (no area access management)

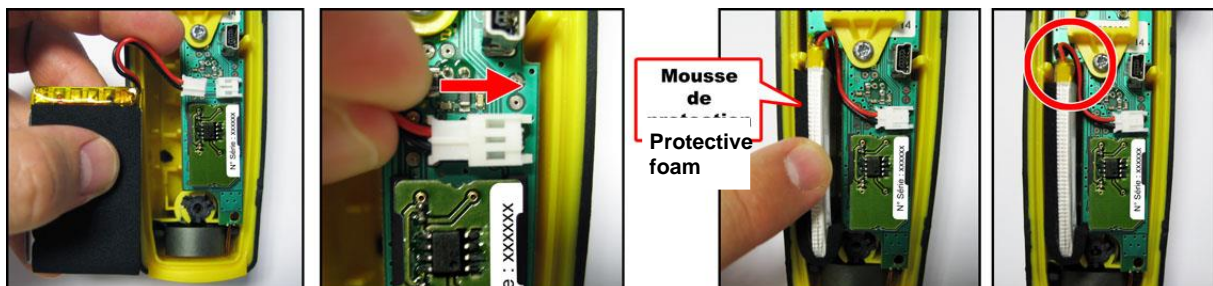
(1) Time delay for « secure area access inhibit » and « trigger activation » on enabling handle pick-up

4.2 Setting the wireless enabling handle into service

- **Step 1** Open the enabling handle
- **Step 2** Insert the SIM card supplied with the receiver or separately (pay attention to insertion direction)



- **Step 3** Connect the battery



- **Step 4** Close the handle using a Pozidriv No.1 screwdriver (2), by screwing in, without blocking, the central screw, followed by the two top screws and the bottom screw. Finish up by blocking the 4 screws.

(2) Do not use an electric screwdriver without torque control.

• Notes

The SIM card contains the complete configuration for the handle.

The basic functions of the wireless enabling handle can be configured directly using the buttons on the front panel. The basic functions are :

- Read information on handle (identity code, SIM card serial number, software version, number of current configuration file)
- Change screen display language
- Change frequency channel
- Change power level
- Lock handle configuration

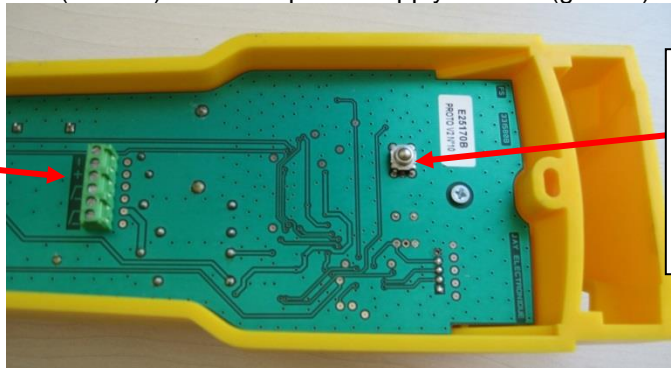
To modify the basic parameters, refer to section 5.

4.3 Setting the charger into service

- **Step 1** Connect a 24VDC (+/- 5 %) stabilised power supply to the – (ground) and + (+24Vdc) terminals.

24 VDC power supply

S1 } « Handle on
S2 } charger »
outputs

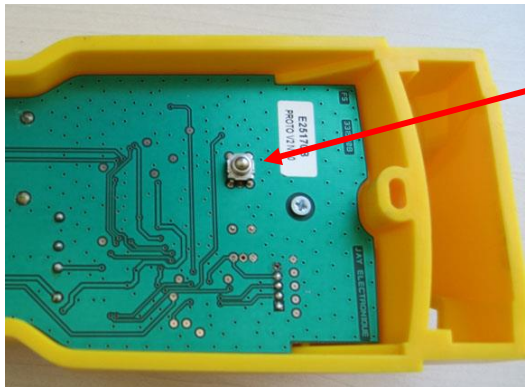


Pairing button:
This button ensures pairing of the handle with the charger. The charger will learn the Identity code of the handle.

- **Step 2** Supply the charger
→ The red indicator light V2 should come on.



- **Step 3** Pair the handle with its charger by placing it in front of its charger and pressing the association button at the rear of the charger.
→ The green indicator light V1 (handle present) on the charger should come on.



Button used to pair handle with charger.

- **Step 4** Release the pairing button
→ The green indicator light V1 should stay on. The handle is now paired with the charger.

• **Notes**

When the handle is located at a distance greater than 30cm from the charger, the green indicator light V1 goes off. It comes back on when the handle is brought nearer to the charger.

The 2 outputs, S1 and S2, are active when the handle is present on the charger.

The handle is charged contact-free (inductive charge). The charger is equipped with a « handle presence » detection function. This detection function inhibits the enabling handle and keeps the receiver safety relays active.

The "handle on charger" condition is monitored by an infrared link.

4.4 Warning regarding the battery of the enabling handle



There is a risk of explosion if battery is replaced by a battery of an incorrect type. Only the battery intended for the enabling handle and supplied by JAY Electronique is suitable



Only the charger ref. :**RSCP** from JAY Electronique is suitable for recharging the battery of the enabling handle.



Do not expose the battery to temperature above 50°C (122°F).



Do not open or attempt to modify the battery.



Failure to follow instructions may cause fire or explosion.

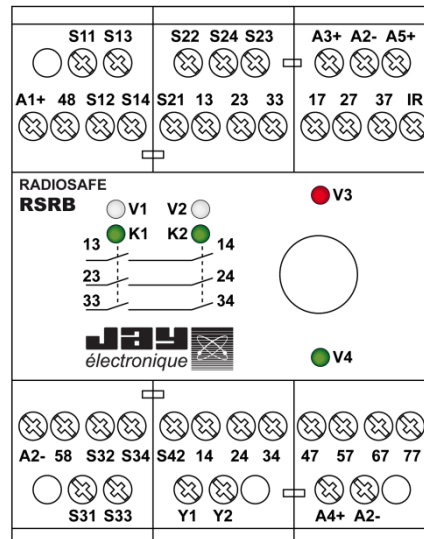


Please respect the dispose of used batteries as directed.

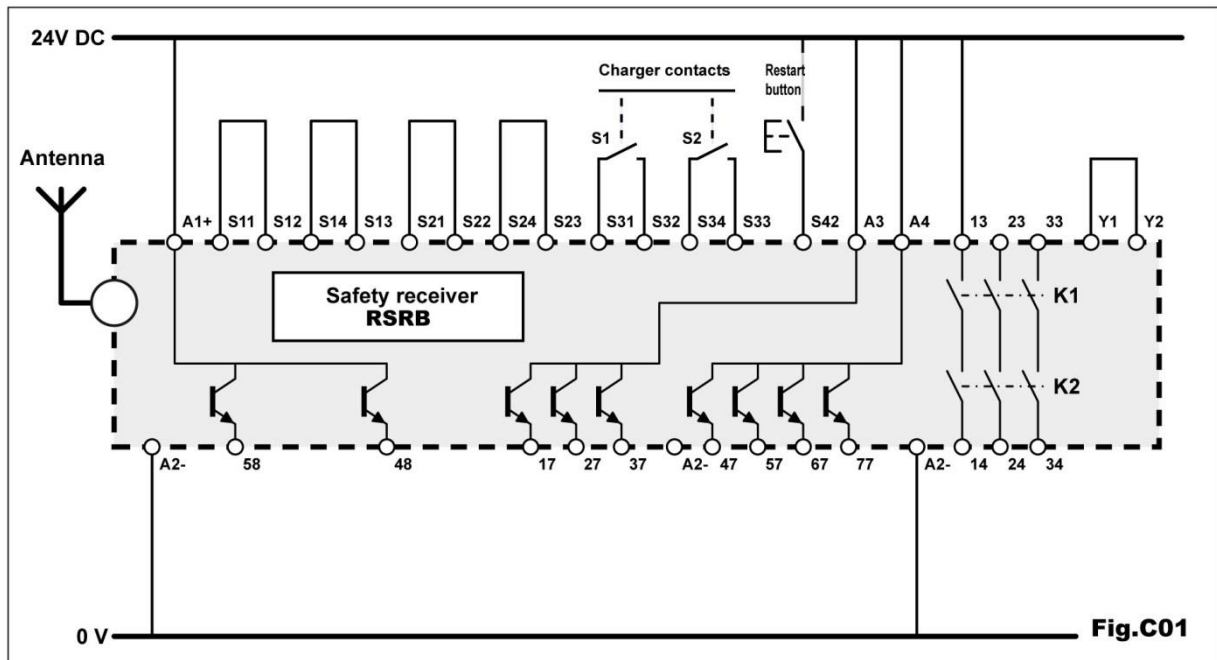


The load must be performed in a dry (protection against moisture IP 20), sheltered and protected place.

4.5 Setting up the product

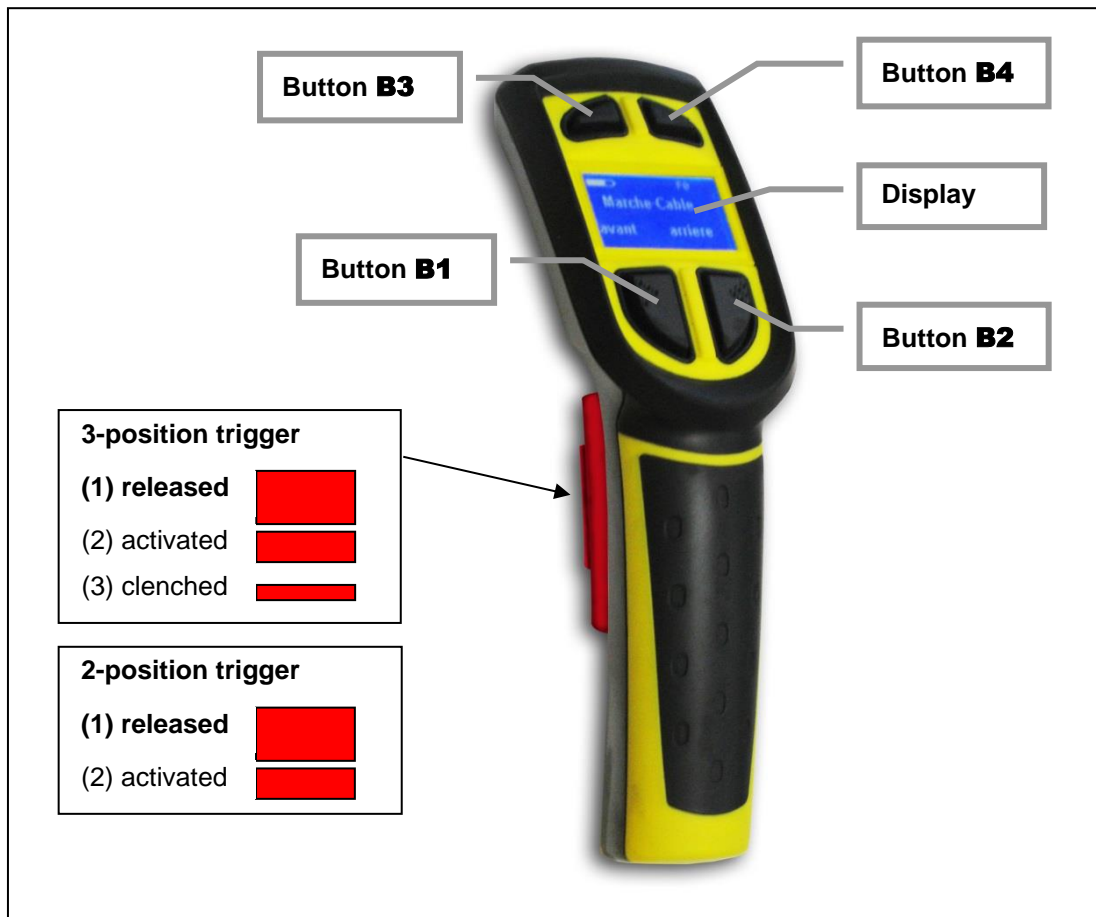


Test wiring: does not take account of your application :



- **Step 1** Prepare a 24VDC (+/- 5 %) stabilised power supply, 500 mA min.
Prepare a pushbutton, for the reset function.
- **Step 2** Wire the receiver as follows :
 - Shunt the terminal pairs [S11-S12], [S13-S14], [S21-S22], [S24-S23] and [Y1-Y2]
 - Connect the terminals S31, S32, S33 and S34 to the charger
 - Install a reset button between terminal S42 and the +24Vdc of the power supply
 - Connect the +24VDC of the stabilised power supply to terminals A1+, A3 and A4
 - Connect the power supply ground to the two A2- terminals
- **Step 3** Supply the receiver
Indicator light V1 of the receiver comes on steady and indicator light V2 of the receiver flashes regularly.

4.6 Testing the unit



- **Step 1** Place the handle on the charger.
→ The green indicator light on the charger comes on. If not, check that the handle is paired with the charger. Refer to the section « Setting the charger into service ».
- **Step 2** Press the reset button to engage the output relays of the receiver, K1-K2
→ The 2 indicator lights K1 and K2 should come on and indicator light V2 of the receiver should go off.
- **Step 3** Pick up the enabling handle and place the trigger in the « active » position within 10 seconds.
→ The antenna symbol should appear on the display screen.

Notes :

- 1 - Safety relays K1 and K2 deenergise when the trigger is released or clenched (in the case of 3-position trigger).
- 2 - Safety relays K1 and K2 energise again when the trigger is reactivated after it has gone through the « released » position **(1)**
- 3 – The safety relays remain active when the trigger is released within 30 cm of the charger.

(1) Wait 3 or 4 seconds before you reactivate the trigger to allow the receiver to correctly reinitialise.

5 Setting the product into service

Experience has shown that functional reliability basically depends on :

- the quality of the electrical power supply and the associated protection circuits ;
- the characteristics of the components connected to the receiver.
- the position of the reception antenna.
- the configuration and wiring of the various components

5.1 Electrical power supply, installation and wiring

Final wiring in the receiver cabinet and of the charger must only be performed with the power shut down.

5.1.1 Receiver

Recommendations :

- The product should be installed near the intervention area.
- The receiver should be installed in a housing. This housing will ensure the receiver protection against mechanical damage, according to the application.
- A wire-type emergency stop should be wired on the front panel of the housing ; this emergency stop can be used when the handle is set on its charger.
- Provide a position for a reset button, required to reset the receiver module when setting into service, following a fault, or following a safety shutdown.
- On the top of the housing, secure a 3-color (green, orange, red) indicator light column to indicate the operating status of the wireless enabling handle.
- Near the indicator light column, fasten an information sign indicating the meaning of the various states of the indicator lights (example given on last page of this manual).
- The receiver must be supplied with 24 VDC +/- 15% across terminals [A1+ and A2-].
- Provide a protection system implementing a 1 amp delayed fuse in series on input A1 (24V DC) of the receiver.
- Familiarise yourself with the other characteristics in the section entitled « Technical characteristics »

5.1.2 Charger

- The charger must be supplied with 24VDC +/- 5%. (Jay charger, ref. : RSCU)
- Electrical protection : 0.5 A delayed fuse.

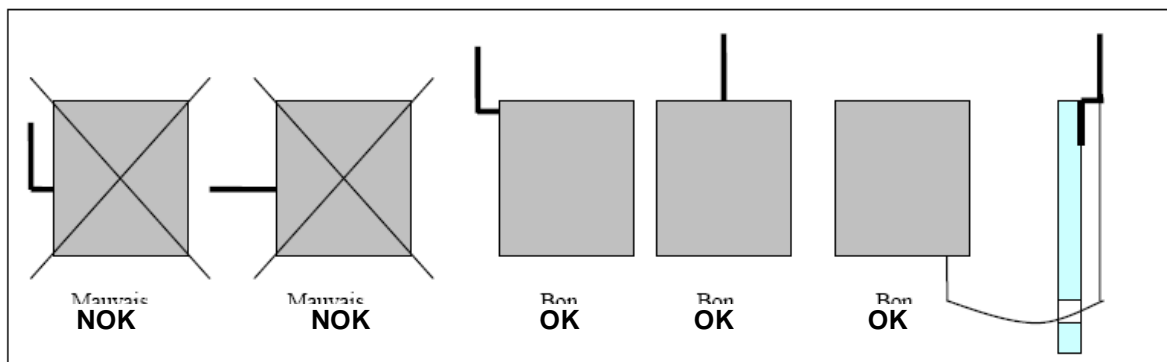
5.2 Receiver antenna

The receiver is supplied with an antenna, a 50 cm antenna extension and a BNC-BNC elbow connector.

If a metal housing is used, the receiver antenna should be mounted on the top of the housing.

If a plastic housing is used, the antenna can be connected directly on the receiver using the BNC elbow connector supplied with the receiver.

If poor radiowave propagation is observed, for example, intervention in a closed enclosure, the receiver antenna should be mounted inside the enclosure.



5.3 Intervention mode and operation of enabling handle

The intervention mode and operation of the product depend on the needs of the application.

Intervention mode

- The wireless enabling handle can be used on machines in the following modes :
 - o « Monitoring - Diagnostic»
 - o « Manual control ».

The detailed intervention conditions are given in the next section.

The wireless enabling handle can be configured to manage access to a machine area. For this purpose, the « 4 control buttons » mode is used.

The principle of the machine area access function is detailed below :

- Application programs 8 and 9 of the receiver are dedicated to this purpose (chosen using the 2 “B” selectors)
- The access gate or safety light barrier is controlled by the receiver using 2 inputs.
- The user makes a request for authorisation to access the machine area using one of the two buttons (B1 or B2) on the wireless enabling handle.
- This request initiates a time delay (1) inhibiting the two gate contacts or the safety output of a safety light barrier.
- While the gate is opened or while crossing the safety light barrier, the receiver safety relays remain active.
- Once the gate has been closed or the safety light barrier has been crossed, the inhibit condition is stopped to prevent entry of any other person.

(1) configurable by 2 « A » selectors on receiver.

Handle operating mode

- The wireless enabling handle can be used in the following 2 operating modes :
 - o « 4 control buttons »
 - o « function selection ».

This will depend on the number of commands to be generated. For an application requiring more than 4 commands to be generated, the handle will need to be configured in « function selection » mode using the « Dialog RSP » PC software supplied with the handle.

5.3.1 Conditions for intervention in « monitoring - diagnostic » mode

Safety condition in this intervention mode :

This intervention mode must satisfy the requirements of standard NF EN12100-2 §5.5 «Additional preventive measures».

In this intervention mode, the product provides a wireless individual protection system for qualified personnel intervening for equipment monitoring or diagnostic purposes, whether in downgraded operation or not. The regulations prohibit direct intervention on the equipment.

The « monitoring - diagnostic » intervention mode is only possible provided the enabling handle is configured for « 4 control buttons » operation (ex-factory configuration)

The « monitoring - diagnostic » intervention mode is only acceptable provided:

- o The risk assessment shows that injury to the intervening technician can be avoided in the event of an immediate danger.
- o The risk assessment shows that the time required to stop the equipment by releasing or clenching the trigger is sufficiently short to prevent placing the intervening technician in danger.
- o An emergency shutdown of the equipment by clenching or release of the enabling handle trigger does not produce any additional dangerous condition.
- o The operator can keep the enabling handle in his hand without releasing the trigger throughout the time of the intervention.

In the « monitoring - diagnostic » mode, the receiver can manage (or not) access to the machine area.

5.3.2 Conditions for intervention in « manual control » mode

Safety condition in this intervention mode

This mode satisfies the requirements of standard NF EN12100-2 §4.11.8 « Guidelines relative to manual control ». This mode is possible insofar as control of the movement using the control buttons associated to action on the handle trigger is sufficient to stop the equipment if necessary.

The « manual » intervention mode is only acceptable provided:

- The risk assessment shows that injury to the intervening technician can be avoided in the event of an immediate danger.
- The risk assessment shows that the time required to stop the equipment by releasing or clenching the trigger is sufficiently short to prevent placing the intervening technician in danger.
- An emergency shutdown of the equipment by clenching or release of the enabling handle trigger does not produce any additional dangerous condition.

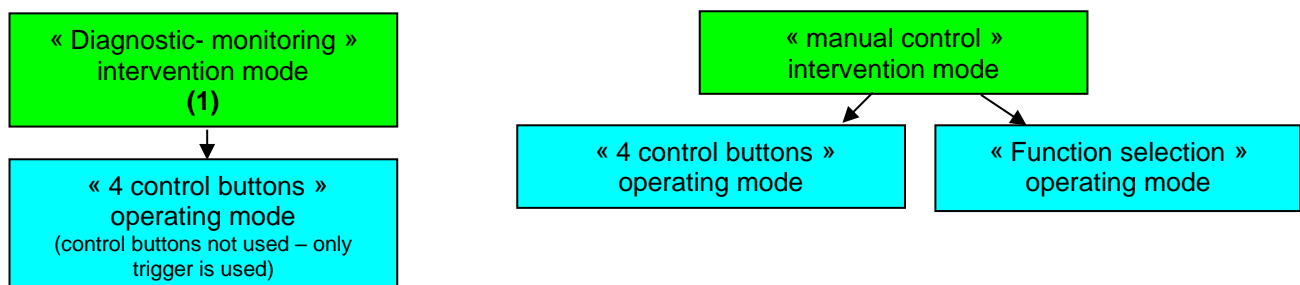
Conditions for use of product in « manual control » intervention mode

- The equipment must be stopped from the supervision station or by opening an access gate.
- The enabling handle must be removed from its charger. The « handle withdrawn » information is accessible on output 17 of the receiver (active at the high state).
- To ensure the « manual controls » on the equipment, the operator must actuate the trigger to the active position, and use the four control buttons to generate a command.
- So long as the handle is not set down on its charger (operator has not withdrawn from intervention area), the equipment will not be able to operate again in automatic mode.
- The « manual control » intervention mode is possible in « 4 control buttons » mode and in « function selection » mode.
- The « manual control » intervention mode does not allow the receiver to manage access to a machine area.

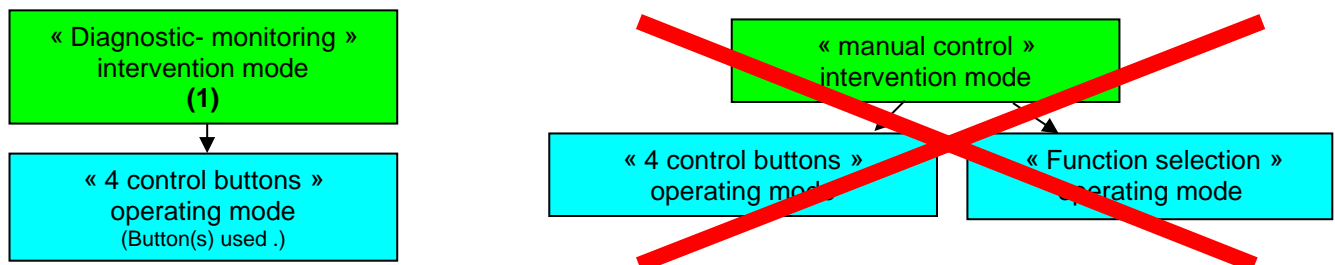
5.3.3 Summary of conditions for intervention on machine.

The conditions for intervention on a machine using the enabling handle can be summarised as follows :

Case 1 : Application **without** management of machine area access by receiver



Case 2 : Application **with** management of machine area access by receiver



(1) With a machine in operation, the regulations prohibit acting on the machine in the « monitoring - diagnostic » mode.

5.3.4 Configuration of enabling handle operating mode

The wireless enabling handle operating mode can be configured using the Dialog RSP PC software supplied with the handle.

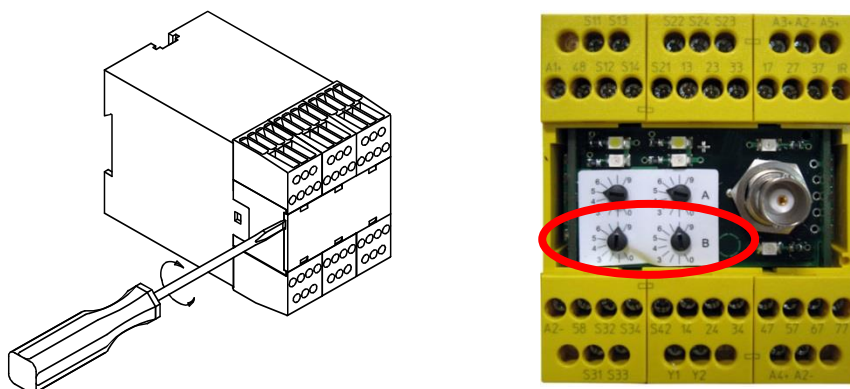
This software is used to :

- Configure the handle in « 4 control buttons » or « function selection » operating mode.
- Modify the content of the screen display on the handle by loading or creating new pictograms.
- Save or re-load a new handle configuration in the SIM card of the handle.
- Re-load an old configuration.

5.3.5 Receiver : selecting the program

The receiver has 10 programs which can be selected using the two « B » selectors.

Access to the configuration selectors is obtained by removing the front panel of the receiver.



Important : the 2 « B » selectors must be set to the same position to validate the selected program.

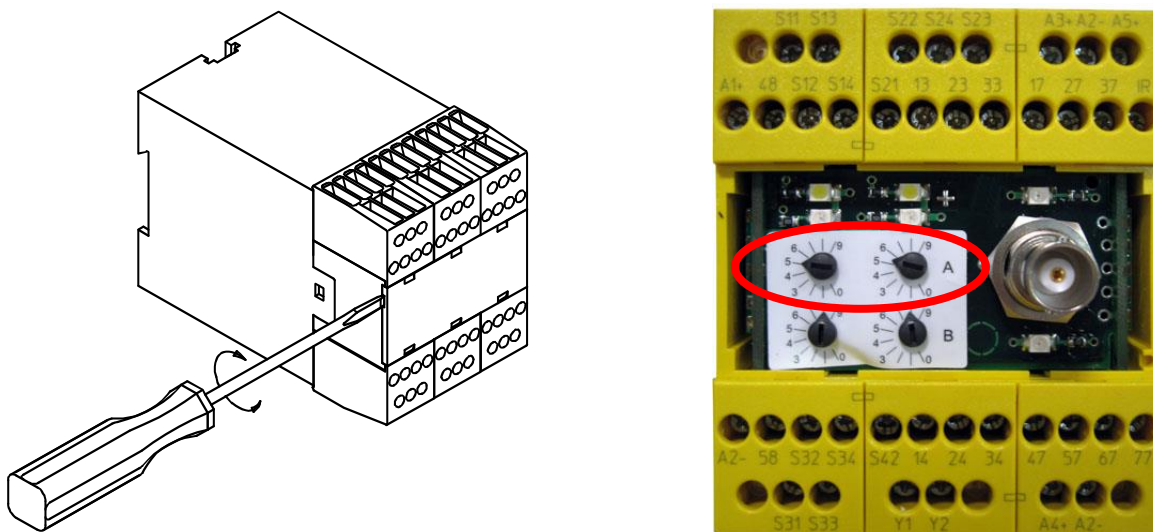
Position of « B » selectors	Reset mode, following a wired emergency shutdown or opening of a gate	Reset mode, following release or clenching of the handle trigger	Dangerous area access control	Remarks
0	Control console (1)	Trigger	NO	
1	Control console (1)	Control console (1)	NO	
2	Automatic	Trigger	NO	
3	Automatic	Control console (1)	NO	
4				Not used
5				Not used
6				Not used
7				Not used
8	Control console (1)	Trigger	YES	The receiver module controls access to the dangerous area using the handle.
9	Control console (1)	Control console (1)	YES	The receiver module controls access to the dangerous area using the handle.

Note : The « manual control » intervention mode cannot be used for programs 8 and 9.

(1) = Pushbutton “Restart”, wired on receiver terminal S42

5.3.6 Adjusting the machine area access time.

The machine area access time and the time during which the gate or safety light barrier is inhibited to allow intervention in a machine area are configurable using the 2 « A » selectors on the receiver.



Important : The 2 « A » selectors must be set to the same position to validate the selected time delay.

Position of «A» selectors	0	1	2	3	4	5	6	7	8	9
Machine area access time	5 s.	6 s.	7 s.	8 s.	9 s.	10 s.	15 s.	20 s.	25 s.	30 s.
Inhibit time (1) (Muting)	5 s.	10 s.	20 s.	40 s.	1 min.	2 min.	3 min.	4 min.	5 min.	10 min.

Caution : The machine area access time is the same as the enabling handle pickup time after it has been withdrawn from its charger.

(1) This time corresponds to the muting time of a gate or safety light barrier. Once the gate has been closed or the barrier has been crossed, the muting function is stopped to prevent any unauthorised person from entering into the area.

5.4 Receiver : operation and wiring

5.4.1 Operation and wiring of function outputs

The receiver is equipped with 6 solid state outputs (100 mA max). Assignment of the enabling handle buttons (**B1** to **B4**) with respect to the outputs depends on the operating mode selected using the RSP configuration software.

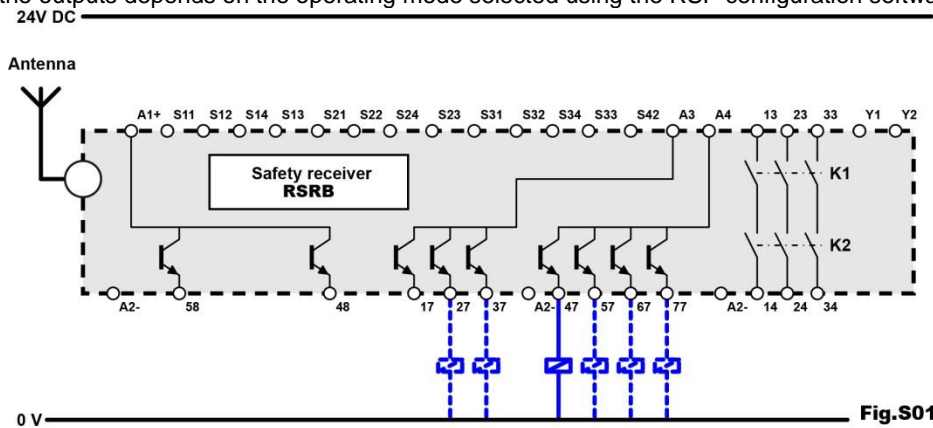


Fig.S01

Caution: the loads connected to the outputs must not deliver more than 100 mA with 24VDC

(1) Assignment of receiver outputs in « 4 control buttons » mode (RSRBx400-0)

In the « 4 control buttons » mode, buttons B1, B2, B3 and B4 of the enabling handle respectively control outputs 27, 37, 47 and 57. Output 67 is activated as soon as one of the four buttons is pressed (common output)

Enabling handle buttons activated	Safety receiver RSRB outputs activated					
	27	37	47	57	67	77
B1	X				X	
B2		X			X	
B3			X		X	
B4				X	X	

Reminder : If the receiver is managing machine area access, B1 and/or B2 and the associated outputs 27 and/or 37 are used to process the muting enable request for the gate or safety light barrier.

(2) Assignment of receiver outputs in « function selection » mode (RSRBx400-0)

This operating mode is configurable using the dialog RSP PC software.

In « function selection » mode, buttons B3 and B4 are used to select the machine component to be controlled (F1 to F4) and buttons B1 and B2 are used to select the direction of movement.

Receiver RSRBx400-0 :

Selected Function (with B3 and B4 buttons)	Enabling handle buttons activated	Safety receiver RSRB outputs activated					
		27	37	47	57	67	77
F1	B1	X				X	
	B2		X			X	
F2	B1			X		X	
	B2				X	X	
F3	B1	X					X
	B2		X				X
F4	B1			X			X
	B2				X		X

Reminder : Machine area access cannot be managed in the « function selection » operating mode.

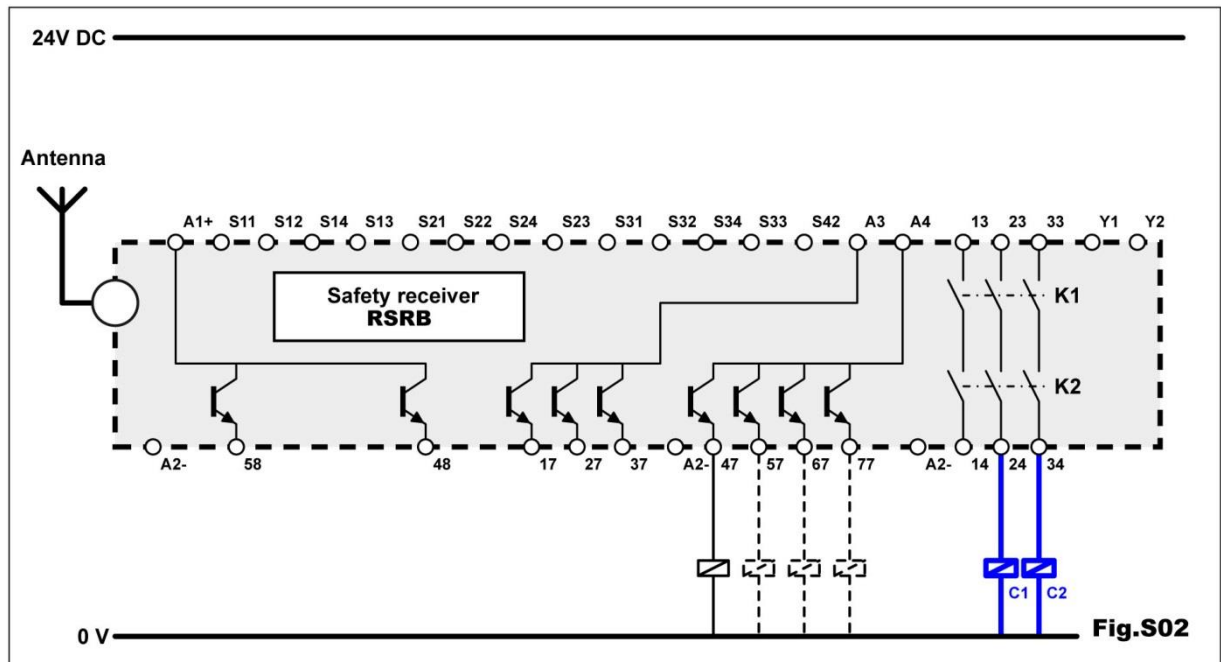
5.4.2 Operation and wiring of safety relays K1-K2.

The safety stop chain is cut out by safety relays K1 and K2 (internal to receiver) which control the contacts accessible by terminals 23-24 and 33-34.

The state of relays K1 and K2 depends : on the position of the trigger (table 1), possible faults detected, and possible radio link losses.

Other external safety stop devices can be added including an emergency stop palmswitch and a gate control device, wired to the inputs provided for this purpose on the receiver. The state of the inputs will act directly on relays K1 and K2 through the receiver.

The state of safety relays K1 and K2 is available between terminals 13 and 14.



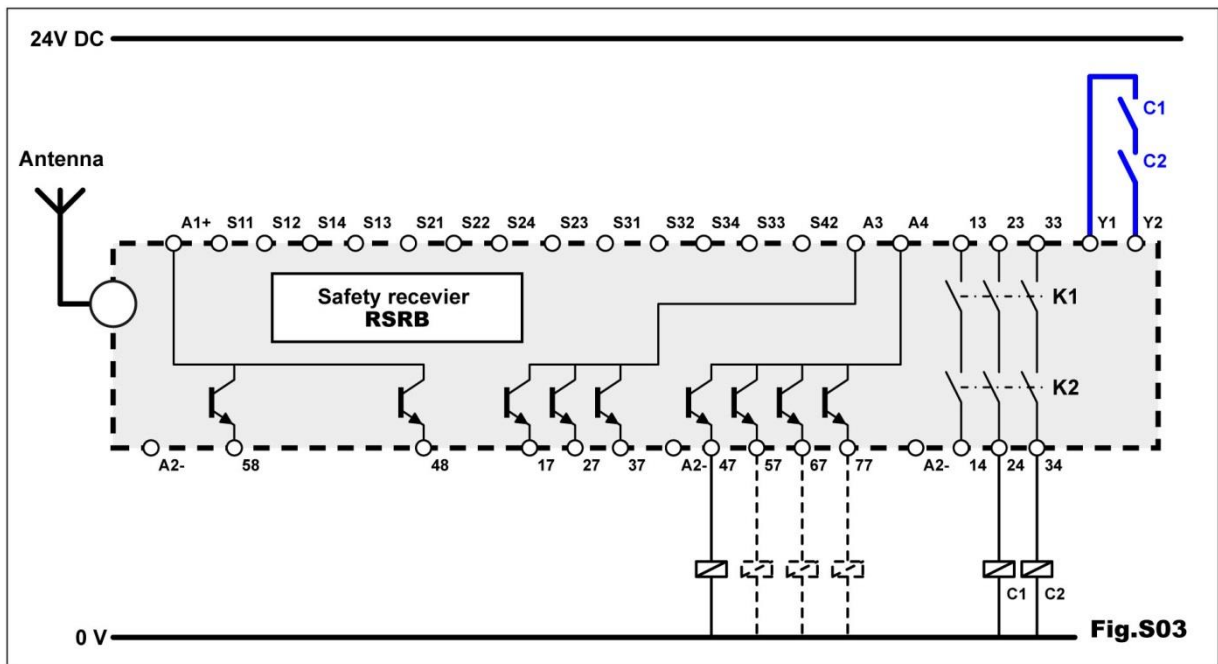
State of safety outputs as a function of enabling handle trigger position :

Trigger position	State of safety relays K1 and K2	S14	State of contact chains accessible by terminals S13-S14 / S23-S24 / S33-S34
Released	Inactive	0	Open
Active	Active	+24 Vdc	Closed
Clenched	Inactive	+24 Vdc	Open

5.4.3 Monitoring of main contactor : operation and wiring

Input « Y1-Y2 » is used to monitor the state of the contactor(s) connected to the K1-K2 safety outputs. The state of the contactor contact(s) wired to input Y1-Y2 must be closed in order to reset the receiver.

Note : If this input is not used, wire a jumper across inputs Y1 and Y2.



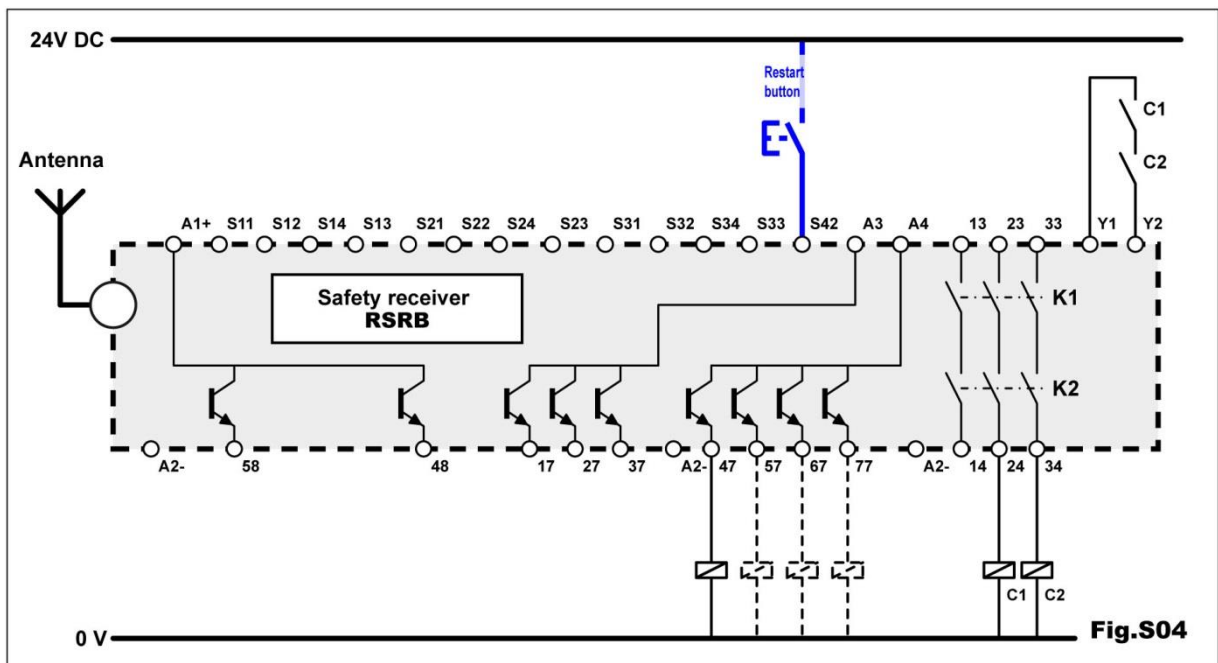
5.4.4 Reset button : wiring and management

Following a safety shutdown, safety relays K1 and K2 deenergise and open the contacts accessible by terminals 23-24 and 33-34.

In accordance with the application program selected using the two « B » selectors on the receiver, the safety relays are automatically reset, or reset is requested using a pushbutton wired on input S42.

This being said, the reset button is always necessary except with application program « 2 ».

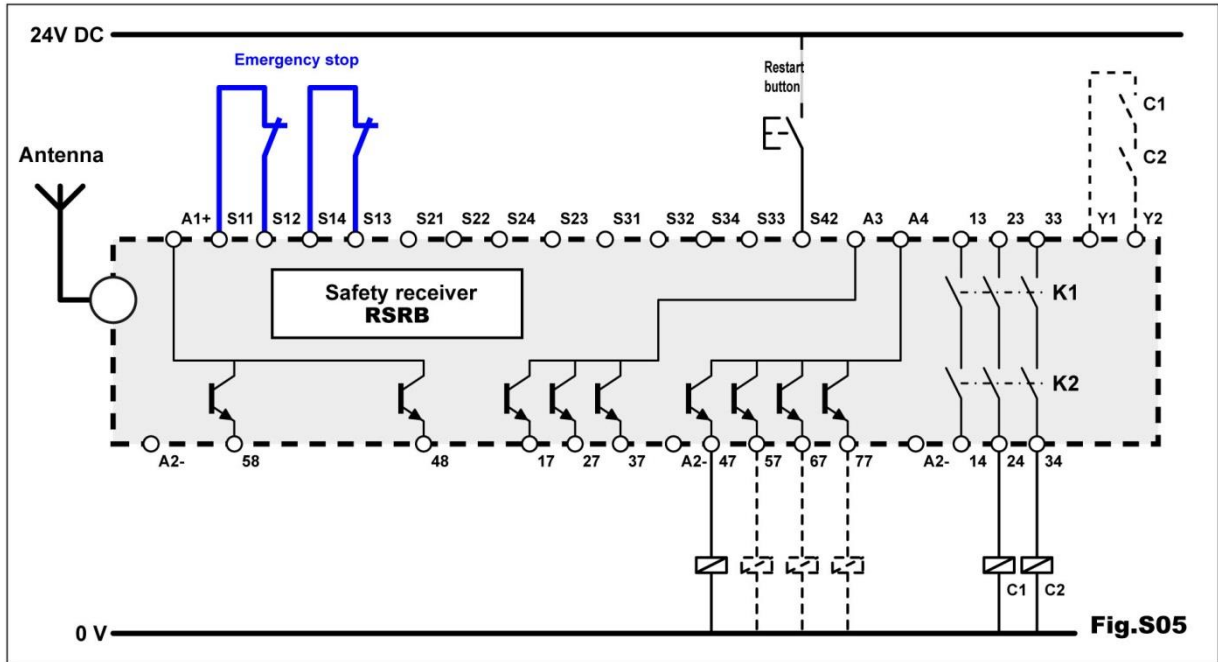
Note : For information on the reset modes selected using the 2 « B » selectors, refer to the section entitled “ Receiver, selecting a program “.



5.4.5 Wiring of a wired safety shutdown device.

The external safety shutdown devices (wired safety shutdown palmswitches ...) must be wired to the « Emergency stop » inputs. To do so, you must use external safety shutdown devices comprising two redundant contacts. One of the contacts must be connected across terminals S11-S12, and the other across S13-S14 (fig 2).

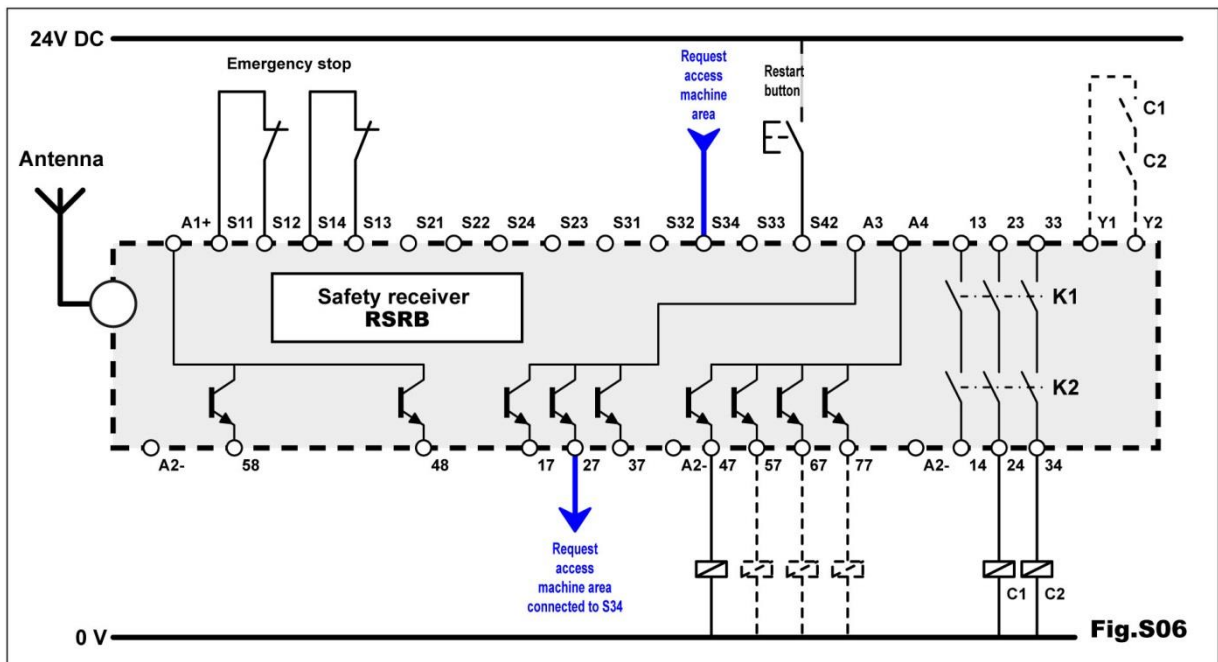
Note : If this wired emergency stop function is not used, **you must wire** two jumpers across S11-S12 and S13-S14.



5.4.6 Wiring of a machine area access authorisation request function.

- The enabling handle must be configured in the « 4 control buttons » operating mode.
- Output 27 (associated to button B1) or output 37 (associated to button B2) must be connected to input S34 to ensure the machine area access authorisation request.
- Using the Dialog RSP PC software, you can load a pictogram suited to this application on the enabling handle screen. **See pictograms available in Dialog RSP PC software library.**

Note : The wiring diagram shown below is designed for an area access request using button B1 (output 27)



Note : The wiring is the same for an access by gate or an access protected by a safety light barrier .

5.4.7 Wiring of an equipment with area access protection

The enabling handle can be used with machinery located in an area with protected accesses, or with machinery for which access is not protected.

On equipment with protected access, the wireless enabling handle can be used to generate access requests and can control the access to a protected area :

- The accesses must be equipped with a system used to detect passage of a person.
- **For an access by which a gate is opened and closed**, 2 contacts must be wired across terminals S21-S22 and S23-S24 of the receiver.
- **For an access by which a safety light barrier must be crossed**, the barrier outputs must be wired to inputs S22- and S24 of the receiver.
- The receiver monitors the coherency and the state of the 2 contacts of the gate or of the two outputs of the safety light barrier.
- On user request (handle button B1 or B2 pressed and released), the receiver temporarily inhibits (adjustable time delay) the two contacts of the gate or the two outputs of the safety light barrier.
- The orange indicator light on the indicator light column wired on output 58 flashes.
- The user can enter or exit the secured area without tripping the two safety outputs K1 and K2 of the equipment.
- Once the gate is closed or the safety light barrier is crossed, the orange indicator light on the indicator light column stops flashing and is steadily lit

Diagram 1 : Access protected by access gate.

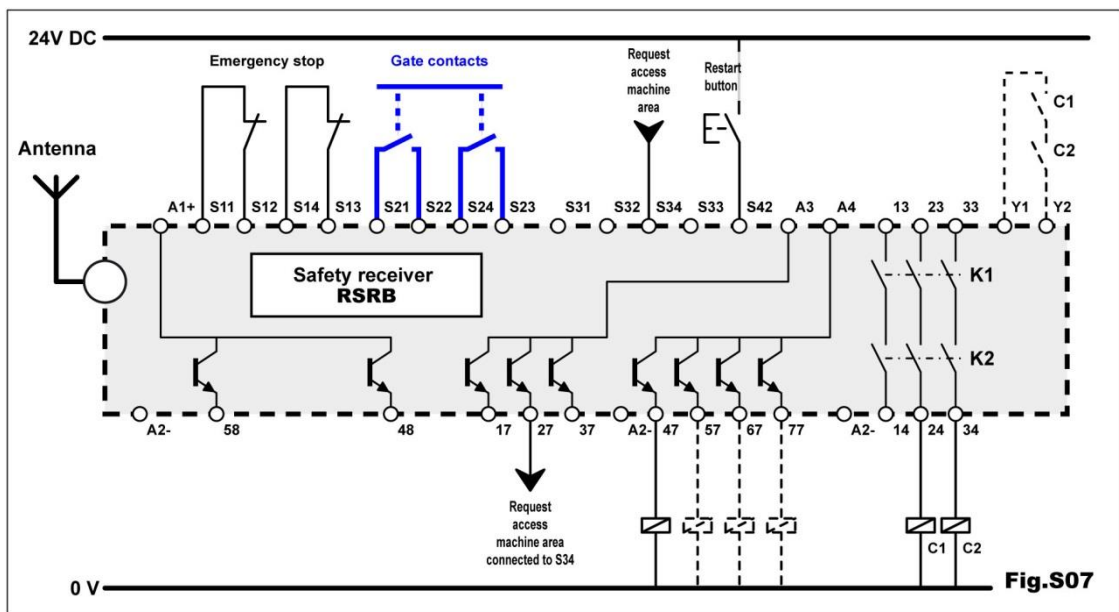
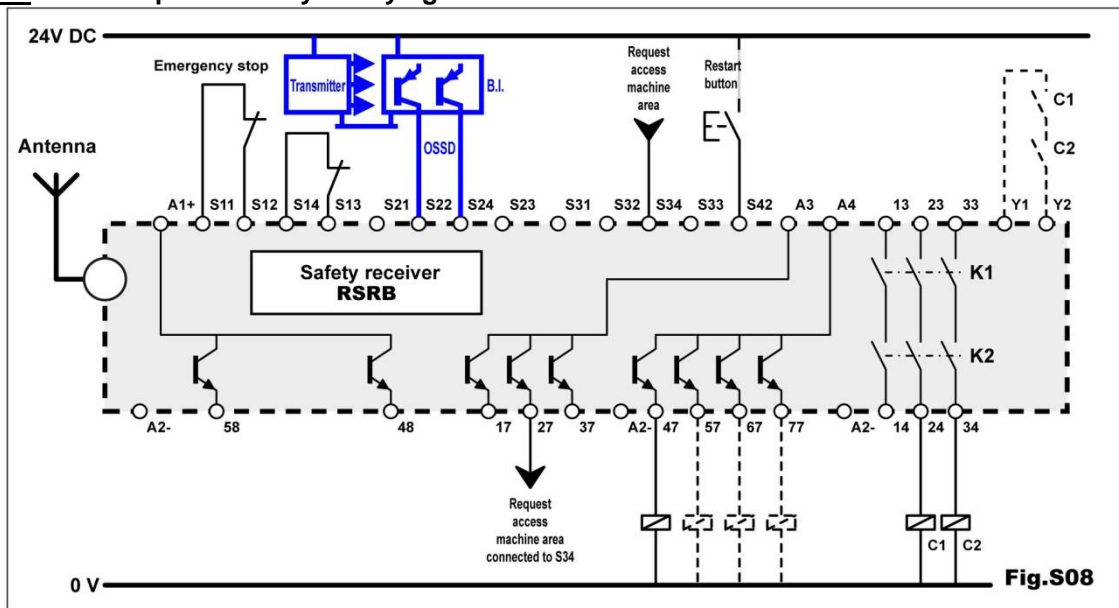
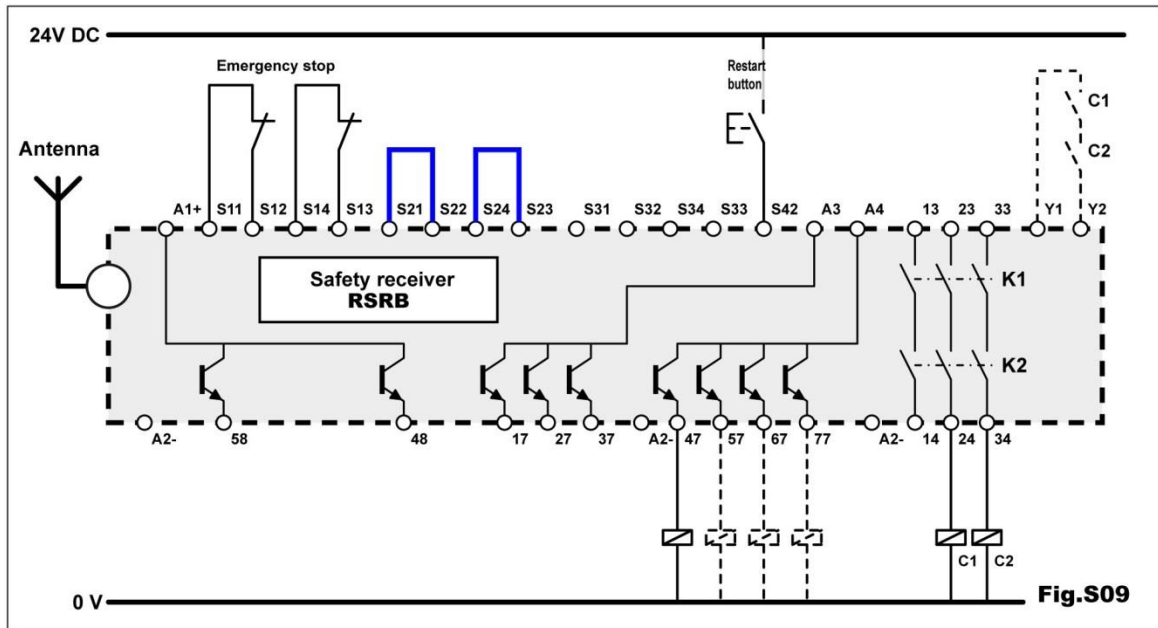


Diagram 2 : Access protected by safety light barrier.



5.4.8 Wiring of an equipment without area access protection

If the equipment does not have a peripheral protection system with a machine area access feature, you must connect jumpers across the machine area access monitoring inputs, S21-S22 and S23-S24.



5.4.9 Wiring of “handle on charger” detection function

This function must be wired to inhibit the enabling handle when it is not used. Once an intervention on a machine is completed, the operator must place the enabling handle on its charger in order to allow the equipment to operate again in automatic mode.

The two outputs, S1 and S2, must be connected to the receiver.

- These should be connected to inputs S31-S32 and S33-S34 when the receiver is not used to manage machine area access (see diagram 1)
- These must be connected in series to inputs S31-S32 when the receiver is used to manage machine area access. The passage request must be connected on input S33 (see diagram 2)
- Output 17 gives the “handle on charger” status (output active = handle present).

Diagram 1 : Wiring for configuration without machine area access

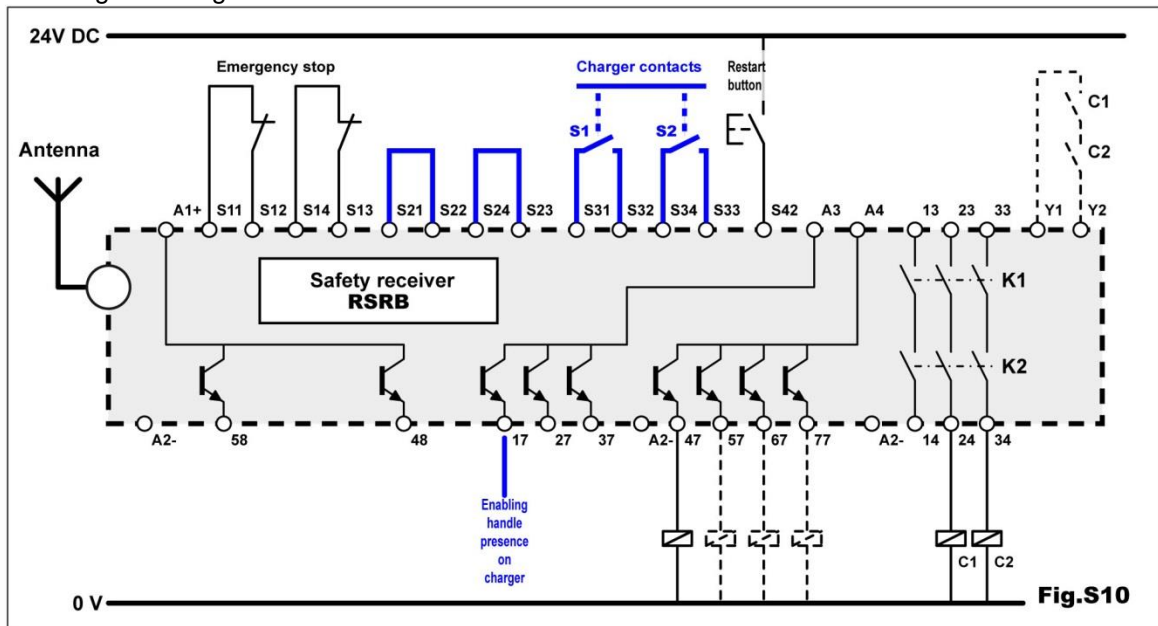
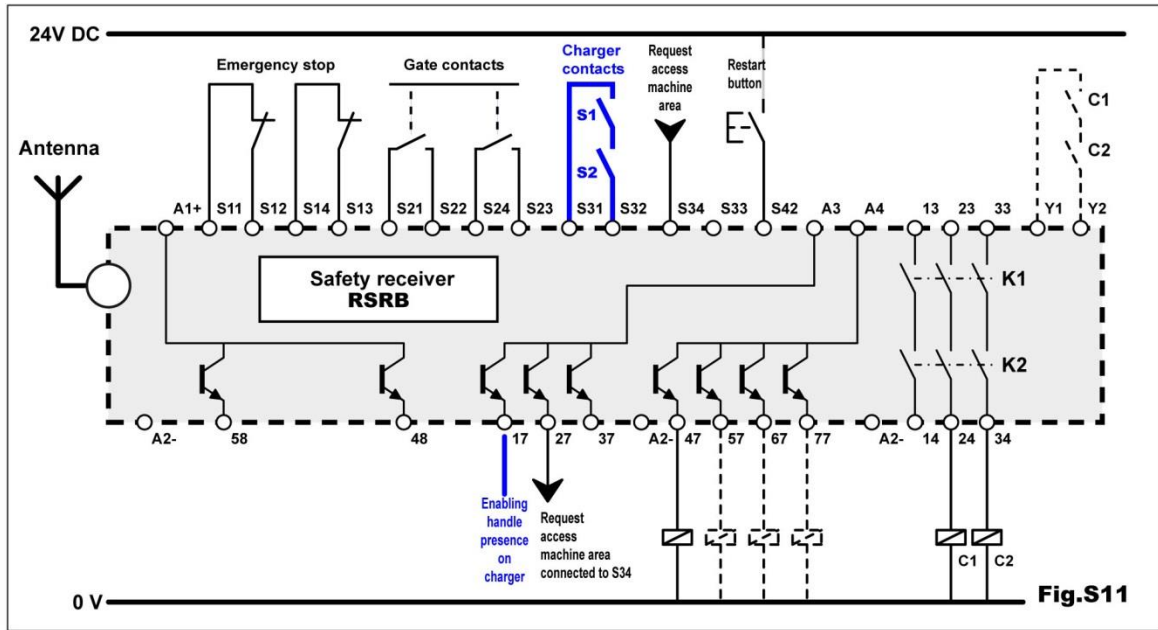


Diagram 2 : Wiring for configuration **with** machine area access (example with gate)

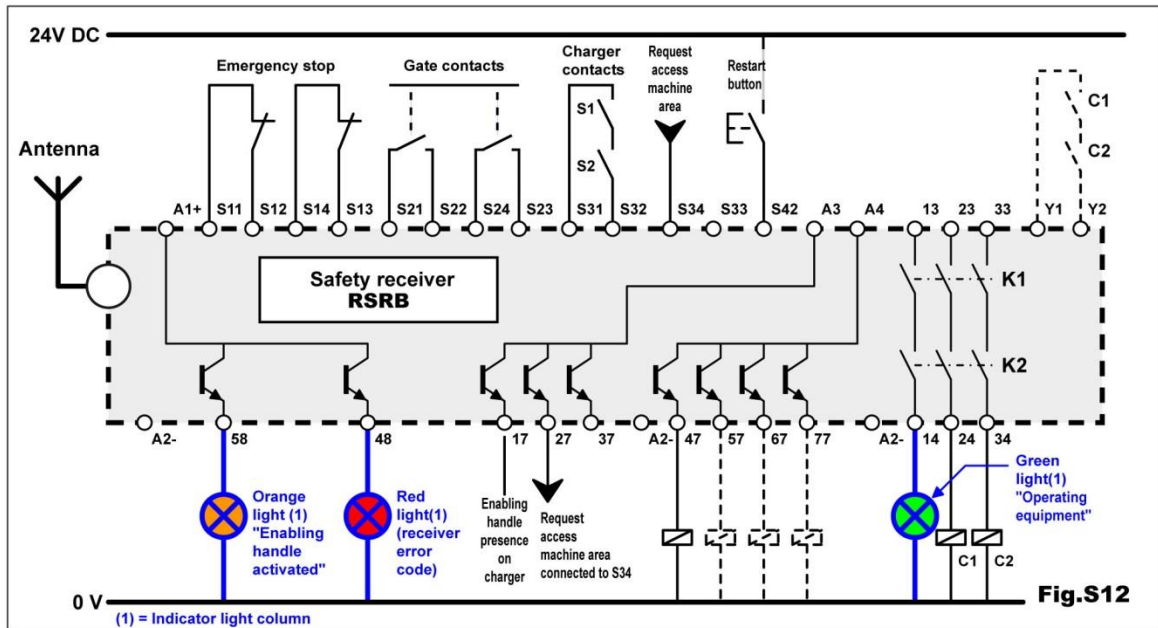


5.4.10 Wiring of indicator light column on receiver

We strongly recommend that you wire an indicator light column on the receiver. The column will indicate the status of the equipment and of the wireless enabling handle. The indicator light column status information panel should be fastened near to the indicator light column (an example is given in the last page of this manual). The consumption of the indicator lights of the column must not exceed 100 mA with 24VDC. If this is not the case, the indicator lights should be relayed.

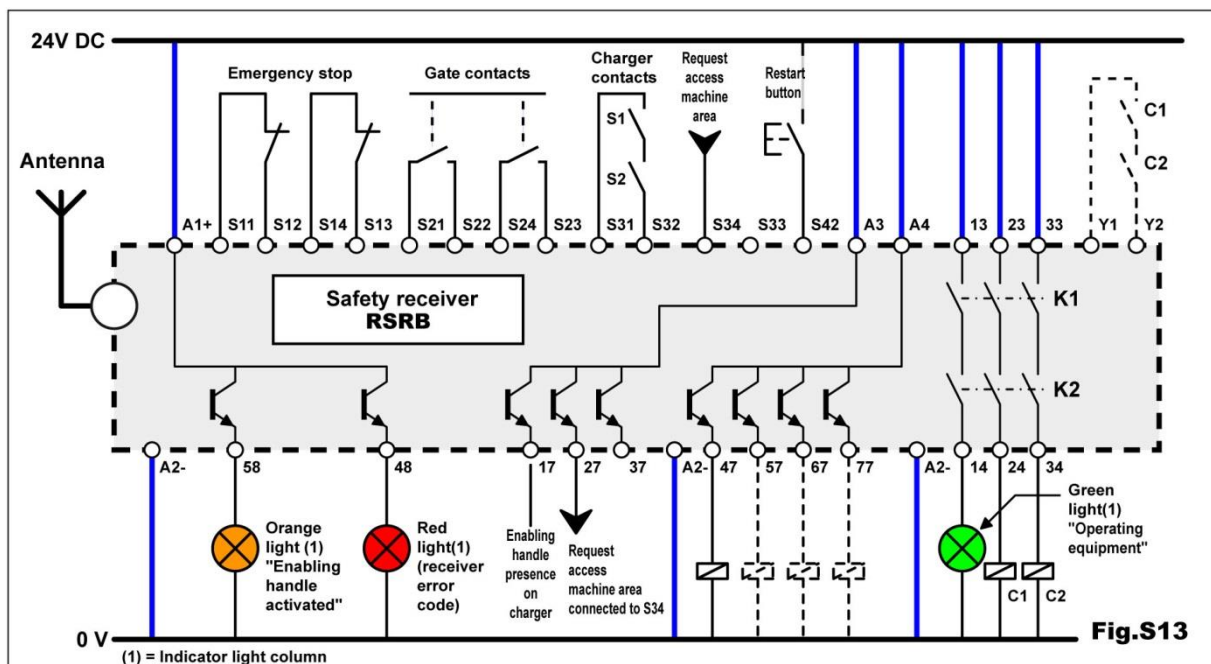
Status of lights on indicator light column

Indicator light	On steady	Flashing	Off	Remarks
Green	Equipment in service		Equipment stopped	
Red	Equipment stopped	Receiver on standby for reset	Equipment in service	Red and orange indicator lights will flash a specific number of times in the event of a receiver malfunction
Orange	Handle removed from charger	Handle removed from charger or area access request	Handle on charger	



5.4.11 Wiring of receiver power supplies

This operation should be performed at the end of the wiring procedure.



5.5 Charger : wiring and management.

5.5.1 Association of charger and wireless enabling handle

If the charger has not been associated to its handle, refer to the section entitled « Setting the charger into service ».

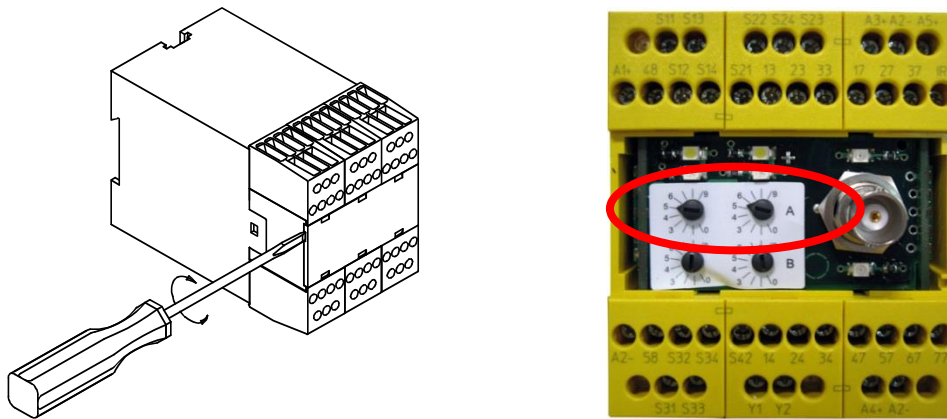
5.5.2 Wiring of charger power supply

To supply the charger, refer to the section entitled « Setting the charger into service »

5.5.3 Taking the wireless enabling handle off its charger

When the wireless enabling handle is withdrawn from its charger, you have a limited time delay to activate the trigger. After this time delay, safety relays K1 and K2 de-energise to stop the equipment.

This time delay is configurable between 5 and 30 seconds by 2 «A» selectors on the receiver. The 2 selectors must always be set to the same position.



Position «A» selectors	0	1	2	3	4	5	6	7	8	9
Handle pickup time delay	5 s.	6 s.	7 s.	8 s.	9 s.	10 s.	15 s.	20 s.	25 s.	30 s.

Note : The two « A » selectors are also used to define the machine area access time described in the previous section. If this area access function is also used, the position of the two « A » selectors must be chosen to best satisfy the two functions

5.5.4 Setting the wireless enabling handle on its charger

When you go to set the wireless enabling handle on its charger, you must keep the trigger activated until the green indicator light on the charger comes on (when you are within 30 cm of the charger). You can then release the trigger without de-energising the safety relays, then set the wireless enabling handle on its charger.

The enabling handle recharges once it is engaged on its charger.

5.6 Language selection

Several dialog languages are available with the enabling handle display. The language is chosen by simultaneously pressing buttons B3 and B4.

- Pick up the handle, leaving the trigger in the released position (1).



- *Simultaneously press buttons B3 and B4
→ The language currently used is displayed.

- Press the – (B3) or + (B4) button to change language.

Note : If the handle is locked against installation configuration changes, see §5.10.



- Validate the new working language by pressing **OK*** (B1).

- or, cancel the change by pressing **EXIT** (B2).



5.7 Radio working frequency

5.7.1 Selection of radio working frequency.

To limit unintentional cut-outs linked to radio interference, it is important to choose a radio channel (frequency) which is available. Use the following guidelines in making your choice :

- Consider the point of installation of the receiver as the centre of the radio link ;
- Estimate the maximum distance « D » which may occur between the operator and the receiver ;
- Identify the frequencies used by all the radio transmitters located within a radius of 2xD.
- Choose a frequency which is as far as possible from those used by the nearest transmitters, and which is not being used by the transmitters identified.

5.7.2 List of channels and radio frequencies (in accordance with enabling handle model)

433-434 MHz bands, intervals between adjacent channels: 0.025 MHz

Channel No.	Frequency MHz
01	433,100
02	433,125
03	433,150
04	433,175
05	433,200
06	433,225
07	433,250
08	433,275
09	433,300
10	433,325
11	433,350
12	433,375
13	433,400
14	433,425
15	433,450
16	433,475
17	433,500
18	433,525
19	433,550
20	433,575
21	433,600
22	433,625

Channel No.	Frequency MHz
23	433,650
24	433,675
25	433,700
26	433,725
27	433,750
28	433,775
29	433,800
30	433,825
31	433,850
32	433,875
33	433,900
34	433,925
35	433,950
36	433,975
37	434,000
38	434,025
39	434,050
40	434,075
41	434,100
42	434,125
43	434,150
44	434,175

Channel No.	Frequency MHz
45	434,200
46	434,225
47	434,250
48	434,275
49	434,300
50	434,325
51	434,350
52	434,375
53	434,400
54	434,425
55	434,450
56	434,475
57	434,500
58	434,525
59	434,550
60	434,575
61	434,600
62	434,625
63	434,650
64	434,675

Note : In the extended range version **RSEP41** or **RSEP4B** only channels 40 to 64 are accessible.

5.7.3 Reading the working frequency.

- Pick up the handle, leaving the trigger in the released position.
- Simultaneously press buttons B1 and B2
→ The radio channel programmed is displayed
- Press **EXIT** (B2) to exit.



Note : The receiver working frequency is not accessible.


5.7.4 Changing the working frequency

- Switch on the receiver RSRB
- Pick up the handle, leaving the trigger in the released position (1).

3-position trigger

- (1) released 
- (2) activated 
- (3) clenched 

2-position trigger

- (1) released 
- (2) activated 

- Simultaneously press buttons B1 and B2
→ The programmed radio channel is displayed



- Press the – (B3) or + (B4) button to go to the desired radio channel.
Note : If the handle is locked against installation configuration changes, see §5.10.



- Validate the new working frequency by pressing **OK*** (B1).
 - Either for 1 second = fast mode (to be used only if the receiver and enabling handle were set on the same frequency)
 - Or, for 3 seconds = long scan mode. (to be used if receiver and handle can be set on different frequencies)
→ The word **SCAN** is displayed on the screen
- Release the **OK** button (B1)





- Hold the trigger in the activated position until you get the indication to release it. (In long scan mode, the channel Nos., C01 to C64 scroll on the display for around 30 seconds).

3-position trigger

- (1) released 
- (2) activated 
- (3) clenched 

2-position trigger

- (1) released 
- (2) activated 

***Note :** Only the channels authorised in accordance with the handle model can be used.

5.8 Radio transmit power

5.8.1 Transmit power selection

We recommend that you increase the power when the desired radio ranges are great or when radio interferences produce accidental cut-outs.

It is preferable to decrease the power when working at limited ranges and where several systems are working together within a radius of less than 10m.

Power	Min. -----> Max.	
Radio power level scale	1 -----> 10	
Average range (1)	30 m ----->	150 m (handle with standard range)
		250 m (handle with extended range)

(1) = The average range will depend on the product environment (presence of metal obstacles, ...)

5.8.2 Reading/changing the transmit power

- Pick up the handle, leaving the trigger in the released position.

3-position trigger

- (1) released 
- (2) activated 
- (3) clenched 

2-position trigger

- (1) released 
- (2) activated 

- Simultaneously press buttons B2 and B3
→ The transmit power used is displayed



- Press the – (B3) or + (B4) button to change the transmit power.

Note : If the handle is locked against installation configuration changes, see §5.10.

- Validate the selection by pressing **OK** (B1).
- Press **EXIT** (B2) to exit



5.9 Identity code

5.9.1 Identity code selection



The identity code is used to pair the handle and its receiver.

To communicate with a receiver RSRB, the handle must be programmed with the same identity code.

5.9.2 Reading the identity code, software version and SIM card serial number

- Pick up the handle, leaving the trigger in the released position.

3-position trigger

- (1) released 
- (2) activated 
- (3) clenched 

2-position trigger

- (1) released 
- (2) activated 

- Simultaneously press buttons B2 and B4
→ The identity code used, the software version and the SIM card serial number are displayed on the screen.



- Press **EXIT** (B2) to exit.

The receiver identity code is given on the external label.

5.9.3 Changing the identity code

The identity code programmed in the handle is stored in the SIM card.

You can change the identity code using the Dialog RSP software (see Dialog RSP manual) or by replacing the SIM card by a card corresponding to the receiver (see § « Setting backup handle into service », or contact your installer).

Note : The identity code programmed in the receiver cannot be changed.

5.10 Handle locking function

5.10.1 Locking the handle

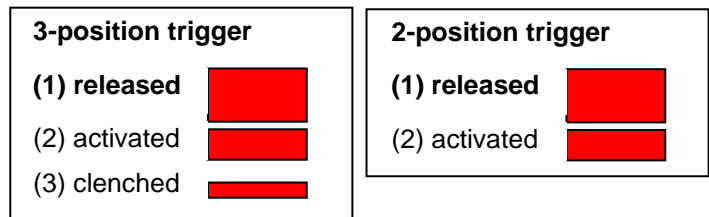
You can protect your installation parameters (frequency, transmit power) against handling mistakes by locking the handle.

We recommend that you activate this protection function on completion of your installation procedure.

Locking the handle will protect you against accidental changes, but will not prevent you from reading the identity code and the frequency channel, or from running a scan to realign a receiver on the same frequency channel used in the enabling handle.

5.10.2 Activating/deactivating the locking function

- Pick up the handle, leaving the trigger in the released position.



- Simultaneously press buttons B1 and B4
→ The locked status is displayed



- Press the **NO** button (B3) or the **YES** button (B4) to respectively deactivate or activate the locking function.
- Validate the selection by pressing **OK** (B1).
- Press **EXIT** (B2) to exit.



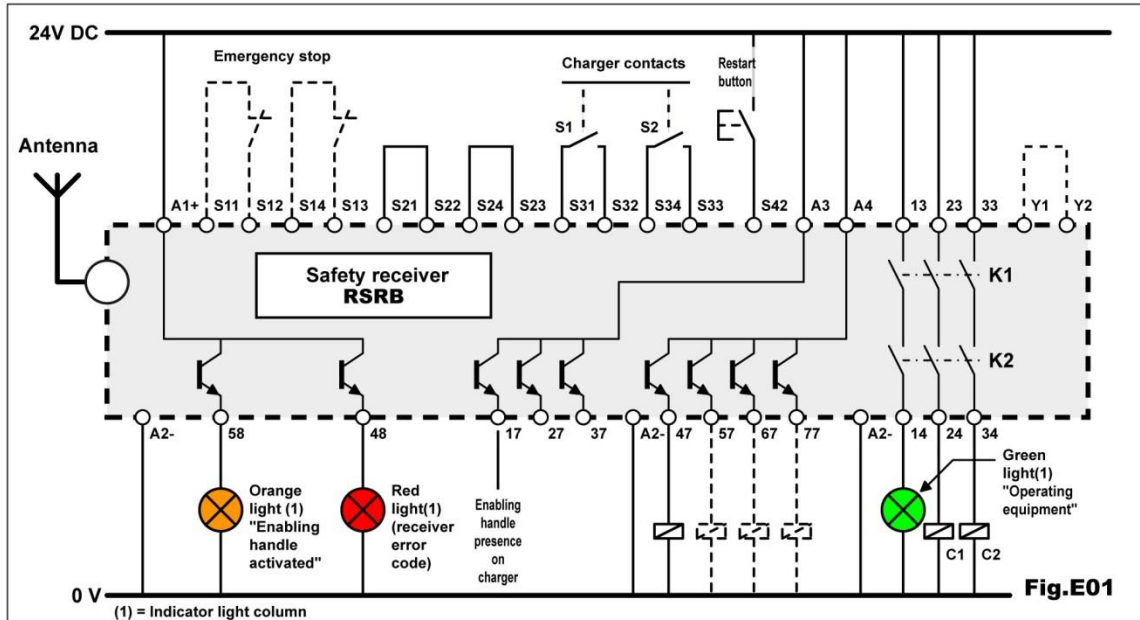
5.11 Receiver wiring examples

5.11.1 Wiring diagram for configuration without access control

The receiver does not manage machine area access.

In addition to the radio input associated to the enabling handle, an emergency stop can be wired to the receiver. **Otherwise**, you must wire 2 jumpers across S11-S12 and S13-S14.

To select the correct application program, refer to the « receiver configuration » section.

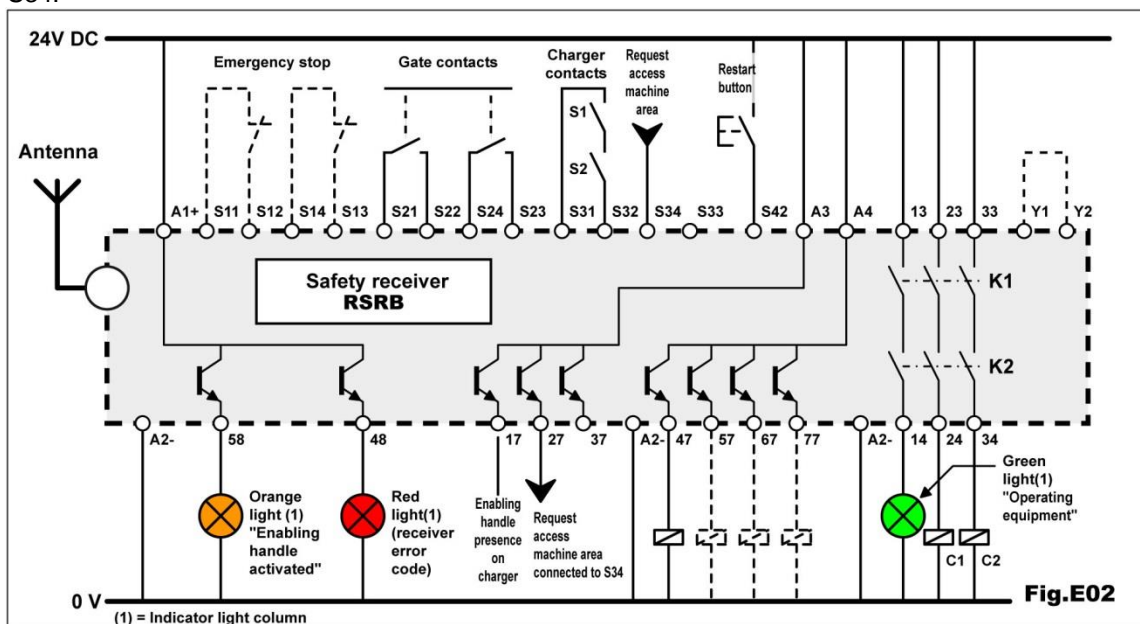


5.11.2 Wiring diagram for configuration with access control by gate

Reminder : The handle can only be configured in « 4 control buttons » mode.

To monitor access to the machine area, it is necessary to wire two NO contacts on the gate on inputs S21-S22 and S23-S24. These contacts will be inhibited to allow the operator to access the machine area without deactivating the machine emergency stop system.

In the diagram below, output 27, associated to button B1 of the handle, is wired to output S34. For a machine access request using your right hand (pressing B2 instead of B1), be sure to connect output 37 (instead of 27) to input S34.



5.11.3 Wiring diagram for configuration with access control by safety light barrier

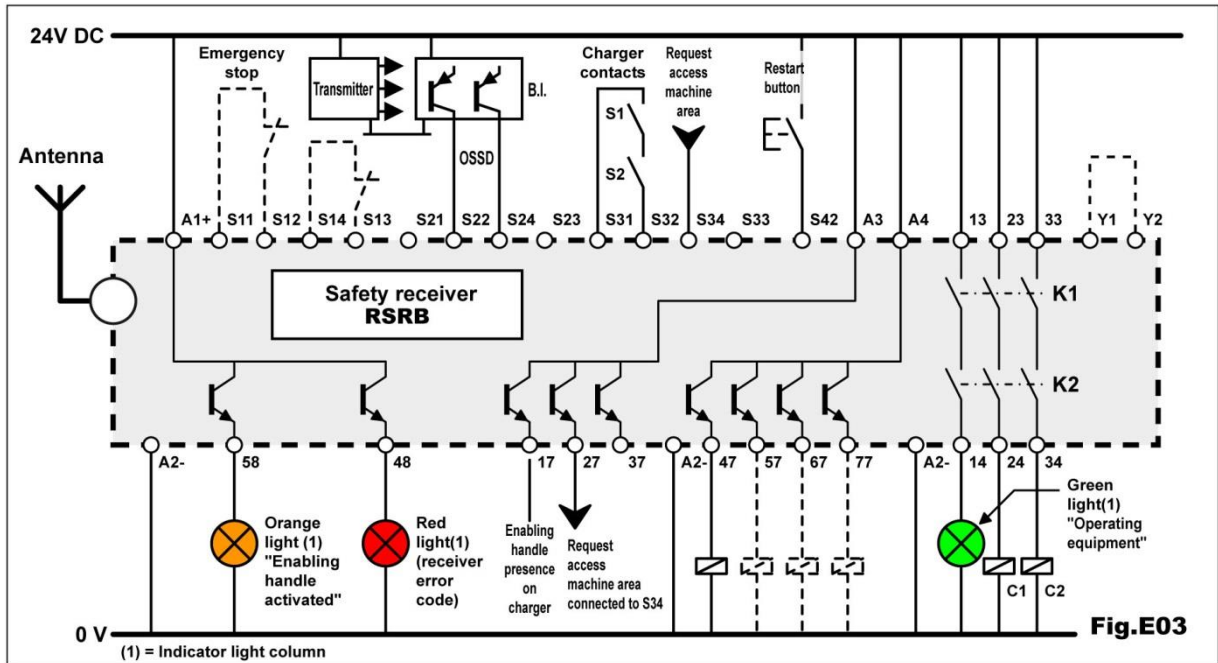
Reminder : The handle can only be configured in « 4 control buttons » mode.

To monitor access to the machine area, it is necessary to wire the outputs of the safety light barrier on inputs S21-S22 and S23-S24.

These outputs will be inhibited to allow the operator to access the machine area without deactivating the machine emergency stop system.

In the diagram below, output 27, associated to button B1 of the handle, is wired to output S34.

For a machine access request using your right hand (pressing B2 instead of B1), be sure to connect output 37 (instead of 27) to input S34.



6 Diagnostic

In the event of a problem, the handle and the receiver will indicate a fault detected by an error message.

On the wireless enabling handle, the error messages are shown on the display screen.

On the receiver, the error messages are indicated by indicator lights V1 to V4.

6.1 Faults communicated by wireless enabling handle

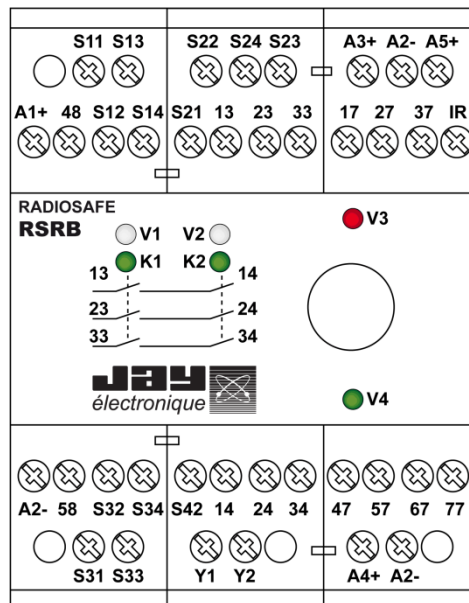
Message shown on display, in French and English	Possible causes of faults	Action
Battery pictogram empty and flashing	Battery discharged	Recharge handle on its charger
« no SIM card »	SIM card not connected when battery is connected	Insert SIM card
« SIM connection fault »	SIM card disconnected	Reinstall SIM card
No message (display off)	Battery not charged	Place handle on its charger
	Internal electric fault	Return to factory
Button fault	Function button has been activated before any action on trigger	Repeat handle start-up procedure
	Button stuck	Contact your technical manager
Incorrect trigger handling	Trigger activated too quickly	Reactivate trigger
	Trigger malfunction	Contact your technical manager
SIM fault	SIM memory fault	Contact your technical manager

6.2 Faults communicated by receiver

To indicate faults, the receiver uses 4 indicator lights, V1 to V4.

The 2 white indicator lights, « V1 and V2 », indicate the status of the receiver safety functions.

The red and green indicator lights, « V3 and V4 », indicate the status and processing of radio signal reception.



V1 status	V2 status	Error detected	Cause(s)	Action(s)
On steady	Off	None	Handle on charger	None
On steady	On steady	None	Handle active	None
On steady	1 flash	Reset fault	Reset not done	Place handle on charger and activate reset button on control panel
			"Handle on charger" contact open or wiring of contacts has been reversed	Check wiring of 2 handle presence contacts
			Radio link between handle and receiver not established (V4 off)	Perform a scan to check that handle and receiver are on same frequency channel. See section "Frequency channel selection"
			In "area access" mode, gate passage button on handle has not been released following gate passage request.	Place handle on its charger and activate reset button on the control panel to cancel error
Off	Off	Communication problem	Problem internal to product	Return to factory
On steady	2 flashes	Protection inactive	Emergency stop button(s) locked or gate contacts open	Check condition of buttons and contacts, and wiring
On steady	3 flashes	Time delay error	Contacts of a safety component (emergency stop or gate) have not been activated in required time frame	- Close its contacts simultaneously. - Place handle on its charger. - Press reset button.
			Once removed from its charger, handle has not been started up within a sufficiently short time ($T_0 > T$ defined by 2 "A" selectors)	Repeat handle start-up procedure or increase handle pickup time delay
On steady	4 flashes	Reset button fault	Contact on reset button has remained closed	Check condition and type of reset button contact (pulse type pushbutton)
Off or 5 flashes	Off or 5 flashes	Adjustment error	« A » or « B » selectors not aligned on same position. « Off » status or « 5 flashes » status depends on whether selectors have been set with power on or with power off	Switch off receiver power supply and check position of A and B selectors
On steady	6 flashes	Charger contact error	At least one of the charger contacts has remained closed at moment the was started up	Check condition of charger contacts (NO contacts, handle off charger)
6 flashes	Off	Under-voltage	6 flashes on V1: Receiver power supply voltage is less than $0.85U_n$	Check receiver power supply
Off	6 flashes	Over-voltage	6 flashes on V2: Receiver power supply voltage is greater than $1.15U_n$	

Off	7 flashes	Error on input(s)	One of the emergency stop inputs is incorrectly wired	Check wiring of emergency stop or gate inputs
8 flashes	8 flashes	Safety relay error	One of safety relays K1 or K2, or associated control circuit, is faulty	Return to factory
Off	8 flashes	Safety relay error	Return loop to terminals Y1-Y2 not closed when safety outputs are inactive	Check loop Y1 and Y2 and contacts of external relays K3, K4.
Off	9 flashes	Relay K1-K2 error	Control circuit of one of the safety relays is faulty	Return to factory
Off	10 flashes 11 flashes	Program error	An error has occurred during execution of program	Return to factory
Off	12 flashes	Version error	Software versions of the 2 microprocessors are different	Return to factory
Off	13 flashes 14 flashes	Memory error	Memory is faulty	Return to factory

6.2.1 V3 and V4 LED status

The V3 (red) and V4 (green) led states describe a malfunction in the radio part of the safety receiver.

Name of Led and colour	Mode	Indication	Message	State
V3 indicator light (RED)	<i>Normal</i>	Indicates validity of identity code	Message not received	OFF
			Message received with correct identity code	OFF
			Message received with incorrect identity code	Flashing regularly
	<i>Serial link</i>			ON
	<i>In case of fault</i>	Indicates a fault	Power supply error	2 flashes
			Safety relay	3 flashes
EEPROM			4 flashes	
RAM			5 flashes	
ROM			6 flashes	
		Micro type	7 flashes	
V4 Indicator light (GREEN)	<i>Normal</i>	Indicates radio reception quality	No radio reception	OFF
			Bad radio reception	Flashing
			Good radio reception	ON
	<i>Serial link</i>			OFF
	<i>In case of fault</i>	Indicates a fault	Power supply error	2 flashes
			Safety relay	3 flashes
EEPROM			4 flashes	
RAM			5 flashes	
ROM			6 flashes	
		Micro type	7 flashes	

7 Servicing and maintenance

IMPORTANT INFORMATION BEFORE PERFORMING ANY SERVICING OR MAINTENANCE OPERATION:



- MAKE SURE THE RECEIVER AND CHARGER POWER SUPPLIES ARE CUT OFF.
- ALL REMOVABLE TERMINALS OF RECEIVER MUST BE FREE OF ELECTRIC POWER.

7.1 Servicing the wireless enabling handle RSEP

- The handle can only be disassembled by properly trained personnel working in a “controlled” environment; parts must only be replaced by genuine, identical spare parts.
- The user’s attention is drawn to the risks involved in using the handle in an environment containing polymer solvents or glues which could impact correct operation of the mechanical components of the handle.
- Clean the enabling handle by eliminating any foreign matter which may be sticking to the handle.
- Do not use any aggressive cleaning agents. Use only a soap solution when cleaning the handle.

7.2 Servicing the safety receiver RSRB

- The servicing of the receiver is the same as for the enabling handle.
- Check the following points :
 - The receiver connection to the electric circuit of the machine.
 - The functionality of all safety functions. (1 time per year minimum)
 - Proper operation of stop circuits, active and passive.
 - Check the antenna: it must be correctly connected, its sheath is not degraded, and it must be clean and not oxidized.

To control the active stop, operate the enabling handle until it is detected by the safety receiver. Press and then release the trigger of the enabling handle. The contacts of receiver safety relays should open immediately (50ms max).

7.3 Servicing the charger RSCP

- Check that the handle charging receptacle is clean and dry.
- Do not use any aggressive cleaning agents. Use only a soap solution when cleaning the handle.

8 Maintenance

The level of accessibility to the spare parts will depend on the level of training of the end user:

- **Level 1** : Spare parts not requiring any tools or special know-how. Example : Battery, handle front panel, SIM card,...
- **Level 2** : Level 2 spare parts are only accessible to customers who have completed a level 2 training course, and to the JAY Electronique service stations.

8.1.1 Setting a backup handle into service

- **Step 1** : Open the broken or faulty handle.
If the handle has been lost or is not available, reprogram a SIM card using the dialog RSP software (see installer if necessary).
- **Step 2** : Remove the SIM card and install it in the backup handle.
- **Step 3** : Close the backup handle.
- **Step 4** : Have the faulty handle repaired.

8.1.2 Replacing a receiver

- **Step 1** : Cut off the power supply
- **Step 2** : Disconnect the removable terminals on the receiver
- **Step 3** : Program the new receiver identically to the faulty receiver (see position of A and B selectors accessible under the window on the front panel of the receiver.
- **Step 4** : Connect and supply the new receiver.

8.1.3 Replacing a charger

- Cut off the power supply and disconnect outputs S1 and S2
- Associate the new charger to the handle. See section « *Setting the charger into service* »

9 Warranty

All our devices are guaranteed 2 years as of the date of manufacture indicated on the product (except for the enabling handle battery which has 1 year warranty). 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 responsibility during the warranty period is limited to material and construction defects. This warranty comprises repair in the JAY Electronique workshops or replacement, free of charge, of parts recognized to be defective following expert inspection by the JAY Electronique Technical Department.

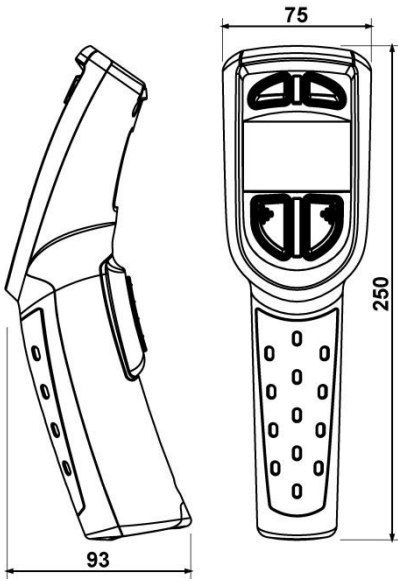
The warranty shall not give rise to any compensation for damage claims.

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.

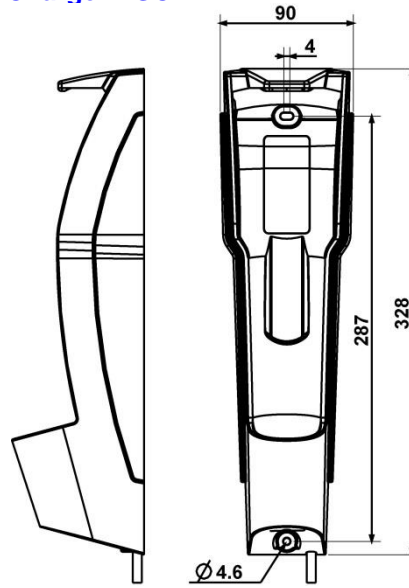
10 Appendices

10.1 Dimensions of components (mm)

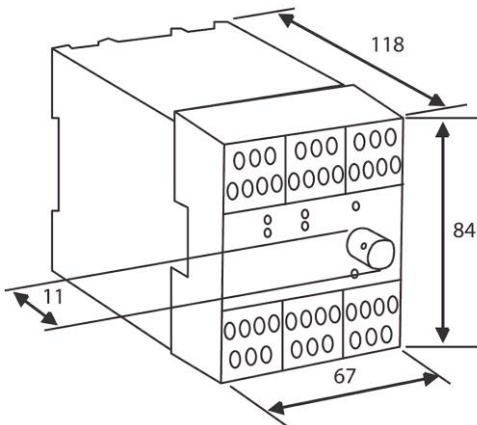
Wireless enabling handle RSEP



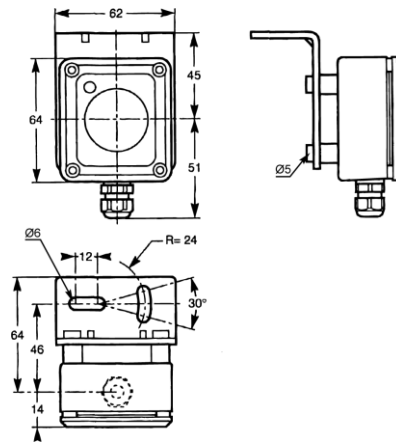
Charger RSCP



Receiver RSRB



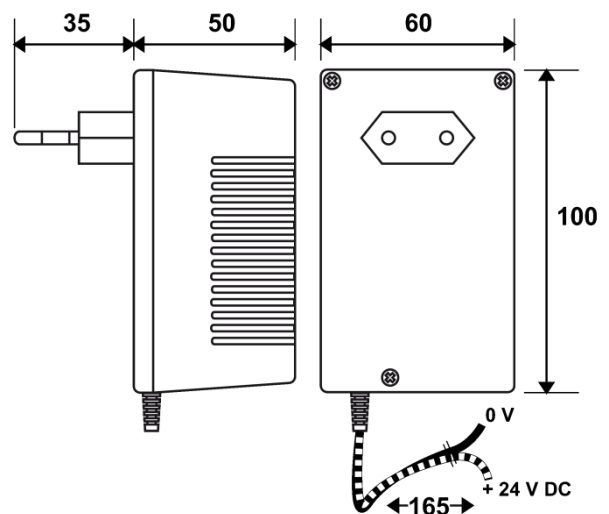
Infrared module UDF
(for "IR start-up" option)



Plug-in BNC antennas



Voltage adapter RSCU 230VAC/24VDC



10.2 Technical characteristics

10.2.1 Wireless enabling handle RSEP

Mechanical and environment withstand characteristics
Housing material : Two-material plastic
Protection index : IP 54
Weight (with battery) : 340 g
Operating temperature range : -20 °C to + 50 °C
Storage temperature range : -20 °C to + 45 °C
Charging temperature range : 0 °C to + 35 °C
Electrical and radio characteristics
Power supply : Li-Ion battery
Endurance (at 25°C) :
Trigger activated : 8 hours
Trigger not activated : 40 hours
Complete charge duration : 6 hours
Radio transmit frequencies :
(Interval between adjacent channels : 0.025 MHz)
RSEP40 and RSEP4A : 64 frequencies, from 433.100 MHz to 434.675 MHz
RSEP41 and RSEP4B : 25 frequencies, from 434.075 MHz to 434.675 MHz
Transmit power : ≤ 10 mW
Average range in typical industrial environment (1) :
RSEP40 and RSEP4A : 150 m
RSEP41 and RSEP4B : 250 m
Functional characteristics
Display : Backlighted LCD
Function button type :
4 single-acting pushbuttons
Trigger : 3 or 2 positions
Range limitation : configurable
Indications :
Radio channel, battery level, diagnostic, displayable on enabling handle screen
Configuration of functions and display :
Configurable by PC software

(1)= Range will vary according to environment conditions of enabling handle and receiver reception antenna (frameworks, metal partitions, ...).

10.2.2 Charger RSCP

Mechanical characteristics
Housing material : Plastic
Protection index : IP 40
Electrical characteristics
Power supply voltage : 24 V DC +/- 5%
Consumption when charging : 300 mA
Contact (handle detection) : 2 NO / 8 A
Handle detection : by infrared (contactless)
Type of charge : by induction (contactless)

10.2.3 Receiver RSRB

Mechanical and environment withstand characteristics

Housing material : Plastic

Degree of protection : according EN 61 496-1 (1997), the unit must be integrated into a cabinet with degree of protection IP 54

Housing : IP 40 IEC/EN 60 529

Terminals : IP 20 IEC/EN 60 529

Overvoltage category : 2

Weight : 500 g

Operating temperature range :

Ambient air temperature does not exceed +40°C and its average over 24 hours does not exceed +35°C.

The lower limit is -5°C.

Storage temperature range : - 30 °C to + 70 °C

Connection : Screw terminals for wires 0.08² to 2.5²

Antenna : 1/4 wave, as accessory, plug-in on BNC connector

Electrical characteristics

Power supply voltage : 24 V DC +/- 15%

Max. consumption : 120 mA (solid state outputs not loaded)

Safety relay outputs :

Contacts : 3 NO with guided contacts

Triggering time (reaction) :

- Active stop time following clenching or release of trigger : 50 ms
- Passive stop time : 300 ms

Max. switching voltage : 250 V AC

Switching power :

- Per AC 15 : AC 3 A / 230 V for NO contacts EN60947-5-1
- Per DC 13 : DC 8 A / 24 V at 0.1 Hz EN60947-5-1

Electrical service life :

- Per AC15 at 2A, AC230V : 100 000 cycles EN60947-5-1

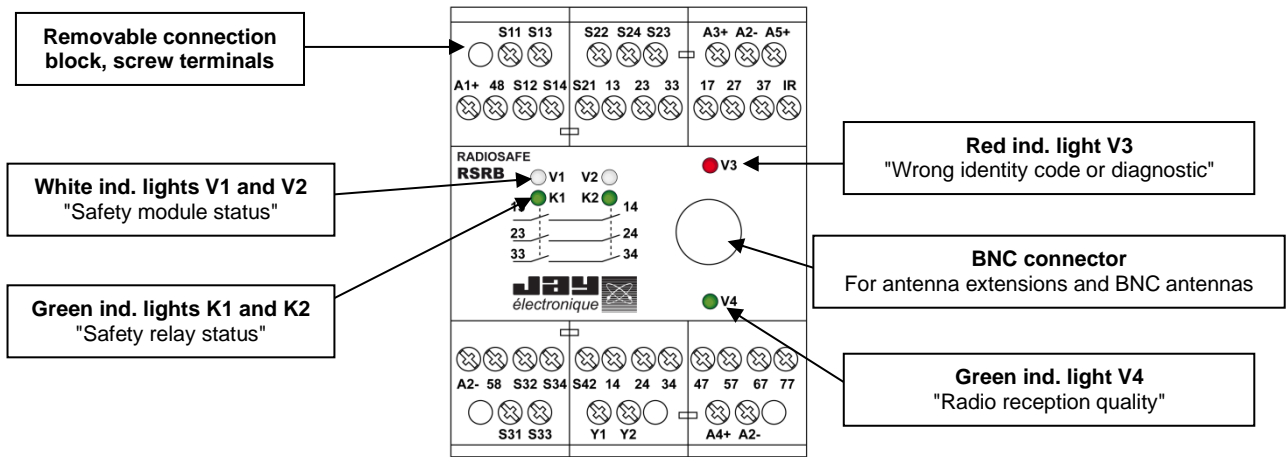
Solid state outputs :

Number and type of outputs : 6 PNP outputs

Output voltage : 24 V DC, 100 mA max.

Indication : 6 indicator lights

10.3 Indicator lights and assignment of receiver outputs



Termina l	Function
Safety inputs and outputs	
A1+	24VDC power supply for receiver safety module RSRB
A2 -	Common ground
48	24V solid state output : safety module status
58	Enabling handle utilisation status
S11	Input 1 for first emergency stop or first safety light barrier
S12	Input 2 for first emergency stop or first safety light barrier
S13	Input 2 for first emergency stop or first safety light barrier
S14	Input 2 for first emergency stop or first safety light barrier
S21	Input 1 for second emergency stop or second safety light barrier
S22	Input 2 for second emergency stop or second safety light barrier
S23	Input 2 for second emergency stop or second safety light barrier
S24	Input 2 for second emergency stop or second safety light barrier
S31	Input for monitoring of 1st charger
S32	Input for monitoring of 1st charger
S33	Input for monitoring of 2nd charger
S34	Input for monitoring of 2nd charger
S42	Input for wired START pushbutton
Y1	Input for auxiliary relay return loop
Y2	Input for auxiliary relay return loop
13	1st safety output (NO contact)
14	1st safety output (NO contact)
23	2nd safety output (NO contact)
24	2nd safety output (NO contact)
33	3rd safety output (NO contact)
34	3rd safety output (NO contact)

Termina l	Function
Solid state outputs assigned to enabling handle	
A3+	24VDC power supply for solid state outputs assigned to enabling handle
A2-	Common ground
17	enabling handle on charger indication
27	Function outputs (see detail below)
37	
47	
57	
67	
77	

Connection for infrared module (UDF)	
A5+	12VDC output
IR	Receiver signal
A2-	Common ground

10.4 «IR start-up» option

The start-up zone for an equipment, and the equipment's identification, can be secured by an IR validation on start-up.

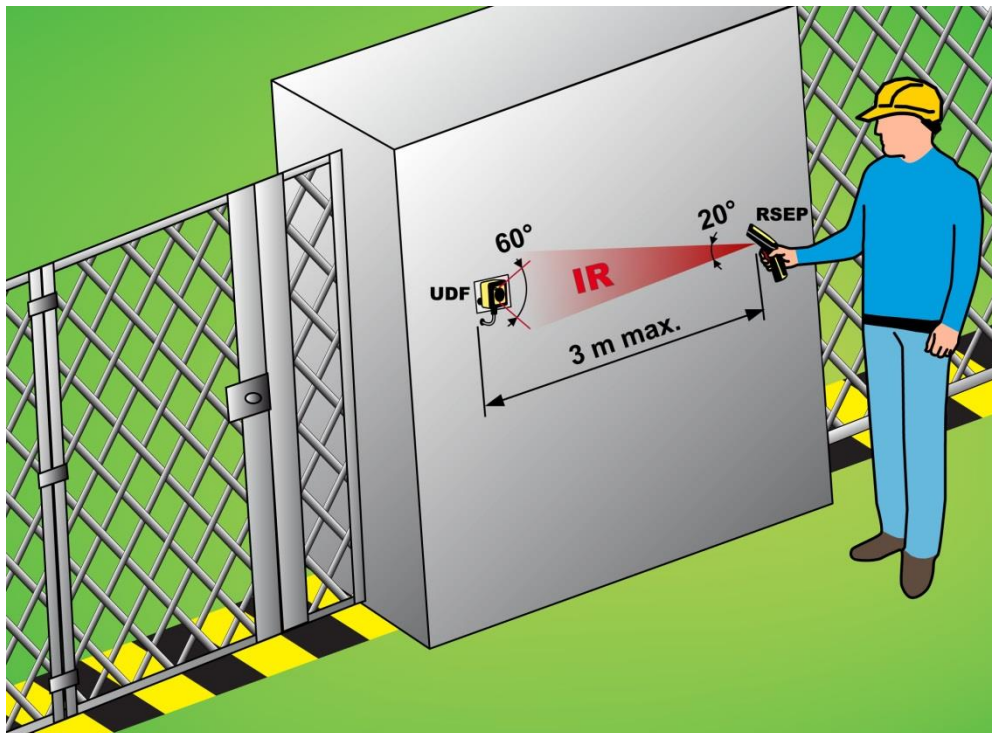
To start the equipment, the operator must be inside the IR transmit zone of the **UDF** module (referred to as the «Start-up zone») and actuate the trigger on the handle.

Once the validation has been performed, the «Handle/Equipment to be controlled» pairing takes place with no possibility for error. The operator can then move around freely with no limitation.

The range of the IR start-up field of action is 0 to 3 m (see below).

The interconnect cable between the **UDF** and the **RSRB** can be extended by up to 2x10m for a total of 30m (the original **UDF-RSRB** link being 10m) using an accessory (referenced **UDWR10**) comprising a shielded cable and its connector.

10.4.1 Positioning the IR module UDF



10.4.2 Connecting the UDF module to the receiver

Black : A2-
White : A5+
Blue : IR

IMPORTANT : The **UDF** module cables must be kept separate from the power cables and all other interference generating sources (power regulator, for example).

11 Procedures

11.1 Accessing a machine area in « monitoring - diagnostic » mode

The enabling handle is on its charger and the machine is in service. The green indicator light on the indicator light column is on steady.

- Remove the handle from its charger.
The orange indicator light on the indicator light column flashes (duration programmed by « **A** » selectors on safety receiver).
- Activate the trigger on the handle within the time delay selected.
The green and orange indicator lights on the indicator light column come on steady.

Area entrance request by a gate :

- Without releasing the trigger, transmit a request for entrance into the area through the gate (by pressing **B1** or **B2**). The orange indicator light on the indicator light column flashes (duration programmed by « **A** » selectors on receiver).
- Open the gate and close it within the muting time programmed for the gate. (Duration programmed by “**A**” selectors on receiver).
- Once the door is crossed and closed, orange and green lights on the indicator light column come on steady again. The trigger on the handle will be maintained throughout the “monitoring – diagnostic” phase of the equipment.



Area exit request by a gate :

- Without releasing the trigger, transmit a request to «exit the area» through the gate (by pressing **B1** or **B2**).
The orange indicator light on the indicator light column flashes and the green indicator light remains on steady.
- Pass through the gate and close it within the gate muting time programmed.
- Without releasing the trigger, present the handle in front of the charger.
The orange indicator light on the indicator light column flashes.
- Release the trigger on the handle.
- Place the handle on its charger.
The orange indicator light on the indicator light column goes off and the green indicator light remains on steady.

Note: This procedure is the same whether the area is protected by a **safety light barrier**.

11.2 Accessing a machine area in « manual » mode

Preamble

In "manual" mode, the safety relay of the receiver will be wired so as not to cause an emergency stop, but a "cycle stop" of the machine.

In this mode, the enabling handle is used to make an adjustment or a test of the machine after a maintenance operation.

Area entrance request by a gate :

- Stop the machine from the control panel to conduct the intervention.
- Remove the handle from its charger.
The orange indicator light on the indicator light column flashes (duration programmed by « **A** » selectors on receiver).
- Without releasing the trigger, transmit a request for entrance into the area through the gate (by pressing **B1** or **B2**). The orange indicator light on the indicator light column flashes (duration programmed by « **A** » selectors on receiver).
- Open the gate and close it within the muting time programmed for the gate. (Duration programmed by "A" selectors on receiver).
- The gate will be closed to prevent the intervention of a third party and in order to use the handle in "manual" mode on the machine.

Intervention on the machine :

- Once in machine area, release the handle trigger if the maintenance work request to have 2 hands available.
- Once the maintenance work completed on the machine, control the machine in manual mode using the function buttons on the handle.

Note: If a third party opens the gate access during the intervention, it will be necessary to put the handle on its charger to activate again the handle.

Machine area exit request by a gate :

- Enable the trigger and make a request "out of area" by the gate (pressing **B1** or **B2**).
The orange indicator light on the indicator light column flashes and the green indicator light remains on steady.
- Pass through the gate and close it within the gate muting time programmed.
- Without releasing the trigger, present the handle in front of the charger.
The orange indicator light on the indicator light column flashes.
- Release the trigger on the handle.
- Place the handle on its charger.
The orange indicator light on the indicator light column goes off and the green indicator light remains on steady

Note :

- This procedure is the same whether the area is protected by a **safety light barrier**..
- This procedure does not apply if the machine area access by a gate or a safety light barrier is not controlled by the receiver of the enabling handle. In this case, the handle is simply removed from its charger and used to control the machine in manual mode.

12 Environmental data

According to EN 60947-1:2007 +A1:2011 clause 5.3, page 61:

NOTICE : This product has been designed for environment A. Use of this product may cause unwanted electromagnetic disturbances in which case the user may be required to take adequate mitigation measures.

The altitude does not significantly affect the characteristics of RSRB receiver up to 2000 m. At higher altitudes, it is necessary to take into account the reduction of the dielectric strength and the cooling effect of the air (EN 60947-5-1).

The table below shows the corrections to be made depending on the altitude for the relay contacts. The breaking capacities remain unchanged. According to EN 60664-1 :

Altitude [m]	0	200	500	1000	2000
Lightning impulse withstand voltage [kV]	7.4	7.2	7	6.9	6

The relative humidity of the air does not exceed 50 % at a maximum temperature of +40°C. Higher relative humidities may be permitted at lower temperatures, e.g. 90 % at + 20°C.

Pollution degree: 3; industrial use

13 Residual risks

The product being an element of the equipment, a risk analysis of the concerned application will allow to estimate these residual risks.

14 Foreseeable misuse

Polarity inversions of the safety receiver power supply : no starting up of products.

Other misuse of the wireless enabling handle RSEP : see **Diagnosis** paragraph.

Other misuse of the safety receiver RSRB : see **Diagnosis** paragraph.

15 Contraindications

The wireless enabling handle RSEP should be changed after 233 hours of use.

16 Waste recycling and management



When the unit has reached the end of its service life, be sure to dispose of it appropriately. The unit can be disposed of 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.

17 Manufacturer information



Head office and plant :

ZAC la Bâtie, rue Champrond

F38334 SAINT ISMIER cedex

Tel : +33 (0)4 76 41 44 00

www.jay-electronique.com

18 CE Declarations of conformity

18.1 RSEP40-x / RSCP-x / RSRBx400-x and RSEP41-x / RSCP-x / RSRBx400-x

Translated from French

EN

EU DECLARATION OF CONFORMITY

The manufacturer

*JAY Electronique
ZAC la Bâtie, rue Champrond
38334 ST ISMIER Cedex
FRANCE*

Declares that for the Transmitter / Receiver set and its loader described in its instructions, the EC declaration of conformity applies to the following devices:

Series RS
RSEP40-x / RSCP-x / RSRBx400-x
RSEP41-x / RSCP-x / RSRBx400-x

Comply:

- With the requirements specified for the machines defined in Appendix IV of the Directive 2006/42/EC regarding the alignment of the legislation of the member states relative to machinery.

To this end, the notified body No. NB 0044:

*TÜV NORD CERT GmbH
Langemarckstraße 20
45141 Essen
Germany*

Has issued an EC type examination n° **4420513199122** reflecting compliance with the following standards:

- EN ISO 13849-1: 2015: <i>Requirement for performance PL e (Category 4)</i>	- EN 60947-5-1:2004 + AC:2005 + A1:2009
- EN 61508-1-7 :2010 : <i>Requirement for SIL 3</i>	- EN 13557 :2003 + A2 :2008 <i>Clause 5.1 and 5.2.3</i>
- EN 62061 :2005 + Cor. :2010 + A1 :2013 + A2: 2015 <i>Requirement for SIL 3</i>	- EN ISO 13850:2015 <i>Clause 4.1.3 Stop Category 0</i>
- EN 60204-1 :2006 + A1 :2009 + AC :2010 <i>Clause 9.2.2</i>	- EN 60950-1 :2006 + A11 :2009 + A12 :2011 + AC :2011 + A2 :2013, <i>Clause 2.10.5.3 et 2.10.5.5</i>
- EN 60204-32 :2008 <i>Clause 9.2.2</i>	

The reference system can be used in applications up to SIL3 / PL e for the wireless and wired emergency stop function when the instructions of the associated User Manual are considered.

➤ With the requirements of the Directives 2014/53/EU of the Council of Europe of 16 April, 2014, concerning the alignment of the legislations of the member states, relative to radio equipment and telecommunication terminals with special reference to:

- *article 3.1 a, concerning the protection requirements of the health and safety of people and domestic animals, and the protection of property with Directive 2014/35/EU*
- *l'article 3.1 b, covering the requirements relative to protection as concerns electromagnetic compatibility, with Directive 2014/30/EU.*
- *l'article 3.2, covering the requirements relative to proper use of the radio-frequency spectrum.*

To this end, the accredited body n°0573:

*AEMC Lab
19, rue François Blumet
ZI de l'Argentière
38360 SASSENAGE
FRANCE*

Conducted testing of the above units for Electromagnetic Compatibility (3.1b) and for compliance with the spectrum (3.2), according to following standards

- EN 301 489-3 V1.6.1	- EN61326-1 : 2013
- EN 301 489-1 V1.9.2	- EN 300 220-2 V3.1.1
- EN 61000-6-2 : 2005	- EN 300 220-1 V3.1.1
- EN62061 :2005/A1 :2013 /A2 :2015	- EN 62479 :2010
- EN61326-3-1 : 2008	

included in the reports : n° R1711397R1-E[RSEP], R1711397C1-E[RSEP], R1711397C3-E[RSCP], R1711397R3-E [RSRB], R1612395C2-E JAY [RSRB].

➤ With the requirements of the European Directive of the Council of Europe dated June 8, 2011, relative to the limitation of use of certain dangerous substances in electrical and electronic equipment (RoHS), (2011/65/EU).

➤ With the requirements of the European Directive of the Council of Europe dated July 4, 2012, relative to electrical and electronic equipment waste (WEEE), (2012/19/EU).

Signatory: Responsible person authorized to compile the technical file (2006/42 Annex II § 2), and empowered to draw up the declaration on behalf of the manufacturer (2006/42 Annex II § 10).
This declaration of conformity is issued under the sole responsibility of the manufacturer:
Name: Pascal de Boissieu; **Function:** Technical Manager.
Place and Date: JAY Electronique ZAC Bâtie Street Champrond 38334 St Ismier France on 14/01/2019.

Signature: *signed on original*

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Translated from French



EU DECLARATION OF CONFORMITY

The manufacturer

*JAY Electronique
ZAC la Bâtie, rue Champrond
38334 ST ISMIER Cedex
FRANCE*

Declares that for the Transmitter / Receiver set and charger described in its instructions, the EU declaration of conformity applies to the following devices:

Series RS

**RSEP4A-x / RSCP-x / RSRBx400-x
RSEP4B-x / RSCP-x / RSRBx400-x**

Comply:

- With the requirements specified for the machines defined in Appendix I of the Directive 2006/42/EC regarding the alignment of the legislation of the member states relative to machinery.

To this end, the notified body No NB 0044 :

*TÜV NORD CERT GmbH
Langemarckstraße 20
45141 Essen
GERMANY*

Has issued an EC-Type examination n° **4420513199123** reflecting compliance with the following standards:

- | | |
|--|---|
| - EN ISO 13849-1: 2015: Requirement for performance PL e (Category 4) | - EN 60947-5-1:2004 + AC:2005 + A1:2009 |
| - EN 61508-1-7 :2010 : Requirement for SIL 3 | - EN 13557 :2003 + A2 :2008 Clause 5.1 and 5.2.3 |
| - EN 62061 :2005 + Cor.:2010 + A1 :2013 + A2: 2015 Requirement for SIL 3 | - EN ISO 13850:2015 Clause 4.1.3 Stop Category 0 |
| - EN 60204-1 :2006 + A1 :2009 + AC :2010 Clause 9.2.2 | - EN 60950-1 :2006 + A11 :2009 + A12 :2011 + AC :2011 + A2 :2013, Clause 2.10.5.3 et 2.10.5.5 |
| - EN 60204-32 :2008 Clause 9.2.2 | |

The reference system can be used in applications up to SIL3 / PL e for the wireless and wired emergency stop function when the instructions of the associated User Manual are considered.

- With the requirements of the European Directive 2014/53/EU of the Council of Europe of April 16th 2014, concerning the alignment of the legislations of the member states, relative to radio equipment and telecommunication terminals with special reference to:
 - Article 3.1a concerning the requirements relative to health and safety protection of people and animals, and the protection of property with reference to 2014/35/EU directive
 - Article 3.1b concerning the requirements relative to protection with respect to electromagnetic compatibility, with reference to 2014/30/EU directive.
 - Article 3.2, concerning the requirements relative to proper use of the radio frequency spectrum

To this end, the accredited body n°0573:

*AEMC Lab
19, rue François Blumet
ZI de l'Argentière
38360 SASSENAGE
FRANCE*

Conducted testing of the above Transmitter / Receiver set and charger for Electromagnetic Compatibility (3.1b) and for compliance with the spectrum (3.2), according to following standards:

- | | |
|------------------------------------|-----------------------|
| - EN 301 489-3 V1.6.1 | - EN61326-1 : 2013 |
| - EN 301 489-1 V1.9.2 | - EN 300 220-2 V3.1.1 |
| - EN 61000-6-2 : 2005 | - EN 300 220-1 V3.1.1 |
| - EN62061 :2005/A1 :2013 /A2 :2015 | - EN 62479 :2010 |
| - EN61326-3-1 : 2008 | |

included in the reports n° **R1711397R1-E[RSEP], R1711397C1-E[RSEF], R1711397C3-E[RSCP], R1711397R3-E [RSRB], R1612395C2-E JAY [RSRB]**.

- With the general requirements of the standard EN60950-1 :2006/A11 :2009/A1 :2013/A12 :2012
- With the requirements of the European Directive of the Council of June 8th 2011 on the restriction of use of certain hazardous substances in electrical and electronic equipment (RoHS) (2011/65/EU).
- With the requirements of the European Directive of the Council of July 4th 2012 on waste electrical and electronic equipment (WEEE) Directive (2012/19/EU).

Signatory: Responsible person authorized to compile the technical file (2006/42 Annex II § 2), and empowered to draw up the declaration on behalf of the manufacturer (2006/42 Annex II § 10).

Name: Pascal de Boissier; **Function:** Technical Manager.

Place and Date: JAY Electronique ZAC la Bâtie, rue Champrond 38334 St Ismier-France on 14/01/2019.

Signature: *signed on original*

332690D

332690D_RSEP4x_RSRB-Declarations_UE_de_conformite-FR_EN_DE.docx

IMPORTANT

When the wireless enabling handle is placed on its charger, radio transmission is stopped and its trigger is INACTIVE !

Stop

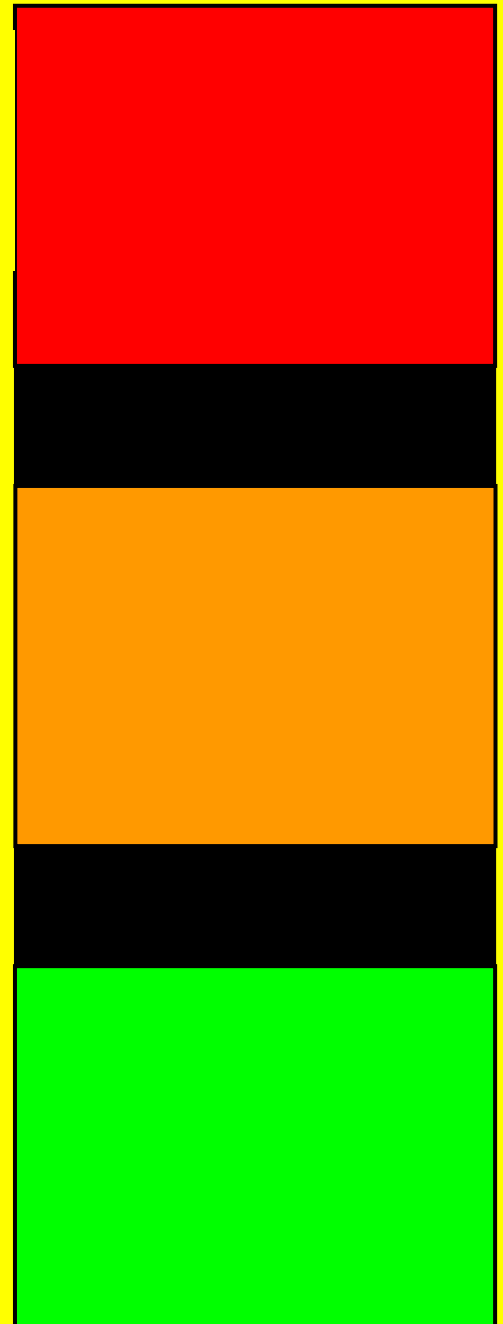
Equipment stopped and secured

In area

Intervention in area with handle

Ok

Equipment operating



RS

Appendix to installation manual
332190D – revision 05

