

STREET ELECTRIC OVERHEAD TRAVELLING CRANE



RADIO CONTROL SYSTEM SABRE

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1 SAFETY INFORMATION

Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Street Crane / Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Product Related Information

 **DANGER****HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Disconnect all power from all equipment including connected devices prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, connectors or wires except under the specific conditions specified in this user guide.
- Always use a properly rated voltage sensing device to confirm that the power is off.
- Unplug the power cable from both the equipment and the power supply.
- Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the equipment.
- Use only the specified voltage when operating this equipment and any associated products.

Failure to follow these instructions will result in death or serious injury.

 **WARNING****UNINTENDED EQUIPMENT OPERATION**

- Do not open the Remote Device.
- Do not replace internal parts of the Base Station.
- After a Base Station power off, wait until the POWER LED becomes OFF (around 20 seconds) before removing the cover.
- Always comply with the local requirements regarding installation and use of the hoisting devices.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

 **WARNING****UNINTENDED EQUIPMENT OPERATION**

- Only use software approved by Schneider Electric for use with this equipment.
- Update your application program every time you change the hardware configuration.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE:

To increase the system security, it is recommended to use Configuration File transfer password.

Battery Warning Notes

Carefully read all instructions in this user guide, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it.

 **WARNING****EXPLOSION, FIRE, OR CHEMICAL HAZARD**

- Electric devices that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility in accordance with national law.
- In case of electrolyte leak from battery, use adapted safety equipment and put the device in a sealed package.
- If you come into contact with electrolyte, immediately thoroughly wash the involved parts with clear water and call medical assistance.
- Do not incinerate the device.
- Do not drop or hit the device.
- Do not use a damaged device.
- Do not replace Remote Device battery by yourself. In case of Remote Device battery malfunction or for any maintenance, contact us.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: Advice to improve battery life:

- Charge the battery before device requires it.
- Charge the battery with room temperature within 10...40 °C (50...104 °F).
- Charge the battery once in every six months if you do not use it for a long time.

2 QUICK START GUIDE

The Sabre remote control is fitted with pushbuttons to control crane motions, with toggle and trigger to control hoist motions. Pushbuttons, toggle and trigger are spring operated; when released, will return to the neutral position, the motion will stop and the relevant brake will automatically apply.

A legend corresponding to the direction of motion is located next to each of the control devices. The legend plates may be in either English (words) or International symbols.

2.1 EMERGENCY STOP

Before starting work it is imperative to check the correct operation of the emergency stop button. It is important that the operator is constantly aware and monitoring all hoist movements and ready to activate the emergency stop should any abnormal circumstances arise or situations occur that may endanger the safety of personnel working in the vicinity. Be especially aware of instances where the crane/hoist may fail to stop when the push button / joystick is released or the hoist starts or moves unexpectedly.



1. Pressing the **EMERGENCY STOP** push button will cause all motions to stop and all brakes to engage.
2. The emergency stop will lock all controls in the **OFF** position.
3. If the button is used in an emergency stop situation, ensure that any faults are reported and rectified before re-establishing the power supply.
4. Twist to release the **EMERGENCY STOP** button. No functions will be operative until the **EMERGENCY STOP** is unlatched and the **ON** pushbutton operated.

2.2 SWITCH ON (CRANE)





- Establish power supply to the conductors via the main isolator (this may be located on a wall or supporting column).


2.3 START-UP SEQUENCE

2.3.1 Radio (Sabre 1)

1. Start transmitter by pressing **ON** ().
(*EMG-STOP LED* flashes)
2. Twist/Release the **EMERGENCY STOP** button on the base of the controller.
3. Ensure **EMERGENCY STOP** is cleared by pressing the trigger button.
(*EMG-STOP LED* solid)
4. Push (1 sec) **ON** pushbutton.
(*START LED* flashes)
5. Press  (**FORWARD**) pushbutton.
6. Push (1 sec) **ON** pushbutton.
(*START LED* solid)

2.3.2 Radio (Sabre 2/3)

1. Start transmitter by pressing **ON** ().
(*EMG-STOP LED* /  flashes)
2. Twist/Release the **EMERGENCY STOP** button on the base of the controller.
3. Ensure **EMERGENCY STOP** is cleared by pressing the trigger button.
(*EMG-STOP LED* solid / )
4. Push (1 sec) **ON** pushbutton.
5. Press **FORWARD** pushbutton.
6. Push (1 sec) **ON** pushbutton
()

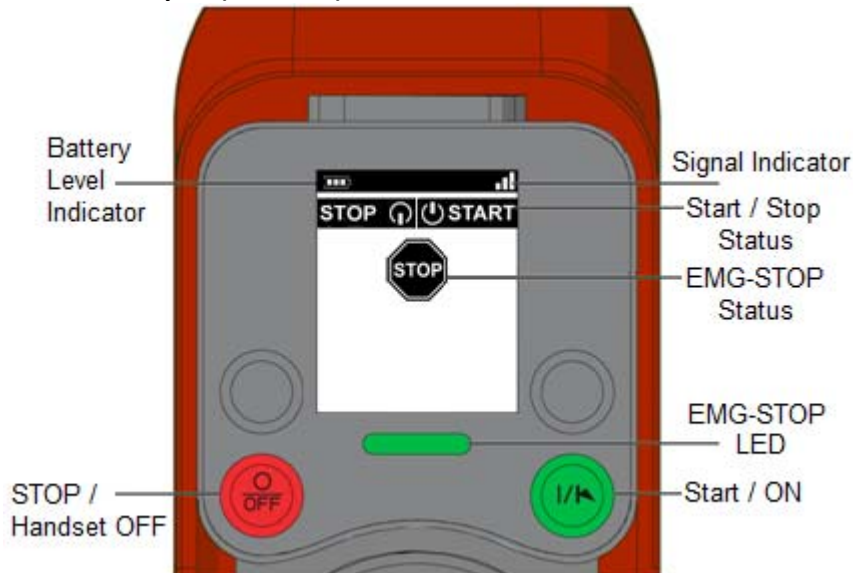
NOTE: The Sabre remote control has a secondary **STOP** () button that will disable the remote control / crane functions. This does not require the reset procedure.

2.4 LAYOUTS

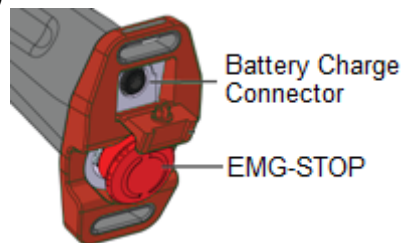
Remote Control Layout (Sabre 1)



Remote Control Layout (Sabre 2/3)



Emergency Stop (Sabre)



2.5 REMOTE CONTROLS

To prevent unauthorised use, the operator should retain the transmitter in their possession. For longer periods, or when the crane/hoist is not in use, the transmitter should be deposited in a designated safe storage place. When the transmitter is fitted with a belt or holster, the operator should be wearing it before switching the transmitter on. This should guard against accidental operation of the crane/hoist whilst fitting. The transmitter should also be switched off before removing the belt/holster.

2.5.1 Push button operation

- The operating controls (pushbutton) must **never** be mechanically blocked in an **ON** position.
- All opposing functions are interlocked e.g. hoist function cannot be operated at the same time as the lower function.
- Dual pressure two stage pushbuttons are used to control hoist and crane motions on the pendant, and crane motions only on the Sabre Radio Remote.

1. Depress the required pushbutton and the crane/hoist will move in the corresponding direction.
 - Select the direction of motion required.

Single Speed

- Press the button to either the first or second pressure.

Dual Speed motion (Switchgear Control)

- **Slow Speed:** Press the button in to the first stage.
- **Fast Speed:** Press the button fully in (i.e. to the second stage).
- **Change Speed - Slow to Fast:** To change from slow speed to fast speed push the pushbutton fully in to the second stage.
- **Change Speed - Fast to Slow (Long travel/traverse motion):** To change from fast speed to slow speed, reduce pressure on pushbutton and allow it to come out to the first stage. The motion will first stop and then continue at slow speed.
- **Change Speed - Fast to Slow (Hoist motion):** To change from fast speed to slow speed, release pressure on pushbutton completely and then engage slow speed. The motion will first stop and then continue at slow speed.

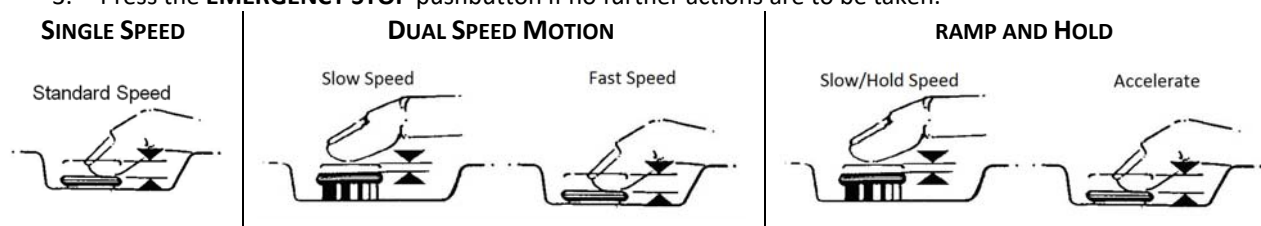
Dual Speed motion (Inverter Control – Standard Dual Speed)

- **Slow Speed:** Press the button in to the first stage.
- **Fast Speed:** Press the button fully in (i.e. to the second stage).
- **Change Speed - Slow to Fast:** To change from slow speed to fast speed push the pushbutton fully in to the second stage. The motion will accelerate until it reaches maximum speed.
- **Change Speed - Fast to Slow:** To change from fast speed to slow speed, reduce pressure on pushbutton and allow it to come out to the first stage. The motion will decelerate to slow speed.

Variable Speed (Inverter Control – 2 Stage Ramp and Hold)

- **Slow Speed:** Whilst the motion is stopped, press the button in to the first stage.
- **Fast Speed:** Press the button fully in (i.e. to the second stage).
- **Maintain Speed:** When the motion is active, press the button in to the first stage.
- **Change Speed - Slow to Fast:** To change from slow speed to fast speed push the pushbutton fully in to the second stage. The motion will accelerate toward maximum speed.
- **Hold Speed:** To maintain desired speed, reduce pressure on the pushbutton and allow it to come out to the first stage.
- **Reduce Speed – From Fast speed:** To reduce speed, release pressure on the pushbutton completely and re-engage to first stage when the motion decelerates to the desired speed. The motion will maintain speed.
- **Change Speed - Fast to Slow:** To change from fast/hold speed to slow speed, release pressure on the pushbutton completely and wait for motion to stop, then engage slow speed.

2. To maintain the selected motion the pushbutton must be held depressed. Releasing the push button will stop the motion.
3. Press the **EMERGENCY STOP** pushbutton if no further actions are to be taken.



2.5.2 Toggle / Trigger operation (Sabre only)

- The operating controls must **never** be mechanically blocked in an **ON** position.
 - All opposing functions are interlocked e.g. hoist function cannot be operated at the same time as the lower function.
1. Push the toggle and the hoist will move in the corresponding direction.
 - Select the direction of motion required.

Single Speed

- Push the toggle.

Dual Speed motion (Switchgear Control)

- **Slow Speed:** Push the toggle.
- **Fast Speed:** Push the toggle, and then pull the trigger.
- **Change Speed - Slow to Fast:** To change from slow speed to fast speed, pull the trigger whilst continuing to push the toggle.
- **Change Speed - Fast to Slow (Hoist motion):** To change from fast speed to slow speed, release the trigger. The motion will first stop and then continue at slow speed.

Dual Speed motion (Inverter Control – Standard Dual Speed)

- **Slow Speed:** Push the toggle.
- **Fast Speed:** Push the toggle, and then pull the trigger.
- **Change Speed - Slow to Fast:** To change from slow speed to fast speed, pull the trigger whilst continuing to push the toggle. The motion will accelerate until it reaches maximum speed.
- **Change Speed - Fast to Slow:** To change from fast speed to slow speed, release the trigger. The motion will decelerate to slow speed.

Variable Speed (Inverter Control – 2 Stage Ramp and Hold)

- **Slow Speed:** When the motion is stopped, push the toggle.
 - **Fast Speed:** Push the toggle, and then pull the trigger.
 - **Maintain Speed:** When the motion is active, release the trigger whilst continuing to push the toggle.
 - **Change Speed - Slow to Fast:** To change from slow speed to fast speed, pull the trigger whilst continuing to push the toggle. The motion will accelerate toward maximum speed.
 - **Hold Speed:** To maintain desired speed, release the trigger whilst holding toggle in position.
 - **Reduce Speed – From Fast speed:** To reduce speed, release the trigger and toggle completely and re-engage the toggle when the motion decelerates to the desired speed. The motion will maintain speed.
 - **Change Speed - Fast to Slow:** To change from fast/hold speed to slow speed, release pressure on both the trigger and toggle completely and wait for motion to stop, then engage slow speed.
2. To maintain the selected motion the toggle must be held depressed. Releasing the toggle will stop the motion.
 3. Press the **EMERGENCY STOP** pushbutton if no further actions are to be taken.

3 WIRELESS REMOTE CONTROL SYSTEM

Overview

The Sabre range of wireless remote control systems is an operator control station used in hoisting and material handling applications.

The Wireless Remote Control System is based on 2 types of devices:

- Remote Device, which is the operator command device to interface with the machine.
- Base Station, which is hardwired to the machine. It receives control commands from the Remote Device and transmits information to the operator.

The Wireless Remote Control System is a combination of these devices which communicate by radio transmission.

Radio Communication

Each Base Station has a unique ID managed by Street Crane Company.

Technology used permits up to 50 single systems working at the same time without perturbation in a 100 x 100 meter area.

Main Applications

Main applications modes are available:

- Single mode = one Remote Device commands one Base Station. For more information, refer to Single Mode. [\(see page 13\)](#)
- Multi Base Control (MBC) = one Remote Device commands up to two Base Stations simultaneously or individually.

For more information, refer to MBC Mode. [\(see page 15\)](#)

3.1 SINGLE MODE

Overview

Single Mode = one Remote Device commands one Base Station.

Auxiliary Selector

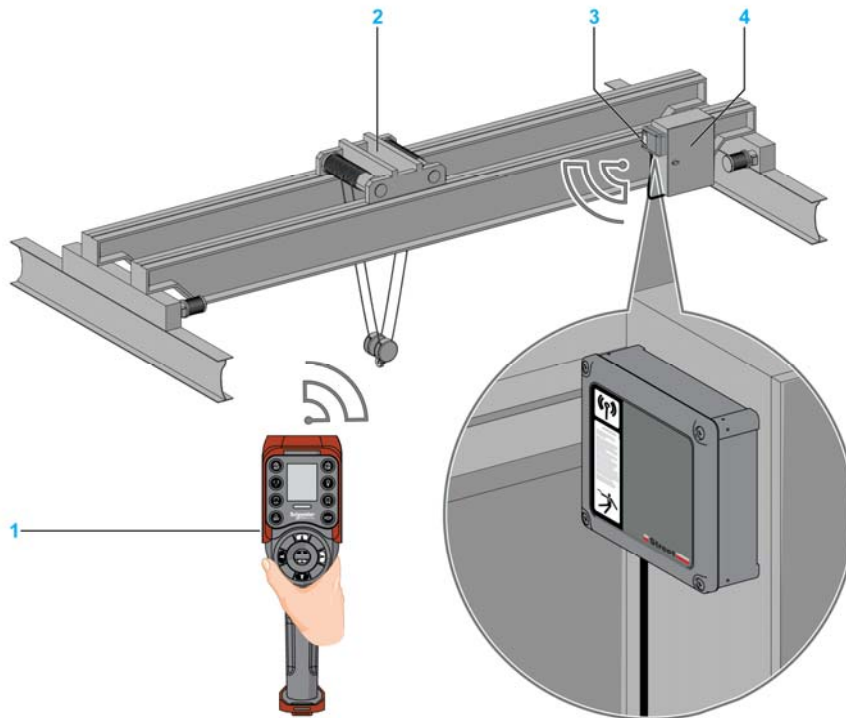
One auxiliary selector can be configured to select devices (hooks or trolleys):

3 positions (for example: for trolleys)

2 positions (for example: for hooks)

Example of Single with 1 Trolley

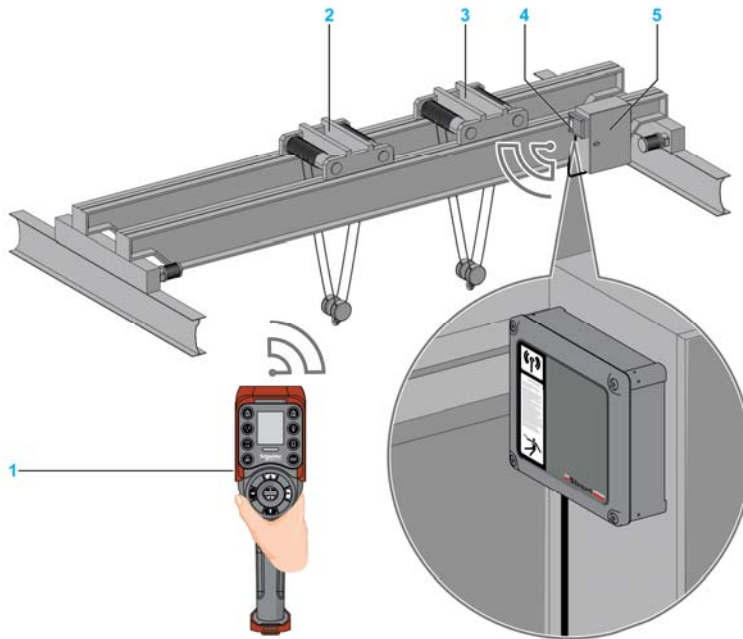
The Remote Device controls one trolley.



- 1 Remote Device
- 2 Trolley
- 3 Base Station
- 4 Electrical cabinet

Example of Single with 2 Trolleys

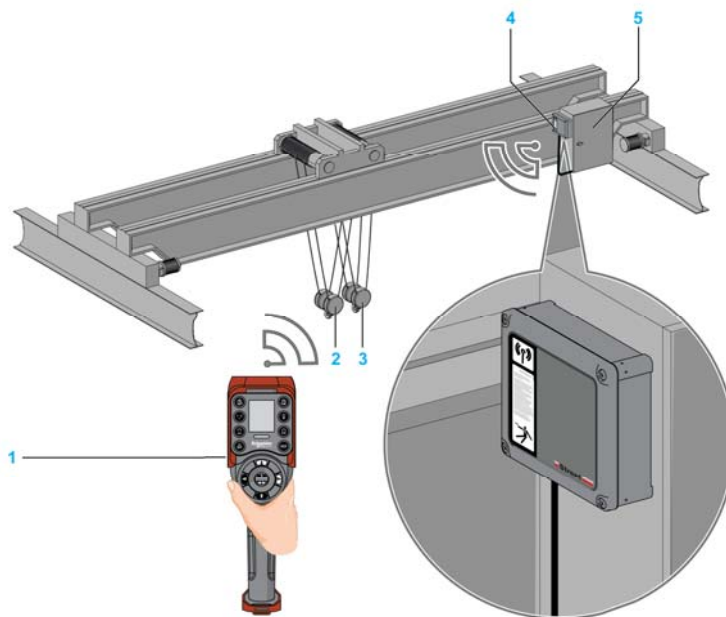
By using the auxiliary selector button (3 positions), the Remote Device separately controls the trolley 1, trolley 1+2 or the trolley 2.



- 1 Remote Device
- 2 Trolley 1
- 3 Trolley 2
- 4 Base Station
- 5 Electrical cabinet

Example of Single with 2 Hooks

By using the auxiliary selector button (2 positions), the Remote Device separately controls the hook 1 or the hook 2.

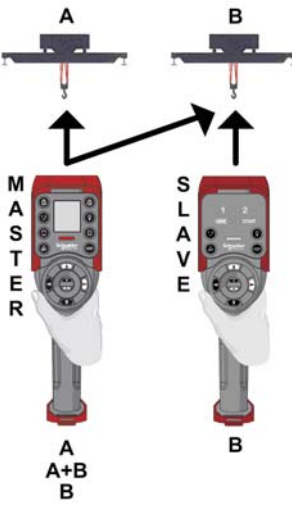

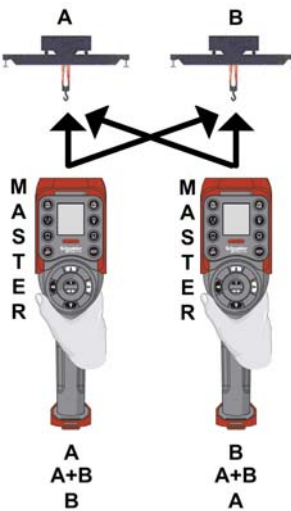


- 1 Remote Device
- 2 Hook 1
- 3 Hook 2
- 4 Base Station
- 5 Electrical cabinet

3.2 MULTI BASE CONTROL MODE

Overview

Multi Base Control (MBC) = one Remote Device commands one or two Base Stations. There are 3 kinds of Multi Base Control (MBC) configuration:

MASTER / SLAVE	TANDEM	MASTER / MASTER
		
<p>The Master Remote Device controls 2 machines simultaneously or individually (Base Station A, B, or A+B). The Slave Remote Device can only control one machine (Base Station B).</p>	<p>One Master Remote Device controls 2 machines simultaneously or individually (Base Station A, B, or A+B).</p>	<p>Identical to Master/slave except that both Remote Devices can be the Master Remote Device.</p>

On a Master Remote Device, a base selector button allows you to choose one of the following:

- “A”: The Remote Device communicates only with Base Station A as if it was in single/slave mode
- “B”: The Remote Device communicates only with Base Station B as if it was in single/slave mode.
- “A+B”: The Remote Device communicates simultaneously with both Base Station A and Base Station B.

The 2 Base Stations are controlled simultaneously.

Auxiliary Selector

Up to 2 Auxiliary selectors can be configured to select devices (hooks or trolleys):

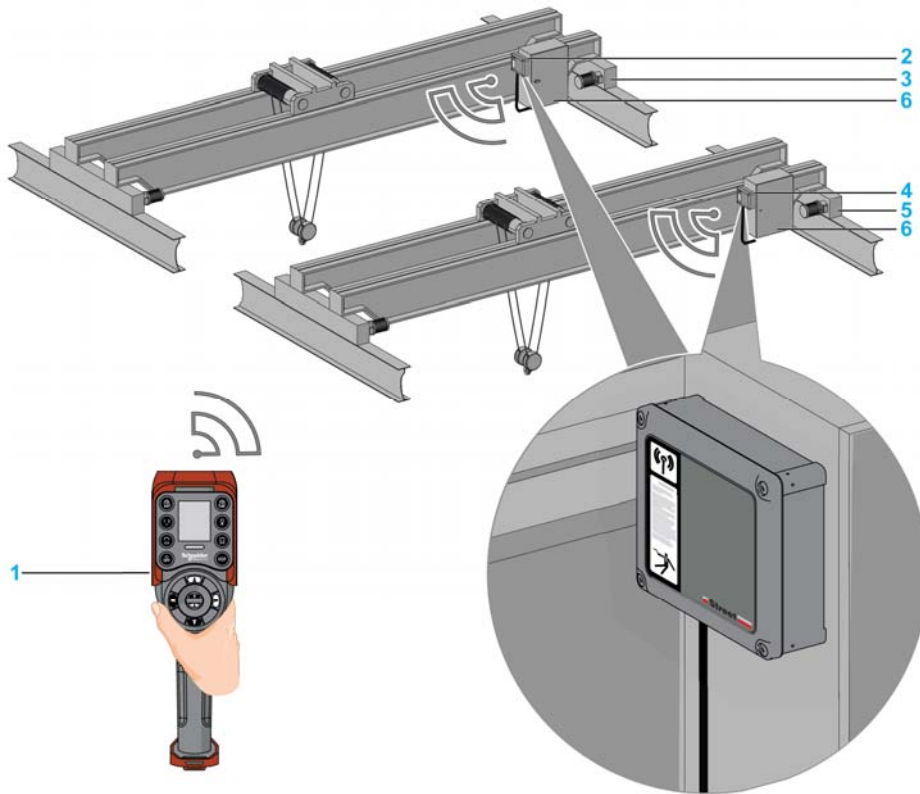
- 3 positions (for example: for trolleys)
- 2 positions (for example: for hooks)

Auxiliary selector button of the Remote Device can be assigned to:

- 2 Base Stations (same action to the 2 Base Stations in the same time).
- 1 Base Station (each Auxiliary selector of Base Stations is assigned to a different Auxiliary selector button of the Remote device).
- 1 Auxiliary selector can be assigned to only one Base Station.

Example of Multi Base Control with 1 Trolley Per Base Station

By using the Base selector button, the Remote Device separately controls the bridge A, bridge A+B, or the bridge B.



- 1 Remote Device
- 2 Base Station A
- 3 Bridge A
- 4 Base Station B
- 5 Bridge B
- 6 Electrical cabinets

3.3 WIRELESS REMOTE CONTROL SYSTEM OVERVIEW

Systems and Starting Kits

Therefore, 3 levels of complexity for Wireless Remote Control System:

Wireless Remote Control System	System Description
Sabre 1	
660-21	8 Pushbutton (2 auxiliary) remote transmitter with LED indication, 12 output relay receiver unit and charger. 1.5 meter pre-wired cable with male connector and internal receiver buzzer.
660-91	8 Pushbutton (2 auxiliary) remote transmitter with LED indication, 12 output relay receiver unit and charger. 1.5 meter pre-wired cable with male connector and internal receiver buzzer. With additional transmitter.
870-67701	8 Pushbutton (2 auxiliary) remote transmitter with LED indication, 12 output relay receiver unit and charger. 1.5 meter pre-wired cable with male connector and internal receiver buzzer. With adjustable shoulder strap.
870-67731	8 Pushbutton (2 auxiliary) remote transmitter with LED indication, 12 output relay receiver unit and charger. 1.5 meter pre-wired cable with male connector and internal receiver buzzer. With additional transmitter and adjustable shoulder strap.
Sabre 2	
660-71	8 Pushbutton (2 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger.
660-101	8 Pushbutton (2 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger. With additional transmitter.
870-67711	8 Pushbutton (2 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger. With adjustable shoulder strap.
870-67741	8 Pushbutton (2 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger. With additional transmitter and adjustable shoulder strap.
Sabre 3	
660-31	12 Pushbutton (6 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger.
660-111	12 Pushbutton (6 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger. With additional transmitter.
870-67721	12 Pushbutton (6 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger. With adjustable shoulder strap.
870-67751	12 Pushbutton (6 auxiliary) remote transmitter with display, 18 input / output relay receiver unit and charger. With additional transmitter and adjustable shoulder strap.

Reference		Single Mode	MBC Mode	
			Slave	Master
Remote	Sabre 1	✓	✓	
	Sabre 2	✓	✓	✓
	Sabre 3	✓	✓	✓
Base Station	Sabre 1	✓		
	Sabre 2 / 3	✓		✓

Spares and Accessories

Reference	SCC Order Part Number	Description
ZARC01	660-181	Charger for remote control
ZARC20	660-191	Rubber bellow kit
ZARCFBA01	660-341	Option board for weight display
ZARC201	660-351	Rubber (metallic ring) bellow kit
ZARC22F	660-201	Set of red front protection and stirrup
ZARCC26B	660-211	Black bottom rubber protection
ZARC53	660-221	Set of cover screws and associated accessories
ZARC56	660-231	Cover for Sabre 1 receiver base unit
ZARC57	660-241	Cover for Sabre 2 and Sabre 3 receiver base unit
ZARC51	660-251	Emergency stop head, guard, gasket, nut and two screws sub-assembly
ZARC90	660-261	Set of five spare batteries
ZARC54	660-271	Casing with trigger, trigger bellow, trapdoor gasket, screws and stirrup sub-assembly
ZARC52	660-281	Set of trapdoor with screws
ZARC58	660-291	Pack of 100 screws for remote
ZARC091	660-301	Magnetic fixing kit for receiver base units
ZARC04	660-311	Transmitter holder
ZARC07	660-321	Black and white adhesive label kit for transmitters
TCSMCNAM3M002P	660-331	USB to RJ45 programming connecting cable
660-81	660-81	Adjustable shoulder strap
ZARC03	660-361	External antenna for base station

3.4 BASE STATION PARTS IDENTIFICATION AND MAIN FEATURES

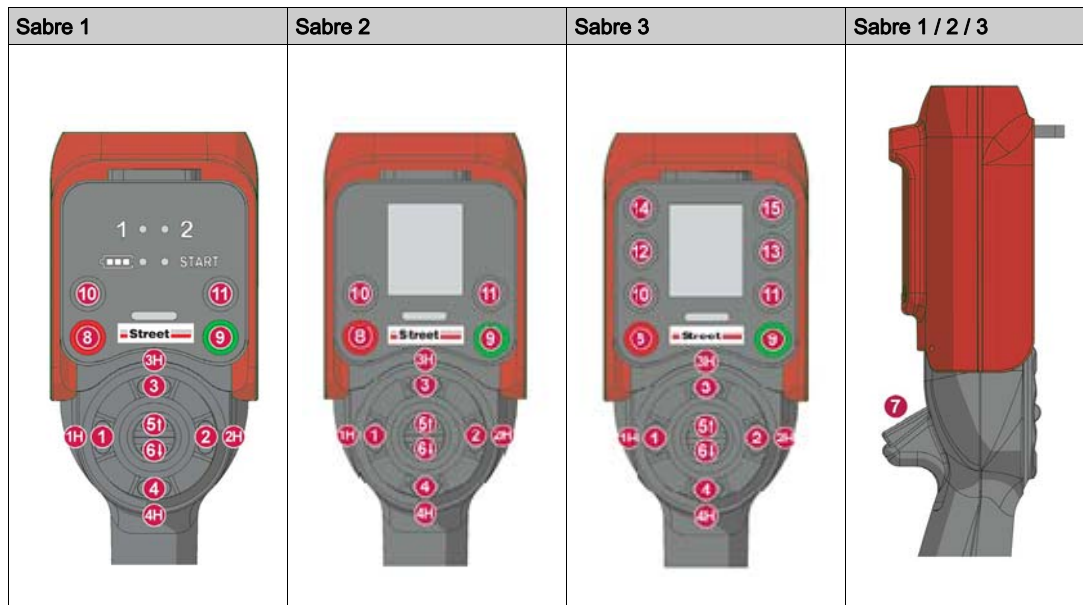
Side	Description
Bottom Receiver	
Front without the cover	

Part	Description
A	M12 for external antenna (covered by cap)
B	Status LEDs
C	M20 for the safeguarding function input wires (covered by cap). This is used for the audible alarm on the Sabre 1.
E	M25 for output wires (covered by cable gland)
F	M25 for detected applicative alarms input wires (covered by cap)
G	4 holes for standard mounting on support

3.5 BASE STATION MAIN FEATURES

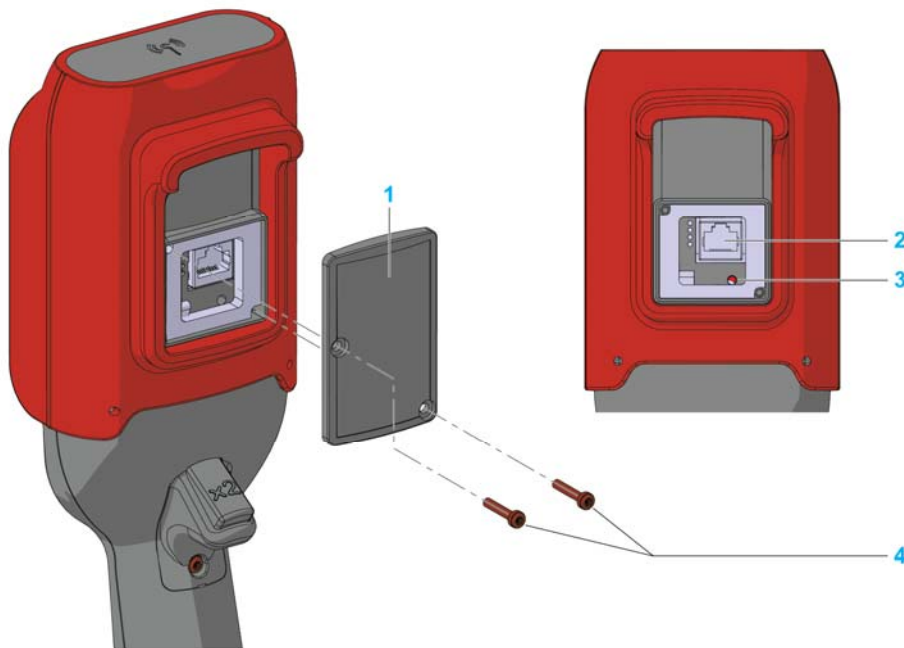
References		Sabre 1	Sabre 2 / 3
Radio communication via internal antenna		Yes	
External antenna connector		Yes	
Connections		Screw terminals	
Q0 safety relays outputs		2 (Q0_A, Q0_B)	
IN0 / S2_S3 feedback loop terminals for mirror contacts from safety actuator		1	
Configurable inputs for detected applicative alarms		0	6 (IN1...IN6)
Inputs dedicated for safeguarding function		0	12 (IN7...IN18)
Motion & auxiliary standard relays		12 (Q1...Q12)	18 (Q1...Q18)
Power supply		24...240 Vac 50/60 Hz 24...240 Vdc	
Current consumption	AC	535 mA (24 V)...250 mA (240 V)	
	DC	328 mA (24 V)...44 mA (240 V)	
System earthing		TN, TT	
Q0_A contact voltage		24...240 Vac/dc	
Q0_B contact voltage			
Motion / auxiliary contact voltage			
Motion / auxiliary relay group		<ul style="list-style-type: none"> • Q1...Q3 • Q4...Q6 • Q7...Q9 • Q10...Q12 	<ul style="list-style-type: none"> • Q1...Q3 • Q4...Q6 • Q7...Q9 • Q10...Q12 • Q13...Q16
Motion / auxiliary relay in NO+NC type		-	Q17, Q18

3.6 REMOTE DEVICE PARTS IDENTIFICATION AND MAIN FEATURES



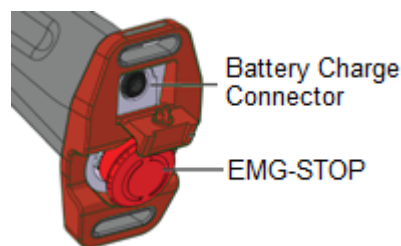
Part	Description
1, 1H, 2, 2H, 3, 3H, 4, 4H, 5, 6	Motion buttons
7	Trigger button
8	OFF/STOP button
9	ON/START/Horn button
10, 11, 12, 13, 14, 15	Auxiliary buttons

Remote Device Rear View Parts Identification



Part	Description
1	Cover
2	RJ45 socket
3	Reset button
4	2 Torx screws, diameter 3.5 mm (0.14 in)

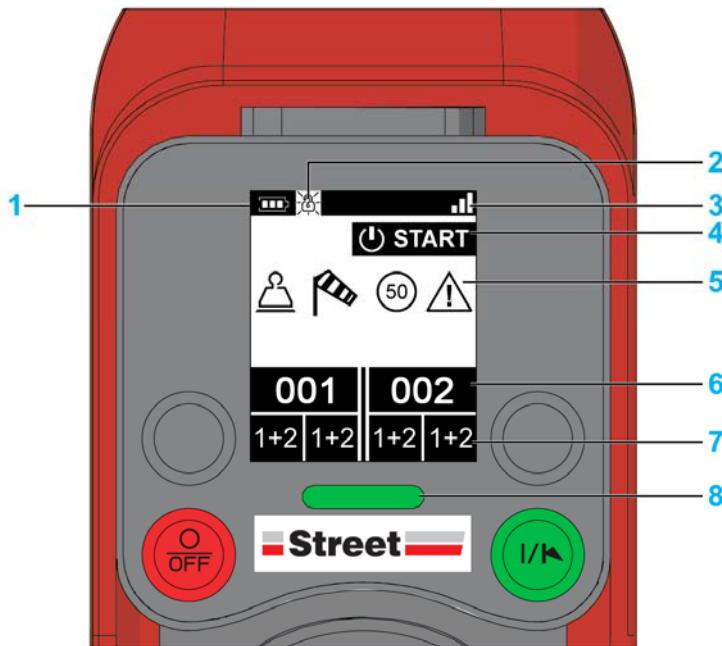
Remote Device Bottom View Parts Identification



⚠ DANGER

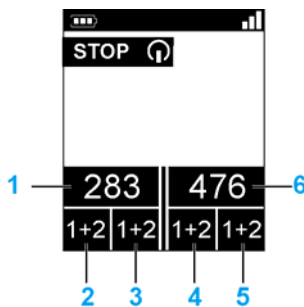
OBSTRUCTED PUSH-BUTTON MOTION
 Ensure push-button will fully operate.
Failure to follow these instructions will result in death or serious injury.

3.7 SABRE 2 AND SABRE 3 DISPLAY PARTS IDENTIFICATION



Part	Description
1	Battery level (see page 54)
2	Padlock displayed when a password is requested. Padlock displayed when a password is requested for: <ul style="list-style-type: none"> • Configuration File transfer • E-STOP reset or START access (see page 34)
3	Radio communication level (see page 54)
4	Operating status
5	Detected applicative alarms (see page 55)
6	Base Station labels
7	Auxiliary Selector status
8	E-STOP LED (see page 54)

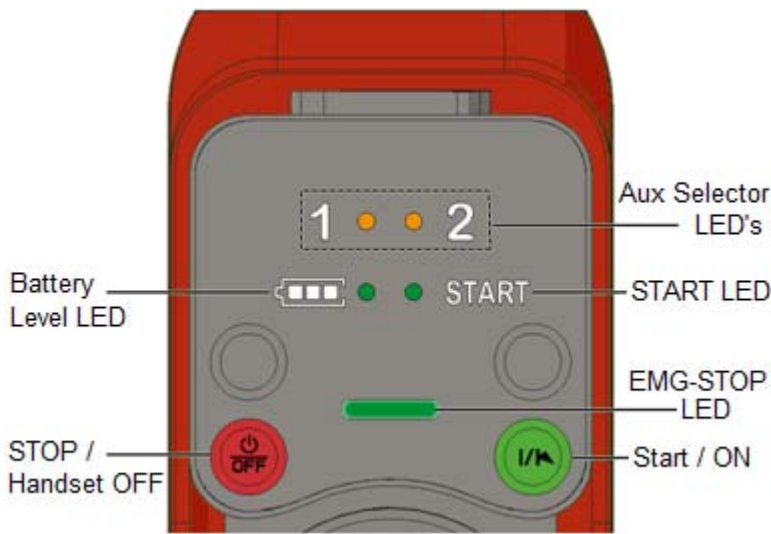
Base Stations labels and Auxiliary selector’s states:



Part	Description
1	Label of the primary Base Station ⁽¹⁾
2	State of the Auxiliary selector S1 associated to the primary Base Station ⁽²⁾
3	State of the Auxiliary selector S2 associated to the primary Base Station ⁽²⁾
4	State of the Auxiliary selector S1 associated to the secondary Base Station ⁽²⁾
5	State of the Auxiliary selector S2 associated to the secondary Base Station ⁽²⁾
6	Label of the secondary Base Station ⁽¹⁾

1 For more information, refer to MBC Base selector [\(see page 40\)](#)
 2 For more information, refer to Auxiliary selector [\(see page 41\)](#)

3.8 SABRE 1 DISPLAY PARTS IDENTIFICATION



Part	Description
1	Battery level LED
2	START LED
3	Auxiliary Selector S1 LEDs
4	E-STOP LED

For more information, refer to Sabre 1 diagnostic [\(see page 57\)](#)

Remote Device Functionalities

Description	Sabre 1	Sabre 2	Sabre 3
Number of configurable buttons	8	8	12
OFF/STOP button		Yes	
ON/START/Horn button		Yes	
Motion & Stop function		Yes	
2 or 3 positions selector (1, 1+2, 2)		Yes	
E-STOP function		Yes	
Optional E-STOP RESET sequence		Yes	
Optional START Access sequence		Yes	
Optional automatic STOP function after a timeout		Yes	
Optional automatic Power OFF function after a		Yes	
Information LEDs	Yes		No
Display function	No		Yes
Vibrate facility function in case of detected	No		Yes
Embedded accelerometer		Yes	

3.9 CERTIFICATIONS AND STANDARDS

Environment

The Wireless Remote Control System devices are compliant with:

- WEEE, directive 2002/96/EC
- REACH, regulation 1907/2006
- RoHS, directive 2011/65/EU

Overall Standards

Criteria	Level
Principles of design for safety	EN IEC 60204-1 EN ISO 13849-1 EN ISO 13849-2 EN IEC 62061 EN IEC 61508 EN ISO 13850
Specific standards for hoisting applications	EN IEC 60204-32 EN 13557
Low voltage equipment	EN IEC 61010-1 EN IEC 60947-5-1 EN IEC 60947-5-4 EN IEC 60947-5-5
Electromagnetic compatibility	IEC 61000-6-2
Transmission frame format	EN 60870-5-1

Local Standards and Certifications

Schneider Electric submitted this product for independent testing and qualification by third party listing agencies.

Criteria	Description
CE marking	Machinery directive 2006/42/EC Low voltage directive 2006/95/EC EMC directive 2004/108/EC R&TTE directive 1999/05/EC
Low voltage equipment	EN 50178
European specific standards for hoisting applications	EN 13557 EN 12077-2
European specific standards for hoisting machines	EN 15011 (overhead traveling cranes) EN 14439 (tower cranes) EN 14492 (block hoists and winches)
Countries certifications (electrical devices)	UL508 CSA C22-2 n°14 EAC
Standards for radio frequencies	ETSI EN 301 489 -1 ETSI EN 301 489 -3 ETSI EN 301 489-17 ETSI EN 300 440-2 ETSI EN 300 328 FCC part 15 RSS GEN issue 3 RSS 210 issue 8 ARIB STD-T81

Radio Frequencies Certification

The Sabre devices obtained the radio frequency conformity delivered by the following certification organisms:

Certification organism	Certification organism country	Certification marks
CNC	Argentina	See on www.schneider-electric.com .
RCM	Australia/New-Zealand	See on the device
ANATEL	Brazil	See on www.schneider-electric.com .
IC	Canada	See on the device
SUBTEL	Chile	See on the device
SRRC	China SRRC	See on the device
-	Hong Kong	Ready for importation.
Government of India	India	See on www.schneider-electric.com .
Technical Conformity Mark	Japan	See on the device
SIRIM	Malaysia	See on the device
COFETEL	Mexico	See on the device
ASEP	Panama	See on www.schneider-electric.com .
ICASA	Republic of South Africa	See on the device
EAC	Russia	See on the device
-	Saudi Arabia	Ready for importation.
IDA	Singapore	<div style="border: 2px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Complies with IDA Standards DA105331</p> </div>
KCC	South Korea	See on the device
NCC	Taiwan	See on the device
NTC SDoC	Thailand	See on www.schneider-electric.com .
R&TTE	UE	See on the device
FCC	USA	See on the device

For Multi Base Control (MBC) references, certification is ongoing.

4 RADIO SPECIFICATION

Specification	Details	Value
Frequency of radio communication	International frequency range	2.4 GHz
Number of working systems in the same area	-	Up to 50 systems in a 100 x 100 meter area
Radio range	In free field	> 300 m (984 ft.)
	In industrial environment	Up to 50 m (164 ft.) typical
Antenna	(Possible ZARCO3 external antenna use)	Internal
Working channel selection	No impact for the customer (during installation, use and maintenance)	Automatic
ID	-	MAC address reserved by Street Crane Company

FCC USA and IC Canada Compliance Statement

This device complies with part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

l'appareil ne doit pas produire de brouillage, et l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

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

The base complies with FCC's radiation exposure limits set forth for an uncontrolled environment under the following conditions:

1. This equipment should be installed and operated such that a minimum separation distance of 20 cm is maintained between the radiator (antenna) and user's/nearby person's body at all times.
2. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The remote device with its antenna complies with FCC's radiation exposure limits set forth for an uncontrolled environment. To maintain compliance, follow the instructions below:

1. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. Avoid direct contact to the antenna, or keep contact to a minimum while using this equipment.

Under Industry Canada regulations, these radio transmitters may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. These radio transmitters (IC:7002CZARB and IC:7002CZART) have been approved by Industry Canada to operate with the antenna type ZARC03 with the maximum permissible gain and required antenna impedance. Any other antenna types having a gain greater than the maximum gain indicated for that type are strictly prohibited for use with this device.

Conformément à la réglementation d'Industrie Canada, les présents émetteurs radio peuvent fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Les présents émetteurs radio (identifier IC:7002CZARBo and IC:7002CZARTo) ont été approuvés par Industrie Canada pour fonctionner avec le type d'antenne ZARC03 ayant un gain admissible maximal et l'impédance requise.

D'autres types d'antenne dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

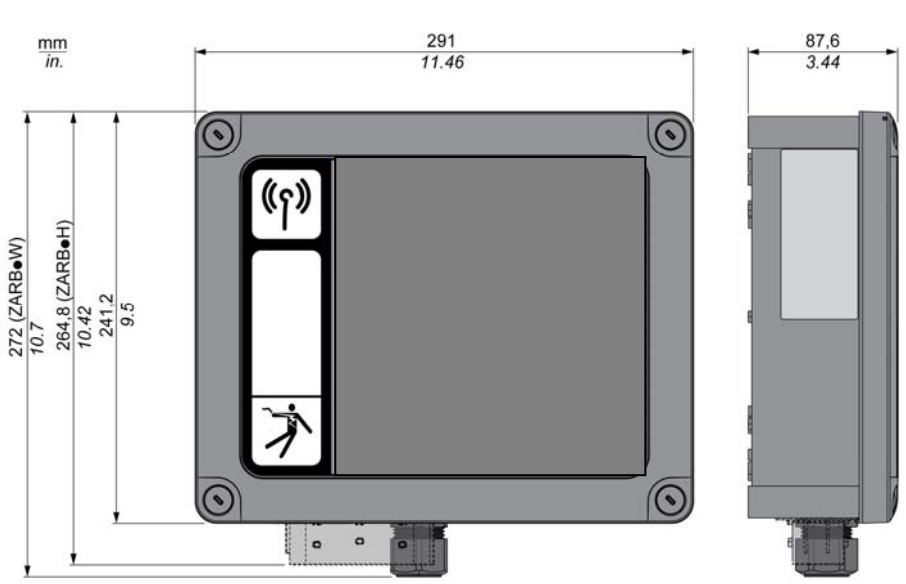
Product reference	Maximum gain of internal antenna (dB)	Maximum gain of external antenna (dB) (including cable)	Allowed impedance (Ω)
Sabre 1 transmitter	4.5	-	-
Sabre 2 / 3 transmitter	5.5		
Sabre 1 / 2 / 3 Receiver	4.5	1	50

Any changes or modifications not expressly approved by Street Crane Company / Schneider Electric could void the user's authority to operate the equipment.

5 REMOTE DEVICE SPECIFICATIONS

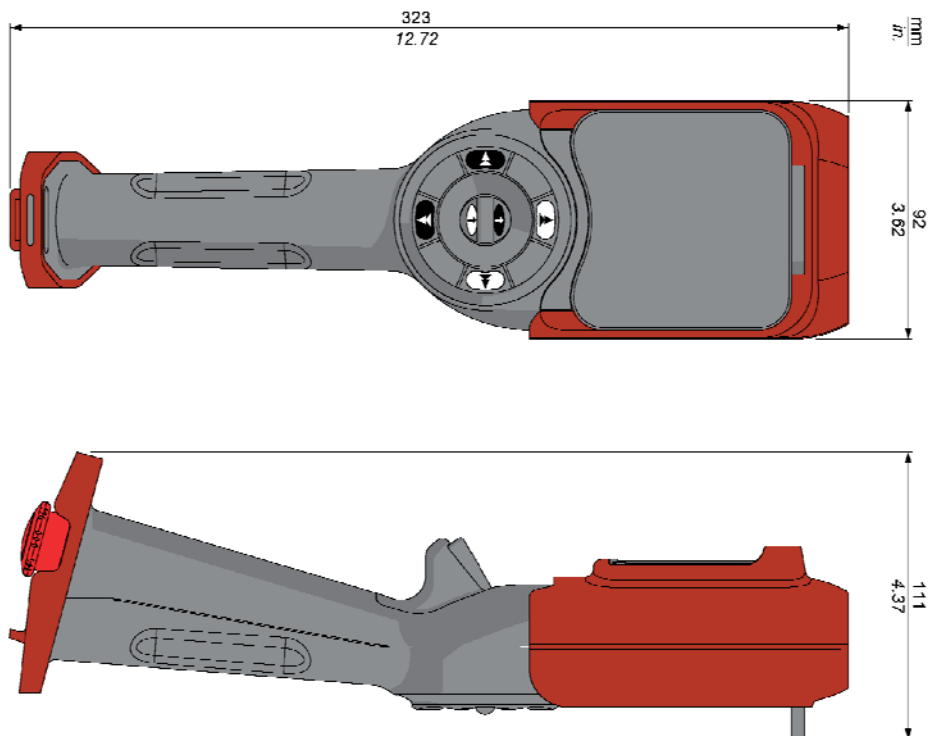
5.1 BASE STATION DIMENSIONS

The following figure shows the Base Station dimensions:



5.2 REMOTE DEVICE DIMENSIONS

The following figure shows the Remote Device dimensions:



6 FUNCTIONAL SAFETY

6.1 GENERALITIES

6.1.1 Introduction

Overview

The safety functions incorporated in Sabre allow for the protection of people and machinery. The Sabre is compliant with the requirements of the standards in terms of implementation of safety functions.

6.1.2 Standards and terminology

Overview

The technical terms, terminology, and the corresponding descriptions in this manual normally use the terms or definitions in the relevant standards.

In the field of Wireless Remote Control System, this includes, but is not limited to, terms such as safety function, safe state, fault, fault reset, failure, error, error message, warning, warning message, and so on.

These standards include:

- IEC 61508 Ed.2 series: Functional safety of electrical/electronic/programmable electronic safety-related systems
- EN 62061 Ed.1.0: Safety of machinery - Functional safety of safety-related electrical, electronic, and programmable electronic control systems
- EN ISO 13849-1 & 2: Safety of machinery - Safety related parts of control systems

EC Declaration of Conformity

The EC declaration of conformity for the machine directive 2006/42/EC can be obtained on www.schneider-electric.com.

Functional Safety Conformity

The integrated safety functions are compliant with:

- I EN 15011: 2014
- I EN 14492-2: 2009
- I EN 14439: 2009
- I EN 13557: 2008
- I IEC 60204-1: 2009
- I IEC 60204-32: 2008

The listed standards set out safety-related considerations of Wireless Remote Control System safety related in terms of the framework of the ISO13849-1 and ISO13849-2 standards.

The defined safety functions are:

- SIL1, SIL2, and SIL3 capability in compliance with the IEC 61508 Ed.2 series.
- Performance Level c, d, and e in compliance with ISO 13849-1.
- Compliant with category 2, 3, and 4 of European standard ISO 13849-1.

Also refer to Safety Function Capability. ([see page 30](#))

The safety demand operating mode is considered to be high demand or continuous mode of operation according to the IEC 61508-1 standard.

6.2 WIRELESS REMOTE CONTROL SYSTEM SAFETY SIGNATURE

Overview

The verification test for systems with safety integrated functions focuses on validating the functionality of safety integrated monitoring and stop functions configured in the Wireless Remote Control System. The purpose of the test is to verify proper configuration of the defined safety functions and test mechanisms and to examine the response of dedicated monitoring functions to explicit input of values outside the tolerance limits. The test must cover all Wireless Remote Control System-specific safety configured monitoring functions and global safety integrated functionality in Sabre.

Condition Prior to Verification Test

- The machine is wired up correctly.
- All safety devices such as limit switches, overload sensors, and emergency stop switches are connected and ready for operation.
- All commissioning parameters must be correctly set on the Wireless Remote Control System.

6.3 FUNCTIONAL SAFETY REQUIREMENTS FOR MAINTENANCE

6.3.1 Maintenance

E-STOP

By way of preventive maintenance and according to the Recommendation the E-STOP and the STOP function must be activated at least once a month. The Remote Device and the Base Station must be switched OFF and then ON (power cycle) before carrying out this preventive maintenance.

Others Safety Functions

By way of preventive maintenance and according to the Recommendation the STOP, motion, auxiliary, limit switch functions must be activated at least once a year. The Remote Device and the Base Station must be switched OFF and then ON (power cycle) before carrying out this preventive maintenance.

6.3.2 Base Station or Remote Device Replacement

Overview

You can replace the Base Station part and the Remote Device part.

If you replace the Base Station or the Remote Device configured, you will not lose your safety configuration thanks to the maintenance / device replacement procedure but you need to repeat the verification test to avoid incorrect wiring or incorrect behaviour of the safety function.

NOTE: For more product information, see the Maintenance / Device Replacement. ([see page 60](#)).

6.3.3 Changing Machine Equipment

Overview

If you need to change any parts of the hoisting system (contactor, drive, ...) you must repeat the verification test. ([see above](#))

7 USING THE WIRELESS REMOTE CONTROL SYSTEM

7.1 BASIC USES

7.1.1 Power ON

Overview

The aim is to describe how to power ON the Wireless Remote Control System.

Triggering Procedure

Step	Action
1	Check that the Remote Device is powered OFF.
2	Power ON the Base Station.
3	Press only the ON/START/Horn button more than 1 s.

Result: The Remote Device is powered ON.

The discovery procedure is automatically launched. If the Wireless Remote Control System has been installed correctly, the Wireless Remote Control System goes automatically in STOP mode. [\(see page 33\)](#). In other case, refer to the discovery description. [\(see page 45\)](#).

NOTE: If the button 7 (trigger) and the ON/START/Horn button are pressed simultaneously more or equal than 1 s, the Remote Device goes in diagnostic mode. [\(see page 52\)](#).

Release

The Remote Device is powered OFF:

- By the Power OFF procedure. [\(see page 35\)](#).
- Automatically when the Remote Device battery level is too low.
- Automatically after the Power-saving timeout.

7.1.2 E-STOP

Overview

The E-STOP function leads to go to the safe position of the Wireless Remote Control System when the operator presses the E-STOP red mushroom button.

In E-STOP mode, the motion/auxiliary relays and the safety relays are OFF.



NOTE: The E-STOP function of the Remote Device is available only when the E-STOP LED is ON.

Triggering Procedure

Step	Action
1	Press the E-STOP button.

Wireless Remote Control System in E-STOP Mode

Remote Device:

Reference	Description
Sabre 1	<ul style="list-style-type: none"> The START LED is OFF. The E-STOP LED is blinking.
Sabre 2 / 3	<ul style="list-style-type: none"> The STOP mode symbol is displayed: <div style="text-align: center; margin: 5px 0;">  </div> The E-STOP symbol is permanently displayed: <div style="text-align: center; margin: 5px 0;">  </div> The E-STOP LED is blinking.

Base Station:

Reference	Description
Relays	The safety relays are switched OFF. The motion/auxiliary relays are switched OFF. The "Start relay" is switched OFF.
LEDs	The STATUS LED is ON. The POWER LED is ON. The COM LED is blinking.

Release

Release procedure:

Step	Action
1	Verify that there is no more risk conditions.
2	Release the E-STOP button.
3	If an E-STOP RESET sequence is configured, type it with the motion buttons 1...6.
4	Press the button 7 (trigger).

Result: The Wireless Remote Control System is in STOP mode. [\(see page 33\)](#).

7.1.3 STOP

Overview

In STOP mode, the motion/auxiliary relays are disabled and the safety relays are OFF.

Triggering Procedure

The STOP mode is reached in the following cases:


- The OFF/STOP button is pressed (the Wireless Remote Control System was previously in START mode).
- No button pressed for more than the configured Standby timeout. The factory setting value is 15 minutes.
- Wireless connection lost (out of range for example).
- Discovery after a Power ON.

Triggering procedure when the Wireless Remote Control System is in START mode:

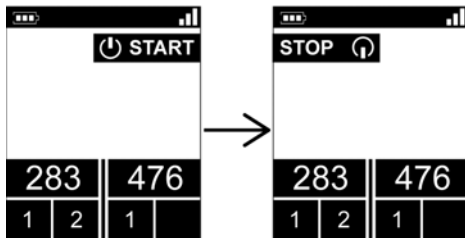
Step	Action
1	Check that the Wireless Remote Control System is in START mode.
2	Press the OFF/STOP button.

Wireless Remote Control System in STOP Mode

Remote Device:

Reference	Description
Sabre 1	<ul style="list-style-type: none"> • The START LED is: <ul style="list-style-type: none"> • OFF if no START Access Sequence is configured • Reverse flashing if a START Access Sequence is configured (see page 34). • The E-STOP LED is ON.
Sabre 2 / 3	<p>The STOP mode symbol is displayed:</p>  <p>The E-STOP LED is ON.</p>

Sabre 2 and Sabre 3 remote display from START mode to STOP mode:



The Base Station executes the following steps:

- 1 The motion/auxiliary relays are switched OFF.
- 2 If configured, the UOC relays are switched OFF after a pre-configured time delay.
- 3 The safety relays are switched OFF.

Base Station:

Element	Description
Relays	<ul style="list-style-type: none"> • The safety relays are switched OFF. • The motion/auxiliary relays are switched OFF. • The "Radio link" relay is switched ON. • The "Start relay" is switched OFF.
LEDs	<ul style="list-style-type: none"> • The STATUS LED is ON. • The POWER LED is ON. • The COM LED is blinking.

Release

From this mode, you can:

- Charge the Remote Device battery. [\(see page 50\)](#).
- Power OFF the Remote Device. [\(see page 35\)](#).
- Go to START mode. [\(see below\)](#).

7.1.4 START

Overview

The START mode is the only mode in which:

- You can command the motions. [\(see page 39\)](#)
- You can command the auxiliary function. [\(see page 39\)](#)
- You can command the horn. [\(see page 43\)](#)
- The safety relays are switched ON.

Start Access Sequence

When START access sequence is enabled, the operator must enter this sequence to go in START mode. The Street Crane default start access sequence is button **3**. For button location [\(see page 20\)](#).


Triggering Procedure

Required conditions: The Wireless Remote Control System must be in STOP mode. Triggering procedure:

Step	Action
1	If a START Access Sequence is configured, type it with the motion buttons 1...6.
2	Press only the ON/START/Horn button more than 1 s.
3	Wait during the START warning time (Sabre 2 and Sabre 3 remote vibrations, "Horn" relay is switched ON).

Wireless Remote Control System in START Mode

Remote Device:

Reference	Description
Sabre 1	<ul style="list-style-type: none"> • The START LED is ON. • The E-STOP LED is ON.
Sabre 2 / 3	<ul style="list-style-type: none"> • The START mode symbol is displayed:  • The E-STOP LED is ON.

Base Station:

Element	Description
Relays	<ul style="list-style-type: none"> • The safety relays are switched ON. • The motion/auxiliary relays are enabled. • The "Radio link" relay is switched ON. • The "Start relay" is switched ON. • The "Impulse start relay" is switched ON for 1 s.
LEDs	<ul style="list-style-type: none"> • The STATUS LED is ON. • The POWER LED is ON. • The COM LED is blinking.

Release

To leave the START mode:

- You can go to STOP mode. [\(see page 33\)](#).
- You can go to E-STOP mode. [\(see page 32\)](#).
- The Wireless Remote Control System goes automatically to STOP mode when no button is pressed for more than the configured Standby timeout. The factory setting value is 15 minutes.

7.1.5 Power OFF

Overview

This function switches OFF the Remote Device.

Triggering Procedure

Required conditions: The Wireless Remote Control System must be in STOP mode.

The "Power OFF function" is triggered in the following cases:

- The OFF/STOP button is pressed.
- No button pressed for more than the configured timeout: Standby timeout + Power Saving timeout.
- The Remote Device battery level is low.
- Fall of the Remote Device.

Triggering procedure when the Wireless Remote Control System is in STOP mode:

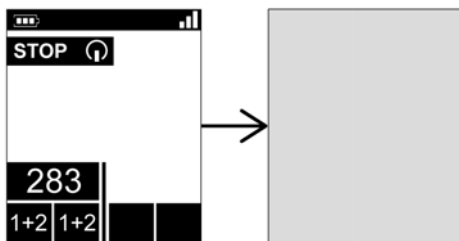
Step	Action
1	Check that the Wireless Remote Control System is in STOP mode
2	Press only the OFF/STOP button more than 2 s

Wireless Remote Control System in Power OFF Mode

Remote Device:

Reference	Description
Sabre 1	<ul style="list-style-type: none"> • All the LEDs are OFF.
Sabre 2 / 3	<ul style="list-style-type: none"> • The display is inactive. • The E-STOP LED is OFF.

Sabre 2 and Sabre 3 remote display from STOP mode to Power OFF:



Base Station:

Element	Description
Relays	The safety relays are switched OFF. The motion/auxiliary relays are switched OFF. The "Radio link" relay is switched OFF.
LEDs	The STATUS LED is ON. The POWER LED is ON. The COM LED is OFF.

Release

From this mode, you can:

- Power ON the Remote Device. [\(see page 31\)](#).
- Charge the Remote Device battery. [\(see page 50\)](#)

7.1.6 Multi Base Control System Pairing

Overview

In Multi Base Control (MBC), two Single Systems work together. For example:

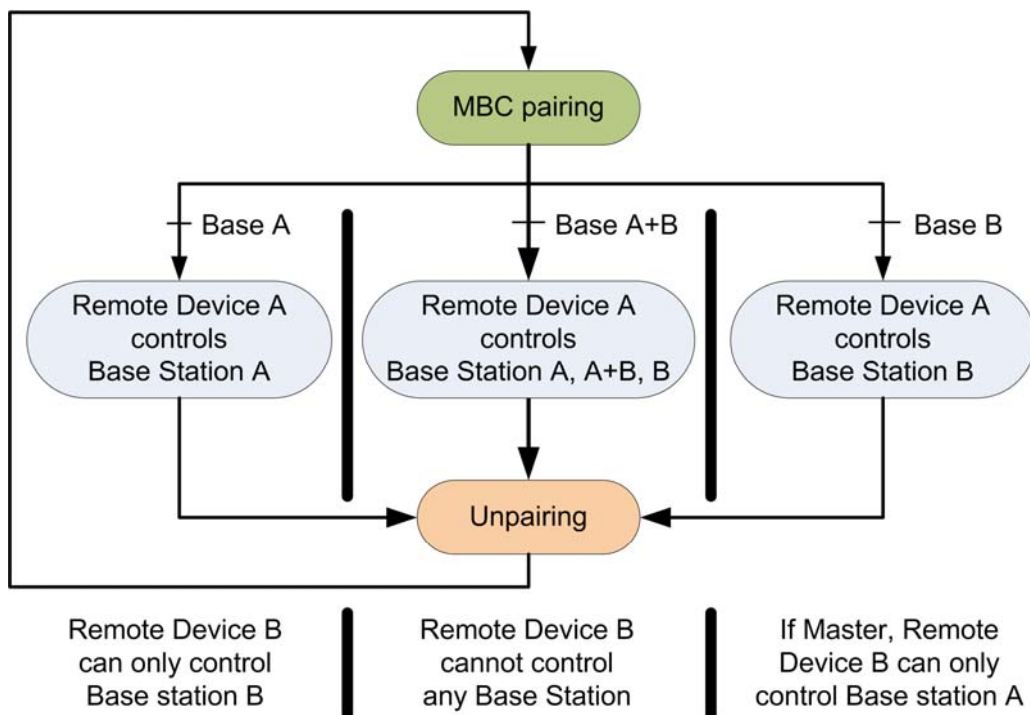
- System A: a Master Remote Device with its primary Base Station
- System B: another Remote Device (master or slave) with its primary Base Station.



MBC Pairing Principle

A Base Station can only be paired and controlled by one Remote Device.
 By default, or after a configuration modification, the Remote Device A is only paired with the Base Station A and the Remote Device B is paired with the Base Station B.
 When a Remote Device is Powered OFF, the Base Station is still considered as “paired” and cannot be paired with another Remote Device until it gets “unpaired” following the unpairing procedure.

MBC pairing of a Master Remote Device A:



Pairing/Unpairing of the MBC Pairing

To allow the Remote Device A to control Base Station B or 2 Base Stations simultaneously, you must:

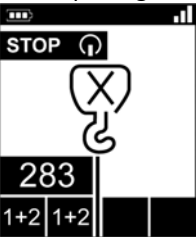
Step	Action
1	Unpair the Remote Device B (master or slave) with Base Station B.
2	Unpair the Master Remote Device A with Base Station A.
3	Pair the Master Remote Device A with desired Base Stations.

To return in the original configuration: Master Remote Device A controls Base Station A and Remote Device B (Master or slave) controls Base Station B, you must:

Step	Action
1	Unpair the Master Remote Device A with Base Station B.
2	Pair the Master Remote Device A with Base Station A.
3	Pair the Remote Device B (Master or slave) with Base Station B.


MBC Unpairing Procedure

To allow a Base Station to get “unpaired” from a Remote Device, you must:

Step	Action
1	Go to diagnostic mode. (see page 52).
2	<p>Sabre 2 and Sabre 3 result: The unpairing screen displays the label of the paired Base Station:</p>  <p>The unpairing logo blinks. NOTE: If the Remote Device is paired with 2 Base Stations, the labels of the 2 Base Stations are displayed. Sabre 1 result: “1” and “2” LED are flashing.</p>
3	<p>Press button 7 (trigger) to confirm the unpairing request. Result: The Sabre 1 Remote Device automatically powers OFF. The Sabre 2 and Sabre 3 Remote Devices go to pairing screens.</p>

MBC Pairing Procedure

To allow a Base Station get “paired” to a Remote Device you must:

Step	Action
1	Power ON the unpaired Remote Device. Sabre 1 result: The Sabre 1 automatically pairs with its primary Base Station and goes to STOP mode. Sabre 2 and Sabre 3 result: The Sabre 2 and Sabre 3 Remote Devices go to pairing screens: 
2	For Master Remote Device, press the Base selector button to select the label of the Base Station to pair (the primary, the secondary, or both Base Stations). NOTE: Only pairable Base Stations are displayed.
3	Press button 7 (trigger) to confirm the pairing request. Result: The Remote Device pairs with the selected Base Stations and goes to STOP

The **Primary Base Restricted pairing** function manages the Base Station pairing restriction:

If the Restricted pairing is enabled, then the Base Station will accept the connection only with the Remote Device paired with the Base Station. The pairing can only be done:

- During 5 minutes after a Power OFF/Power ON cycle of the Base Station
or
- after an unpairing request in MBC mode ([see page 36](#)).

The factory setting value is **Enable**.

7.2 FUNCTIONALITIES

7.2.1 Standard Motion

Overview

In START mode, the motion buttons activate the associated motion relays that command the hoisting system movements. [\(see page 34\)](#).

Triggering Procedure

Required conditions: The Wireless Remote Control System must be in START mode

Triggering procedure:

Step	Action
1	Check that the Wireless Remote Control System is in START mode.
2	Press a motion button 1, 1H, 2, 2H, 3, 3H, 4, 4H, 5, 5+7, 6, 6+7 (see page 20) .

Result: The associated relays are switched ON as long as the motion button is pressed. The Remote Device has no specific result.

Release

Release procedure:

Step	Action
1	Release the motion button.

Result: The associated relays are switched OFF.

Restrictions for Motion/Auxiliary Use

Type	Description
Number of simultaneous motions	Only up to 6 motion/auxiliary relays can be activated at the same time (excluding the UOC relays). If more than 6 motion/auxiliary relays are requested (excluding the UOC relays), then the last motion relay request is not taken into account.
Interlocking	If 2 buttons dedicated to the same motion axis are pressed in opposite sense (interlocking), then the motion is stopped in these both directions.

7.2.2 Auxiliary Function

Overview

In START mode, the auxiliary buttons activate the associated relays to command auxiliary action (for example to command open and close grab). [\(see page 34\)](#).

Triggering Procedure

Required conditions: The Wireless Remote Control System must be in START mode

Triggering procedure:

Step	Action
1	Check that the Wireless Remote Control System is in START mode.
2	Press an auxiliary button (10, 10+7, 11, 11+7, 12, 12+7, 13, 13+7, 14, 14+7, 15, 15+7) (see page 20) .

Result: The associated relays are switched ON as long as the auxiliary button is pressed. The Remote Device has no specific result.

Release

Release procedure:

Step	Action
1	Release the auxiliary button.

Result: The associated relays are switched OFF.

7.2.3 Multi Base Control Base Selector

Description

Multi Base Control (MBC) = one Remote Device commands one or two Base Stations. For more details, refer to MBC Mode [\(see page 15\)](#) and to MBC Pairing. [\(see page 36\)](#).

Once the Master Remote Device is paired with 2 Base Stations, the MBC Base selector button allows switching between the primary, the secondary, and both Base Stations.

The MBC Base selector button is only available with the Sabre 2 and Sabre 3 Remote Device configured as Master.

Triggering Procedure

Required conditions: The Wireless Remote Control System must be in STOP mode [\(see page 33\)](#) or in START mode. [\(see page 34\)](#).

Triggering procedure:

Step	Action
1	Check that the Wireless Remote Control System is in STOP mode or in START mode.
2	Press the MBC Base Selector button to loop between the several positions.

Wireless Remote Control System Result

Remote Device:

For the Sabre 1: not supported

For the Sabre 2 and Sabre 3 displays: the Base Station label indicates which bridge(s) is (are) paired / selected:

Sabre 2 M and Sabre 3 M display				
Primary Base Station (283) paired	The 2 Base Stations (283 and 476) are paired. Press the MBC Base selector button to select the Base Station to control.			Secondary Base Station (476) paired.
	Primary Base Station (283) selected.	The 2 Base Stations (283 and 476) are selected.	Secondary Base Station (476) selected.	

For more details, refer to Sabre 2 and Sabre 3 Display Parts Identification. [\(see page 22\)](#).

Base Station result:

The associated relays are switched ON.

In MBC configuration, when both Base Stations are selected, the motions asked with the Remote Device are realized simultaneously by the 2 Base Stations.

In MBC configuration, the "Radio link" relay of the connected Base Station switches ON:

Relay	Selector position A		Selector position A+B		Selector position B	
	Base A	Base B	Base A	Base B	Base A	Base B
RADIO link						

Specifics Information

At the first Power ON or after a new configuration, the MBC Base Selector position is 1. For further Power ON's, the Selector position is the last known Selector position.

7.2.4 Auxiliary Selectors

Description

There are 2 different configurations to use the auxiliary selector button:
 Trolley selector (2 or 3 positions): to manage 2 trolleys with one Base Station.
 Hook selector (2 positions): to manage 2 hooks with one Base Station.

Triggering Procedure

Required conditions: The Wireless Remote Control System must be in STOP mode ([see page 33](#)) or in START mode ([see page 34](#)) depending on the Auxiliary selector configuration.
 Triggering procedure:

Step	Action
1	Check that the Wireless Remote Control System is in STOP mode or in START mode depending on the Auxiliary selector configuration.
2	Press the Auxiliary Selector button more than 1 s to loop between the several

Wireless Remote Control System Result

Remote Device result:

For the Sabre 1: the Selector LEDs are activated depending on the selection done.

For the Sabre 2 and Sabre 3 display: the Auxiliary Selector symbol indicates which trolley(s)/hook(s) is (are) selected:

Nb of position	Description
2	
3	

For more details, refer to Sabre 2 and Sabre 3 Display Parts Identification. ([see page 22](#)).

Base Station result:

The associated relays are switched ON.

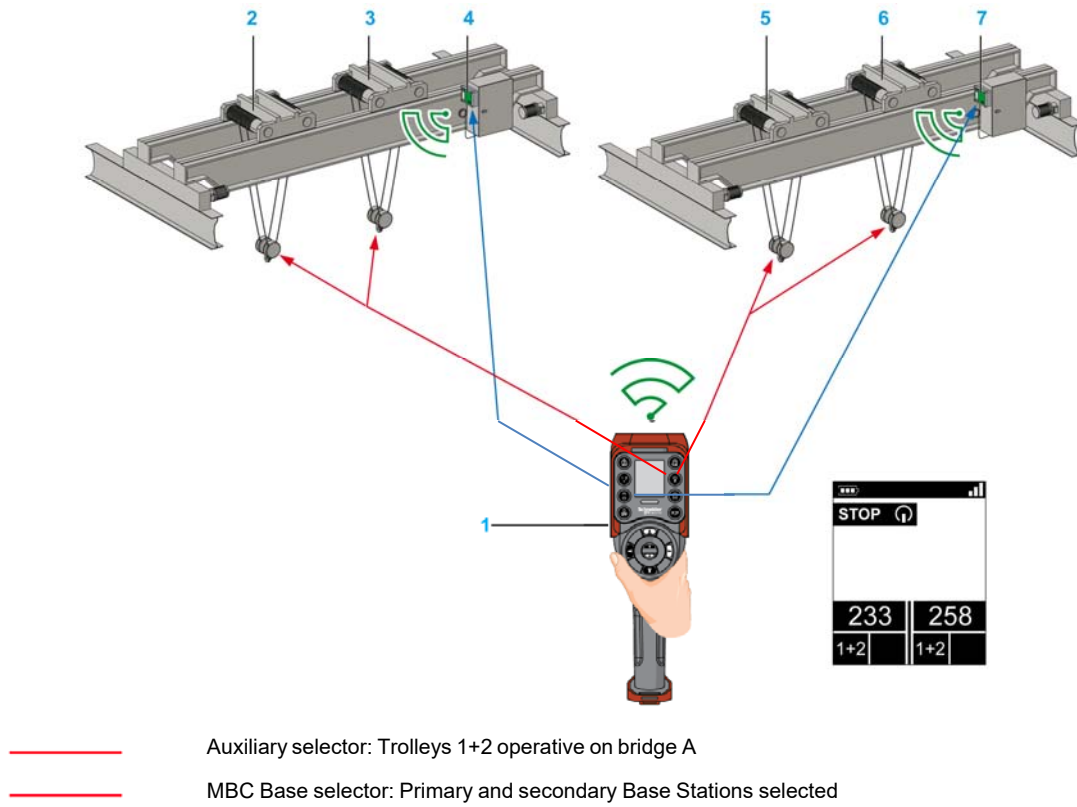
MBC Specifications

You can configure up to 2 Auxiliary selector buttons to the Sabre 2M and Sabre 3M Remote Device when it is configured as a Master.

Auxiliary selector button of the Remote Device can be assigned to:

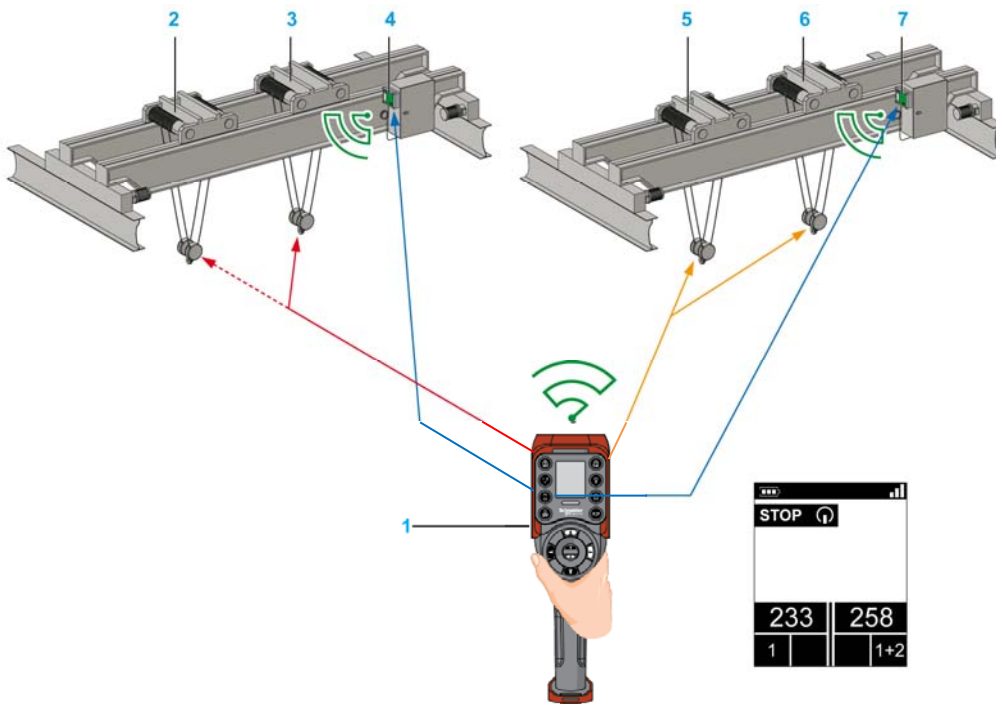
- 1 Base Station, or
- 2 Base Stations (same action to the 2 Base Stations in the same time).

Example with one Auxiliary selector button assigned to two Base Stations:



- 1 Remote Device
- 2 Bridge A: Trolley 1
- 3 Bridge A: Trolley 2
- 4 Bridge A: Primary Base Station
- 5 Bridge B: Trolley 1
- 6 Bridge B: Trolley 2
- 7 Bridge B: Secondary Base Station

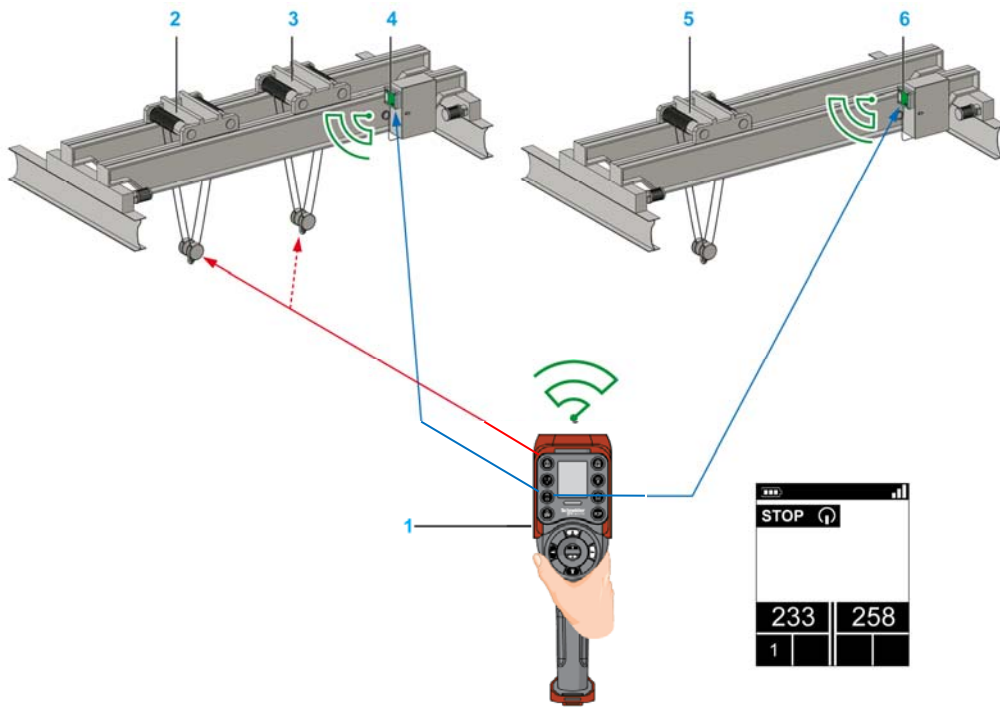
Example with two Auxiliary selector buttons respectively assigned to one Base Station:



- Auxiliary selector: Trolley 1 operative on bridge A Auxiliary
- - - selector: Trolley 2 non-operative on bridge A Auxiliary
- selector: Trolleys 1+2 operative on bridge B
- MBC Base selector: Primary and secondary Base Stations selected

- Remote Device
- Bridge A: Trolley 1
 - Bridge A: Trolley 2
 - Bridge A: Primary Base Station
 - Bridge B: Trolley 1
 - Bridge B: Trolley 2
 - Bridge B: Secondary Base Station

Example with one Auxiliary selector button assigned to only one Base Station:



- Auxiliary selector: Trolley 1 operative on bridge A Auxiliary
- - - - - selector: Trolley 2 non-operative on bridge A
- MBC Base selector: Primary and secondary Base Stations selected

- 1 Remote Device
- 2 Bridge A: Trolley 1
- 3 Bridge A: Trolley 2
- 4 Bridge A: Primary Base Station
- 5 Bridge B: Trolley
- 6 Bridge B: Secondary Base Station

Specifics Information

At the first Power ON or after a new configuration, the Selector position is 1. For further Power ON, the Selector position is the last known Selector position.

7.2.5 Horn

Overview

From STOP mode to START mode, the “Horn” relay is switched ON for a predefined duration time. In START mode, as long as you press the ON/START/Horn button, the “Horn” relay is switched ON.

Triggering Procedure

Triggering procedure:

Step	Action
1	Check that the Wireless Remote Control System is in START mode.
2	Press the ON/START/Horn button.

Result: The “Horn” relay is switched ON as long as the ON/START/Horn button is pressed. The Remote Device has no specific result.

Release

Release procedure:

Step	Action
1	Release the ON/START/Horn button.

Result: The “Horn” relay is switched OFF.

Horn Duration

This value is the Horn duration activation during the Start procedure. The factory setting value is 1 second.

7.2.6 Discovering

Overview

The discovering function is developed to be as automatic as possible. This function manages 2 different tasks:

- The pairing of the system: association between a Remote Device and a Base Station
- The Configuration File Upload/Download: this file contains the Wireless Remote Control System configuration information.

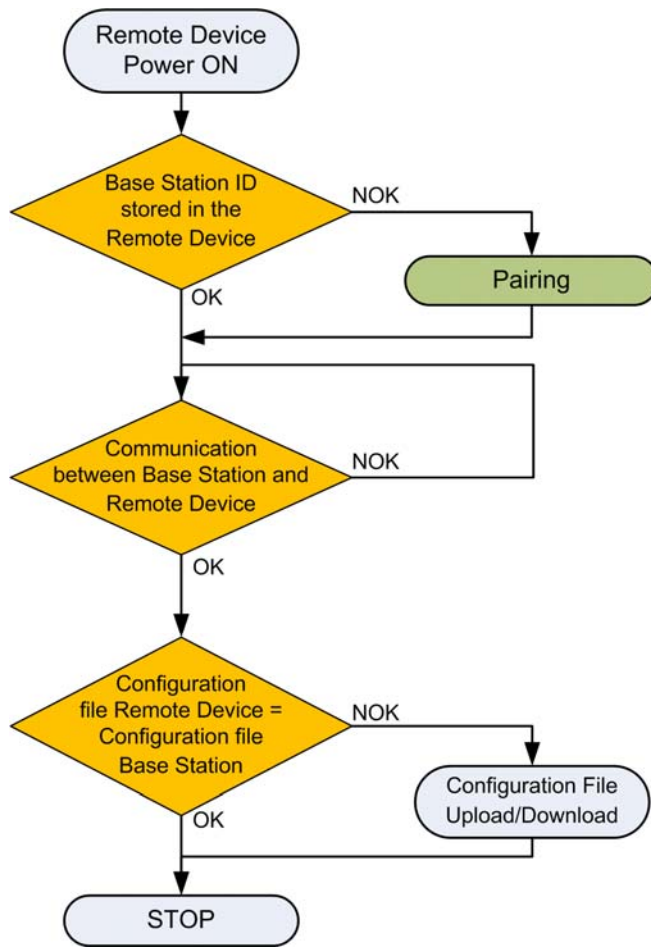
This function is launched at each Remote Device Power ON. In normal use, this function is automatic. You have to realize intermediate operations during:

- A device replacement. ([see page 60](#)).
- The first commissioning.
- A configuration modification.

NOTE: This function is only applicable to Sabre 2 and Sabre 3 Remote Devices.

Discovering Diagram

The following diagram presents the detailed Discovering function:



Pairing

The pairing is the action to associate a Base Station with a Remote Device. Each Base Station has a unique ID. The pairing test is launched at each Remote Device power ON. As long as the pairing test is OK, the validation procedure is not requested to the operator.

Configuration File

The Configuration File is stored in the Remote Device and in the Base Station.

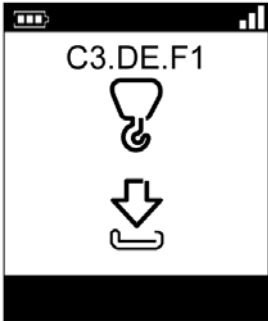
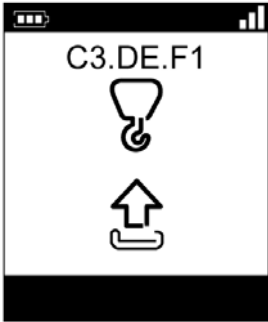
7.3 HOW TO LOAD THE CONFIGURATION

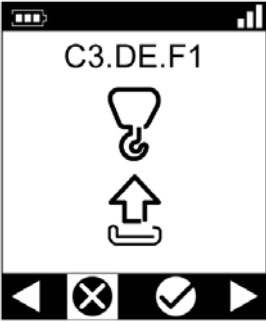
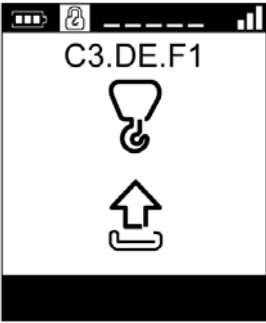
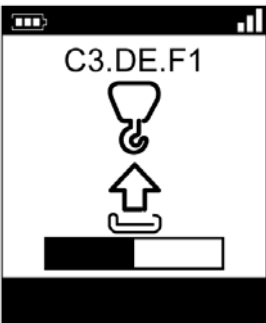

Configuration File Load with a Sabre 1

Step	Action
1	Power ON the Remote Device. Result: The STATUS LED and the COM LED of the selected Base Station are blinking synchronously. If configured, the Unpairing relay is ON. The START , "1", and "2" LED of the Remote Device are flashing.
2	Press the button 7 (trigger) to validate.
3	If the Configuration File in the Base Station is protected by a Configuration File transfer password, enter it.
4	Wait for the end of the Configuration File load (around 20 seconds). The Configuration File is automatically loaded from the Remote Device to the Base Station. During the load, the START LED and "2" LED are flashing. <i>(see page 56)</i>
5	The Remote Device automatically powers OFF.

It is recommended to perform the verification test of the system. *(see page 30).*

Configuration File Load with a Sabre 2 and Sabre 3

Step	Action
1	Power ON the Remote Device. Result: The STATUS LED and the COM LED of the selected Base Station are blinking synchronously. If configured, the Unpairing relay is ON.
2	Press the button 7 (trigger) to validate. Result: The Remote Device proposes to load the Configuration File from the Base Station to the Remote Device. 
3	Change the direction of the Configuration File load with buttons 5 and 6. Result: 

Step	Action
4	<p>Press the button 7 (trigger) to validate. Result: The Remote Device proposes to confirm the load of the Configuration File from the Remote Device to the Base Station.</p> 
5	<p>Select the validation icon (check symbol) with buttons 1 and 2.</p>
6	<p>Press the button 7 (trigger) to validate.</p>
7	<p>If the Configuration File (stored in the Base Station) has a transfer password, a padlock is displayed:</p>  <p>Enter this Configuration File transfer password with the buttons 1 to 6.</p>
8	<p>The Remote Device loads the Configuration File from the Remote Device to the Base Station.</p> 
9	<p>Wait for the end of the Configuration File load. Result:</p> 
10	<p>The Remote Device automatically powers OFF.</p>

It is recommended to perform the verification test of the system. [\(see page 30\).](#)

7.4 REMOTE DEVICE CHARGE

Required Conditions

The Remote Device must only be charged indoor with the ZARC01 charger.

The Remote Device temperature range must be 10...60 °C (50...140 °F).

NOTE: At the first commissioning, you must charge the Remote Device for 4 hours.

NOTE: The Remote Device charge time is around 15 minutes long at the maximum if the temperature range is 10...35 °C (50...95 °F), and is longer if the temperature is higher than 35 °C (95 °F).

NOTICE

UNOPERATIVE REMOTE DEVICE

Do not charge the Remote Device at a temperature under 10 °C (50 °F).

Failure to follow these instructions can result in equipment damage.

⚠ WARNING

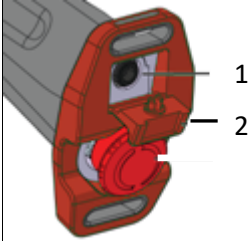
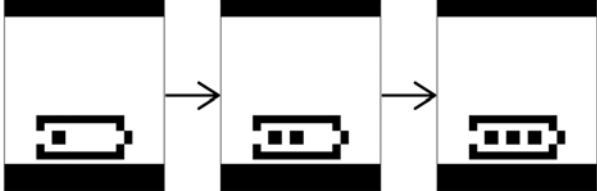
BATTERY LIFESPAN, RISK OF EXPLOSION AND FIRE

Do not dispose of electric tools together with household waste material.

In observance of european directive 2002/96/EC on wasted electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Procedure

Step	Action
1	Power OFF the Remote Device.
2	On the bottom of the Remote Device, remove the protective cap.  1 Remote Device battery charge connector 2 Protective cap
3	Connect the ZARCO1 charger to the Remote Device battery charge connector.
4	Plug the ZARCO1 charger to the dedicated power source.
5	Wait for around 15 minutes at 25 °C (77 °F). During the charge: <ul style="list-style-type: none"> • Sabre 1: the battery LED is flashing • Sabre 2 and Sabre 3: the blinking battery symbol indicates the battery level:  The battery is fully charged when: <ul style="list-style-type: none"> • Sabre 1: the battery LED is permanently ON. • Sabre 2 and Sabre 3: the battery symbol is permanently displayed. For more details, refer to Diagnostic. (see page 53) NOTE: The time duration for charge of the Remote Device depends on the ambient temperature.
6	Unplug the charger to the dedicated power source.
7	Unconnect the charger to the Remote Device battery charge connector.
8	On the bottom of the Remote Device, place back the protective cap.

NOTE: As soon as the Remote Device Charge starts, the communications between the Remote Device and the Base Station are stopped.

8 DIAGNOSTIC

8.1 BASE STATION DIAGNOSTIC

Description

The Base Station has 3 LED indicators:

LED	Colour	State	Description
STATUS	Green	ON	The Wireless Remote Control System is working properly.
		Blinking	Refer to the chapter Troubleshooting. (see page 67) .
		OFF	Base Station Power OFF or internal fault detected.
COM	Yellow	ON	Call Street Crane support.
		Blinking	The communication is established between the Base Station and the Remote Device.
		OFF	No communication between the Base Station and the Remote
POWER	White	OFF	Base Station powered OFF.
		ON	Base Station powered ON.

Special case:

STATUS and COM LEDs are synchronized reverse flashing: pairing confirmation request.

8.2 SABRE 2 AND SABRE 3 REMOTE DIAGNOSTIC

8.2.1 Diagnostic Mode

Overview

The Sabre 2 and Sabre 3 have a specific diagnostic mode display:

- To test the Wireless Remote Control System configuration.
- To pair/unpair Remote device

Procedures to Activate the Diagnostic Mode

The diagnostic mode on the Sabre 2 and Sabre 3 remote indicates the inputs and relays states of the Base Station. From STOP mode:

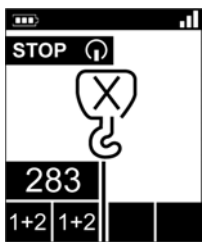



Step	Action
1	Go to STOP mode. (see page 33) .
2	Simultaneously press the buttons 1H and 2H, and release immediately.
3	Less than 5 seconds later, simultaneously press the buttons 3H and 4H.
4	Release the buttons 3H and 4H. Result: The Remote Device displays the Diagnostic mode in STOP mode.

From Power OFF mode:

Step	Action
1	Simultaneously press the button 7 (trigger) and the ON/START/Horn button more or equal than 1 s. NOTE: Only the Remote Device information is accessible.

Diagnostic Mode in STOP Mode

In STOP mode, use the buttons 1 and 2 to alternate between the screens:

Unpairing	Remote Device information	Primary Base Station information	Secondary Base Station information
			

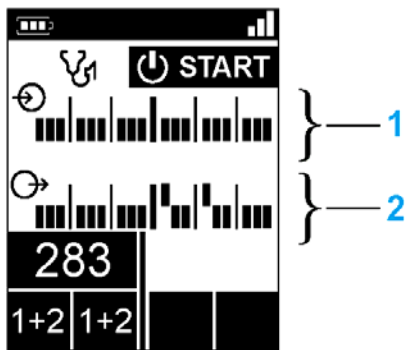
Unpairing	Remote Device information	Primary Base Station information	Secondary Base Station information
Only in MBC mode	Single and MBC modes	Single and MBC modes	Only in MBC mode for Master Remote Device

The Unpairing screen allows Unpairing the Remote Device with its paired Base Station. For more information, refer to MBC pairing description. [\(see page 36\)](#).

Press ON/START/Horn button more or equal than 1 s to display the Diagnostic mode in START mode.

Diagnostic Mode in START Mode

If the Remote Device is paired with one Base Station, the Remote Device displays dynamically the I/O status of the Base Station:



- 1 IN1...IN18 states: up for input = 1, down for input = 0
- 2 Relays 1...18 states: up for output = 1, down for output = 0

If the Remote Device is paired with 2 Base Stations, the Remote Device leaves the diagnostic mode and goes in START mode.

Procedure to Leave the Diagnostic Mode

From START mode:

Step	Action
1	Press STOP button to go to STOP mode

From STOP mode:





Step	Action
1	Press STOP button to leave the Diagnostic mode.

From any diagnostic screen:

Step	Action
1	Press only the OFF/STOP button more than 2 s to Power OFF the Remote Device.






8.2.2 Battery Level of the Remote Device

Sabre 2 and Sabre 3 remote

Display	Description
	Battery charge level is high
	Battery charge level is medium
	Battery charge level is low
	This display occurs at least 10 minutes before the Remote Device powers OFF. In addition, the Remote Device vibrator function is activated for 1 second.

8.2.3 Radio Communication Indicator

Sabre 2 and Sabre 3 remote

Display	radio communication level with the Base Station
	High
	Medium
	Low
	Very low
	No radio communication

NOTE: In MBC mode, when the 2 Bases Stations are paired, the Remote Device displays the primary Radio Communication level.

8.2.4 E-STOP LED

Description

E-STOP LED	Description
Permanently ON	E-STOP is operational and not triggered.
Blinking	E-STOP is operational and triggered.
Permanently OFF	E-STOP is not operational.

For more details, refer to E-STOP LED description ([see page 64](#)).





8.2.5 Applicative Alarms Signals

Overview

Some devices can be connected to the Sabre 2 and Sabre 3 Base Station to provide detected applicative alarms signals that can be displayed on the Sabre 2 and Sabre 3 remote.

Sabre 2 and Sabre 3 remote

When applicative alarms signals come from Sabre 2 and Sabre 3 Base Station, the Sabre 2 and Sabre 3 Remote Device involves a symbol display and 3 seconds of vibration every 10 minutes as long as the alarm signal is active. The Remote Device displays the following symbols:






Display	Status	Description
	Permanently ON	Overload pre-alarm
	Blinking	Overload alarm
	Permanently ON	Over wind pre-alarm
	Blinking	Over wind alarm
	Blinking	Over speed alarm
	Blinking	Generic alarm

NOTE: The applicative alarms are only information, the Wireless Remote Control System does not change its functional mode.

8.2.6 Detected Failure Displays

Sabre 2 and Sabre 3 remote

The Sabre 2 and Sabre 3 Remote Device can display the following symbols:

Display	Status	Description
	Blinking	Configuration File download failure detected
	Blinking	Configuration File upload failure detected
	Blinking	Remote Device battery charge failure detected
	Blinking	Main contactor feedback loop IN0 / S2_S3 failure detected or motion contactor failure detected when the motion feedback function is used.
	Blinking	The "Restricting pairing" happens 5 minutes after the power ON and forbid the pairing with a new Base Station. For more details, refer to troubleshooting. (see page 67).

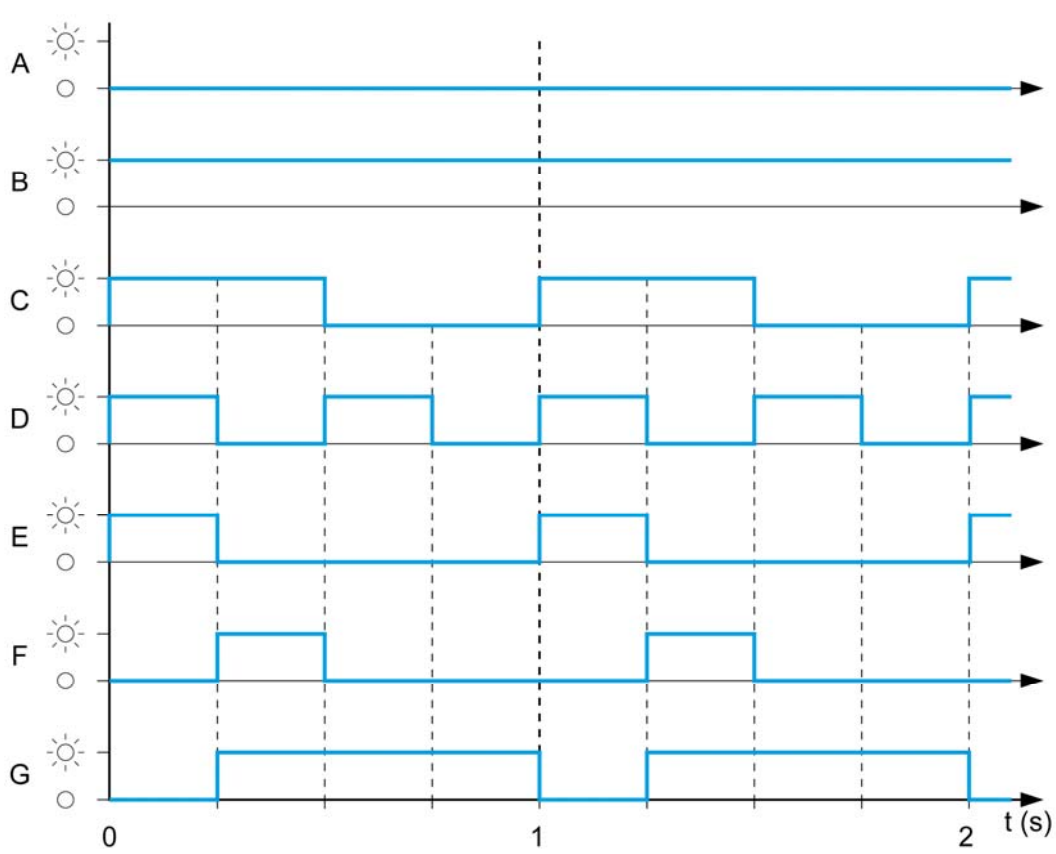
8.3 SABRE 1 LED DIAGNOSTIC

Overview

This section describes the Sabre 1 Remote’s Display LEDs. [\(see page 23\)](#).

LED Status Chronogram

The following diagram presents the different status of the Sabre 1 Remote’s LEDs:



Label	Status
A	OFF
B	ON
C	Normal blink
D	Fast blink
E	Flash step 1
F	Flash step 2
G	Reverse flash step 1

Start LED

Label	Status	Description
B	ON	The system is in START mode with radio operational
C	Normal blink	Radio not established or START mode not yet confirmed
F	Reverse flash step 1	A password has not yet been provided & validated (either for before START sequence, or after unlocking the E-STOP before START)
D	Fast blink	Wrong Configuration File
E	Flash step 1	The Remote Device is connected to a PC.
A	OFF	To represent other states than the previous ones

Battery LED

Charger ZARCO1 not connected:

Label	Status	Description
B	ON	Battery charge level is high Battery charge level is medium
C	Normal blink	Battery charge level is low
D	Fast blink	Battery charge level is very low The battery capacity just allows 10 minutes of normal operation.
A	OFF	The battery is fully discharged or the Remote Device is Power OFF.

Charger ZARCO1 connected:

Once the Remote Device is connected to the battery charger, the battery LED flashes 3 times (status E = Flash step 1). After the 3 flashes, the battery LED status changes to the following ones:

Label	Status	Description
B	ON	Battery charge level is full (No need to charge or end of charge)
Label	Status	Description
E	Flash step 1	Battery charge in progress
C	Normal blink	Impossible to charge (charger failure detected) or temperature out of the allowed boundaries
A	OFF	Impossible to charge (battery too low to be charged)

Auxiliary Selector LEDs

The "1" LED:

Label	Status	Description
B	ON	The "1" or the "1+2" auxiliary selector position is selected and confirmed
C	Normal blink	The "1" or the "1+2" auxiliary selector position is required but not yet confirmed
A	OFF	The auxiliary selector position "1" is NOT selected

The "2" LED:

Label	Status	Description
B	ON	The "1+2" or the "2" auxiliary selector position is selected and confirmed
C	Normal blink	The "1+2" or the "2" auxiliary selector position is required but not yet confirmed
A	OFF	The auxiliary selector position "2" is NOT selected

Set of LEDs**Power ON - Check LEDs:**

At Remote Device Power ON, the 4 LEDs (START, Battery, 1, and 2) flash one time (status E = Flash step 1).

Remote Device failure detected:

If a Remote Device internal failure is detected, the 4 LEDs go in the following status:

- The START LED is in status E = Flash step 1
- The BATTERY LED is in status E = Flash step 1
- The "1" LED is in status E = Flash step 1
- The "2" LED is in status E = Flash step 1

Configuration file download:

During the transfer of a Configuration File (from the Remote Device to the Base Station):

The START LED is in status E = Flash step 1

The "2" LED is in status F = Flash step 2

Remote Device reset:

When you press the reset button: until the "1" and "2" LED come in the following status:

The "1" LED is in status E = Flash step 1

The "2" LED is in status A = OFF

E-STOP LED

Label	Status	Description
B	ON	E-STOP is operational and not triggered.
C	Normal blink	E-STOP is operational and triggered.
A	OFF	E-STOP is not operational.

9 MAINTENANCE / DEVICE REPLACEMENT

9.1 MAINTENANCE

Remote Device Cleaning

When the surface or the frame of the display gets dirty, soak a soft cloth in water with a neutral detergent, wring the cloth tightly, and wipe the display.

NOTICE

EQUIPMENT DAMAGE

Do not use paint thinner, organic solvents, or a strong acid compound to clean the equipment. **Failure to follow these instructions can result in equipment damage.**

Periodic Check Points

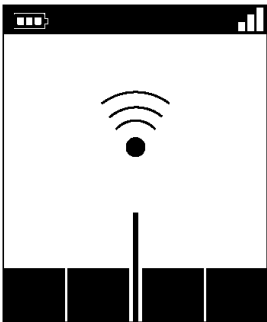
Monthly check point for the Sabre Base Station: check the good terminal block tightening. For more information, refer to the Safety chapter. [\(see page 29\)](#).

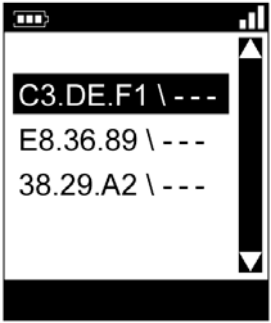


9.2 DEVICE REPLACEMENT

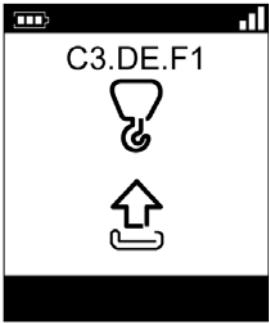
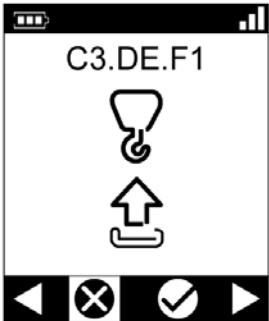
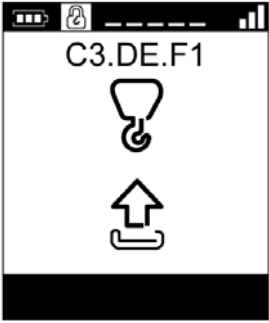

9.2.1 Base Station Replacement

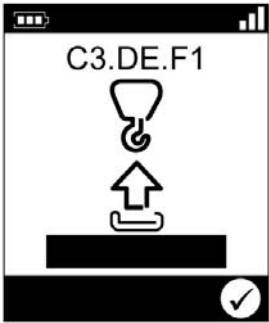
New Base Station Replacement

Follow the procedure to replace a Base Station by a new one:

Step	Action
1	Execute a Remote Pairing Reset. (see page 65) .
2	Install the new Base Station.
3	Power ON the new Base Station. NOTE: The following steps of the procedure must end in 5 minutes maximum.
4	Place yourself with the Remote Device to an appropriate distance from the Base Station (around 10 m (32.8 ft)).
5	Press only the ON/START/Horn button on the Remote Device more than 1 s. Result: The Remote Device looks for Base Stations: 

Step	Action
6	<p>Wait until the scan of Base Station ends. Result: The Remote Device displays the ID list of detected Base Stations:</p> 
7	<p>Selects the ID of the new Base Station with buttons 5 and 6. This ID can be read on the label of the Base Station.</p>
8	<p>Press the button 7 (trigger) to validate. Result:</p>  <p>The STATUS LED and the COM LED of the selected Base Station are blinking synchronously. If configured, the Unpairing relay is blinking.</p>
9	<p>Select the validation icon (check symbol) with buttons 1 and 2.</p>
10	<p>Press the button 7 (trigger) to validate. Result: The Remote Device proposes to load the Configuration File from the Base Station to the Remote Device.</p> 

Step	Action
11	<p>Change the direction of the Configuration File load with buttons 5 and 6. Result:</p> 
12	<p>Press the button 7 (trigger) to validate. Result: The Remote Device proposes to confirm the load of the Configuration File from the Remote Device to the Base Station.</p> 
13	<p>Select the validation icon (check symbol) with buttons 1 and 2.</p>
14	<p>Press the button 7 (trigger) to validate.</p>
15	<p>If the Configuration File (stored in the Base Station) has a transfer password, a padlock is displayed:</p>  <p>Enter this Configuration File transfer password with the buttons 1 to 6.</p>
16	<p>The Remote Device loads the Configuration File from the Remote Device to the Base Station.</p> 

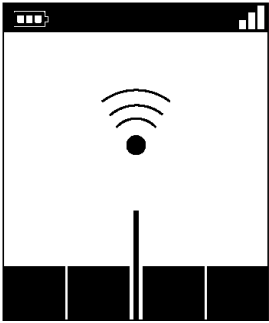

Step	Action
17	Wait for the end of the Configuration File load. Result: 
18	Power OFF the Remote Device.


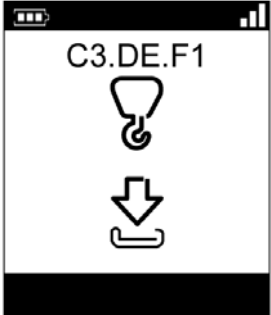
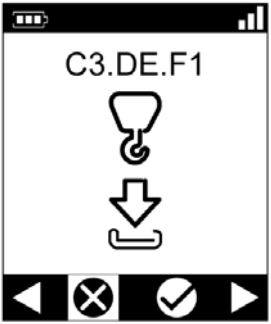
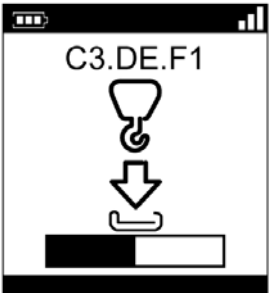
It is recommended to perform the verification test of the system. [\(see page 30\)](#).

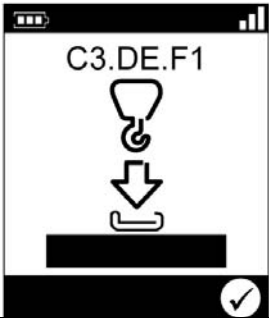
9.2.2 Sabre 2 and Sabre 3 Remote Replacement

Replacement of a Sabre 2 or Sabre 3 remote by an Already Configured One

Replacement of an out of order Sabre remote by an already configured one:

Step	Action
1	Do a Remote Factory Reset. (see page 65) .
2	Power ON the Base Station. NOTE: The following steps of the procedure must end in 5 minutes maximum.
3	Place yourself with the Remote Device to an appropriate distance from the Base Station (around 10 m (32.8 ft)).
4	Press only the ON/START/Horn button on the Remote Device more than 1 s. Result: The Remote Device looks for Base Stations: 
5	Wait until the scan of Base Station ends. Result: The Remote Device displays the ID list of detected Base Stations: 
6	Selects the ID of the appropriate Base Station with buttons 5 and 6. This ID can be read on the label of the Base Station.

Step	Action
7	<p>Press the button 7 (trigger) to validate. Result:</p>  <p>The STATUS LED and the COM LED of the selected Base Station are blinking synchronously. If configured, the Unpairing relay is blinking.</p>
8	<p>Select the validation icon (check symbol) with buttons 1 and 2.</p>
9	<p>Press the button 7 (trigger) to validate. Result: The Remote Device proposes to load the Configuration File from the Base Station to the Remote Device.</p> 
10	<p>Press the button 7 (trigger) to validate. Result: The Remote Device proposes to load the Configuration File from the Base Station to the Remote Device.</p> 
11	<p>Select the validation icon (check symbol) with buttons 1 and 2.</p>
12	<p>Press the button 7 (trigger) to validate.</p>
13	<p>If the Configuration File (stored in the Base Station) has a transfer password, a padlock is displayed. Enter this Configuration File transfer password with the buttons 1 to 6.</p>
14	<p>The Remote Device loads the Configuration File from the Base Station to the Remote Device.</p> 

Step	Action
15	Wait for the end of the Configuration File load: Result: 
16	Power OFF the Remote Device.

It is recommended to perform the verification test of the system. [\(see page 30\).](#)

9.2.3 Sabre 1 Remote Replacement

Replacement of a Sabre 1 remote







Procedure to replace a Sabre 1:

Step	Action
1	Power ON the Base Station. NOTE: The following steps of the procedure must end in 5 minutes maximum.
2	Power ON the Remote Device. Result: The STATUS LED and the COM LED of the Base Station are blinking synchronously. If configured, the Unpairing relay is ON. The "1" and "2" LED of the Remote Device are flashing.
3	Press the button 7 (trigger) to validate. Result: The Configuration File is automatically loaded from the Remote Device to the Base Station.
4	Wait for the end of the Configuration File load (around 20 seconds). During the load, the START LED and "2" LED are flashing. (see page 56).
5	The Remote Device automatically powers OFF.

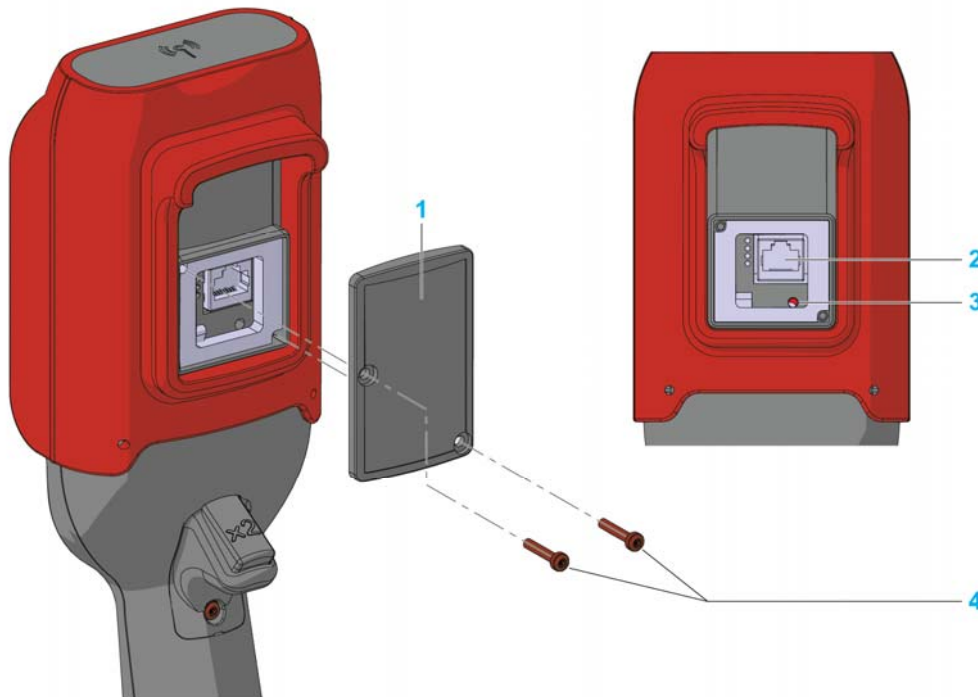
It is recommended to perform the verification test of the system. [\(see page 30\).](#)

9.3 REMOTE DEVICE RESETS

Procedure

Step	Action		
1	Power ON the Remote Device.		
2	On the rear of the Remote Device, unscrew the 2 Torx screws, diameter 3.5 mm (0.14		
3	Remove the cover.		
4	Press and maintain the reset button for the appropriate duration. <i>(see below)</i> . For the Sabre 2 and Sabre 3 remote:		
	<table border="0"> <tr> <td style="vertical-align: top;"> <p>When the first delay is reached (for Pairing reset), the remote displays:</p>  </td> <td style="vertical-align: top;"> <p>When the second delay is reached (for Factory reset), the remote displays:</p>  </td> </tr> </table>	<p>When the first delay is reached (for Pairing reset), the remote displays:</p> 	<p>When the second delay is reached (for Factory reset), the remote displays:</p> 
<p>When the first delay is reached (for Pairing reset), the remote displays:</p> 	<p>When the second delay is reached (for Factory reset), the remote displays:</p> 		
5	Release the reset button.		
5	Place back the cover.		
6	Screw the 2 screws to mount the cover.		

Remote Device rear view:






- 1 Cover
- 2 RJ45 socket
- 3 Reset button
- 4 2 Torx screws, diameter 3.5 mm (0.14 in)




Reset Information

Title	t = Reset button duration press	Remote Device reaction
Simple reset	$t < 5 \text{ s}$	<ul style="list-style-type: none">• Remote Device reboot.
Pairing reset	$5 \text{ s} \leq t < 20 \text{ s}$	<ul style="list-style-type: none">• Remote Device reboot.• Erase in the remote memory the stored Base Station ID. The remote is no more paired with Base Station.
Factory reset	$t > 20 \text{ s}$	<ul style="list-style-type: none">• Remote Device reboot.• Erase in the remote memory the stored Base Station ID. The remote is no more paired with Base Station.• Delete the Configuration File. The Remote Device goes back to factory settings.

10 TROUBLESHOOTING

Troubleshooting

Diagnostic			Cause	Solution
Configuration File download issue When you want to download the Configuration File from/into the Remote Device, a dialog box displays the following message: Configuration File version not supported by Configuration software.			The Configuration File of a Remote Device which firmware version $\geq v3.0$ cannot be downloaded with a Configuration Software $\leq V2$.	Use Sabre's eXLhoist Configuration Software which as a firmware version $\geq v3.0$.
The Remote Device cannot be paired to the Base Station.			The pairing can be blocked by the "restricting pairing" function. The "restricting pairing" happens 5 minutes after the Base Station power ON and forbid the pairing with a new Remote Device.	Power OFF the Remote Device. Power OFF the Base Station until the POWER LED is OFF. Power ON the Base Station. Power ON the Remote Device: the Remote Device shall be paired to the Base Station before 5 minutes.
Base Station				
POWER LED	COM LED	STATUS LED		
ON	Blinking	ON		
Remote Device				
Sabre 1/2/3	E-STOP LED	Blinking		
Sabre 1	Start LED	OFF		
Sabre 2/3				
The E-STOP is not available. It is not possible to go to START mode.			INO feedback loop wiring issue	Check that the IN0 input is correctly: <ul style="list-style-type: none"> • Connected to S2_S3 for E-STOP SIL2. • Connected to S2_3 through the main contactor auxiliary contact for SIL3.
Base Station				
POWER LED	COM LED	STATUS LED		
ON	Blinking	ON		
Remote Device				
Sabre 1/2/3	E-STOP LED	OFF		
Sabre 1	Start LED	OFF		
Sabre 2/3				
Unintended Motion detection issue Pre-requisite: <ul style="list-style-type: none"> • Base Station firmware version V3.x. • Unintended motion detection activated in the configuration. 			Incorrect wiring	Check the electrical contacts of each relay and contactors.
Base Station				
POWER LED	COM LED	STATUS LED		
ON	Blinking	ON		
Remote Device				
Sabre 1/2/3	E-STOP LED	OFF		
Sabre 1	Start LED	OFF		
Sabre 2/3				

Diagnostic			Cause	Solution															
The main contactor does not switch OFF in case of E-STOP triggering Base Station <table border="1"> <tr> <th>POWER LED</th> <th>COM LED</th> <th>STATUS LED</th> </tr> <tr> <td>ON</td> <td>Blinking</td> <td>OFF</td> </tr> </table> Remote Device <table border="1"> <tr> <td>Sabre 1/2/3</td> <td>E-STOP LED</td> <td>ON</td> </tr> <tr> <td>Sabre 1</td> <td>Start LED</td> <td>ON</td> </tr> <tr> <td>Sabre 2/3</td> <td colspan="2">Not Applicable</td> </tr> </table>			POWER LED	COM LED	STATUS LED	ON	Blinking	OFF	Sabre 1/2/3	E-STOP LED	ON	Sabre 1	Start LED	ON	Sabre 2/3	Not Applicable		Incorrect safety relay wiring	Perform a correct wiring between the Base Station safety relays contacts and the main contactor coil.
POWER LED	COM LED	STATUS LED																	
ON	Blinking	OFF																	
Sabre 1/2/3	E-STOP LED	ON																	
Sabre 1	Start LED	ON																	
Sabre 2/3	Not Applicable																		
Sabre STOP or fallback Sometimes the Remote Device switches to STOP mode. Or Sometimes the Sabre system stops working and restarts. Base Station <table border="1"> <tr> <th>POWER LED</th> <th>COM LED</th> <th>STATUS LED</th> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> </tr> </table> Remote Device <table border="1"> <tr> <td>Sabre 1/2/3</td> <td>E-STOP LED</td> <td>OFF</td> </tr> <tr> <td>Sabre 1</td> <td>Start LED</td> <td>OFF</td> </tr> <tr> <td>Sabre 2/3</td> <td colspan="2">Not Applicable</td> </tr> </table>			POWER LED	COM LED	STATUS LED	ON	OFF	OFF	Sabre 1/2/3	E-STOP LED	OFF	Sabre 1	Start LED	OFF	Sabre 2/3	Not Applicable		Wrong alarm inputs biasing involving Sabre STOP or fallback	Use a relay or an optocoupler to isolate the signal.
POWER LED	COM LED	STATUS LED																	
ON	OFF	OFF																	
Sabre 1/2/3	E-STOP LED	OFF																	
Sabre 1	Start LED	OFF																	
Sabre 2/3	Not Applicable																		
Remote Device powers OFF often The Sabre 1 powers OFF often (ex: once per hour). Or If the START button is pressed, then the Sabre 2/3 powers OFF. Base Station <table border="1"> <tr> <th>POWER LED</th> <th>COM LED</th> <th>STATUS LED</th> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> </table> Remote Device <table border="1"> <tr> <td>Sabre 1/2/3</td> <td>E-STOP LED</td> <td>OFF</td> </tr> <tr> <td>Sabre 1</td> <td>Start LED</td> <td>OFF</td> </tr> <tr> <td>Sabre 2/3</td> <td colspan="2">OFF</td> </tr> </table>			POWER LED	COM LED	STATUS LED	ON	OFF	ON	Sabre 1/2/3	E-STOP LED	OFF	Sabre 1	Start LED	OFF	Sabre 2/3	OFF		Remote Device battery gauge calibration issue	Connect the Remote Device to the ZARCO1 power supply and charge the Remote Device battery for 10 hours 10...40 °C (50...104 °F). NOTE: The Remote Device should be charged for 10 hours every month. It allows getting the right battery gauge calibration.
POWER LED	COM LED	STATUS LED																	
ON	OFF	ON																	
Sabre 1/2/3	E-STOP LED	OFF																	
Sabre 1	Start LED	OFF																	
Sabre 2/3	OFF																		
Remote Device battery does not charge Base Station <table border="1"> <tr> <th>POWER LED</th> <th>COM LED</th> <th>STATUS LED</th> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> </table> Remote Device <table border="1"> <tr> <td>Sabre 1/2/3</td> <td>E-STOP LED</td> <td>OFF</td> </tr> <tr> <td>Sabre 1</td> <td>Batt LED</td> <td>Blinking</td> </tr> <tr> <td>Sabre 2/3</td> <td colspan="2">  </td> </tr> </table>			POWER LED	COM LED	STATUS LED	-	-	-	Sabre 1/2/3	E-STOP LED	OFF	Sabre 1	Batt LED	Blinking	Sabre 2/3			The Remote Device battery is or has been charged under 10 °C (50 °F).	Charge the Remote Device battery at a temperature 10..40 °C (50...104 °F). If it does not work, contact your Schneider Electric customer support.
POWER LED	COM LED	STATUS LED																	
-	-	-																	
Sabre 1/2/3	E-STOP LED	OFF																	
Sabre 1	Batt LED	Blinking																	
Sabre 2/3																			

Diagnostic			Cause	Solution
It is no more possible to use the Base Station which is non-operational			Base Station firmware issue	If an OEM or maintenance person has updated the firmware Then: Power ON/Power OFF the Base Station five times in less of 1 minute until the STATUS LED is fixed. NOTE: Wait the POWER LED switching OFF. If it does not work, then use the Sabre's eXLhoist Configuration Software to launch the Base Station firmware update one more time. If it does not work, contact Street Crane Company.
Base Station				
POWER LED	COM LED	STATUS LED		
ON	OFF	Blinking		
Remote Device				
Sabre 1/2/3	E-STOP LED	OFF after 3 blinking		
Sabre 1	Start LED	OFF		
Sabre 2/3	OFF			
The Remote Device Powers OFF often (from once a week to several times a day)			Accelerometer issue	Use a Remote Device which firmware version \geq v3.0, then use the Sabre's eXLhoist Configuration Software and configure the Remote Fall and Shock detection as disabled.
Base Station				
POWER LED	COM LED	STATUS LED		
ON	OFF	ON		
Remote Device				
Sabre 1/2/3	E-STOP LED	OFF		
Sabre 1	Start LED	OFF		
Sabre 2/3	OFF			
The Sabre radio range is too high			-	Use a Base Station which firmware version \geq v3.0, then use the Sabre's eXLhoist Configuration Software and configure the Primary Base radio level and/or the Remote radio level to Reduced .
Base Station				
POWER LED	COM LED	STATUS LED		
ON	Blinking	ON		
Remote Device				
Sabre 1/2/3	E-STOP LED	ON		
Sabre 1	Start LED	ON		
Sabre 2/3	ON			
The Horn duration time of 1 second is too long			-	Reduce the Horn duration between 0.1 s and 1 s through an external modular relay. If you use a Base Station which firmware version \geq v3.0, you can use the Sabre's eXLhoist Configuration Software (version \geq v3.0) and configure the Horn duration to 0 s.
Base Station				
POWER LED	COM LED	STATUS LED		
ON	Blinking	ON		
Remote Device				
Sabre 1/2/3	E-STOP LED	ON		
Sabre 1	Start LED	ON		
Sabre 2/3	ON			

www.streetcrane.co.uk

Street

Street Crane Company Limited, Chapel-en-le-Frith, High Peak SK23 0PH, UK

email: admin@streetcrane.co.uk

web: www.streetcrane.co.uk

Telephone: +44 (0) 1298 812456



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