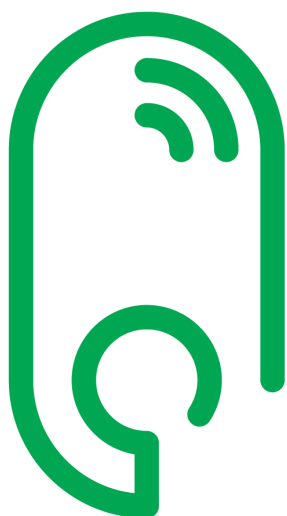


Harmony eXLhoist Joystick Station

Wireless Remote Control System User Guide

(Original Document)

04/2018



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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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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 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.

About the Book



At a Glance

Document Scope

This manual describes how to use the Wireless Remote Control System.

Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel trained by Schneider Electric.

Validity Note

The technical characteristics of the devices described in the present document also appear online. To access the information online:

Step	Action
1	Go to the Schneider Electric home page www.schneider-electric.com .
2	In the Search box type the reference of a product or the name of a product range. <ul style="list-style-type: none">• Do not include blank spaces in the reference or product range.• To get information on grouping similar modules, use asterisks (*).
3	If you entered a reference, go to the Product Datasheets search results and click on the reference that interests you. If you entered the name of a product range, go to the Product Ranges search results and click on the product range that interests you.
4	If more than one reference appears in the Products search results, click on the reference that interests you.
5	Depending on the size of your screen, you may need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click Download XXX product datasheet .

The characteristics that are presented in the present manual should be the same as those characteristics that appear online. In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the manual and online information, use the online information as your reference.

Related Documents

Title of Documentation	Reference Number
Instruction Sheet of Multi charger ZARC701	PHA17917
Instruction Sheet of Li-Ion Rechargeable battery and Battery Table Charger ZARC702 and ZARC703	PHA17918

You can download these technical publications and other technical information from our website at <https://www.schneider-electric.com/en/download>

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 transmitter.
- Do not replace internal parts of the receiver.
- After a receiver power off, wait around 20 seconds before removing the cover of the receiver.
- Always comply with the local requirements regarding installation and use of the hoisting devices or other systems.

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

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.

For more information, contact us at www.schneider-electric.com or contact your local reseller.



Chapter 1

Description and Part Identification

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Wireless Remote Control System Overview	10
Receiver Parts Identification	11
Transmitter Parts Identification	17
Accessories	20

Wireless Remote Control System Overview

Overview

The Harmony™ eXLhoist Joystick station range is composed of transmitters and receivers intended for use together as a system in complex lifting applications such as cranes, OHT cranes and electric hoists or advanced mobile applications.

The stop function of the Harmony™ eXLhoist Joystick station systems achieved Safety level up to CAT3, PLe, and SIL3 in accordance with EN 13849-1 and IEC 61508 respectively. The ergonomic sizes and shapes of the transmitters, the clear and fully customizable panel foils & face-plates as well as the accessories ensure that the Harmony™ eXLhoist Joystick station transmitter controls are easy to operate.

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

- Transmitter, which is the operator command device to interface with the machine.
- Receiver, which is hardwired to the machine. It receives control commands from the Transmitter.

Receiver:

References	ZARBB17W	ZARBB7A11W	ZARBB28W
Connectors	Cable gland for wires		
Nb. of safety relays	-	-	2
Nb. of stop relays	2	2	2
Nb. of relays	17	11	28
Nb. of analog outputs	-	7	-

Transmitter:

References	ZARTJ2S3	ZARTJ4S3	ZARTJA3	ZARTJ2S4	ZARTJ4S4	ZARTJA4
Nb. of axes	3	3	3	4	4	4
Axes type	2 steps	4 steps	Analog joystick	2 steps	4 steps	Analog joystick

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

Radio Communication

Each Transmitter have a unique Replace ID indicated on the label of the device.

Main Applications

Main applications modes are available:

- Single mode = one Transmitter commands one Receiver.
- Multi-transmitter Control (MTC) = several Transmitter alternatively commands one Receiver.
- Multi-Receiver Control (MRC) = one Transmitter commands several Receivers simultaneously.

For more information, contact your representative for assistance.

Receiver Parts Identification

Overview

ZARBB17W is composed by:

- Receiver Internal Board (*see page 12*)
- Receiver Relay Expansion Board (*see page 13*)

ZARBB7A11W is composed by:

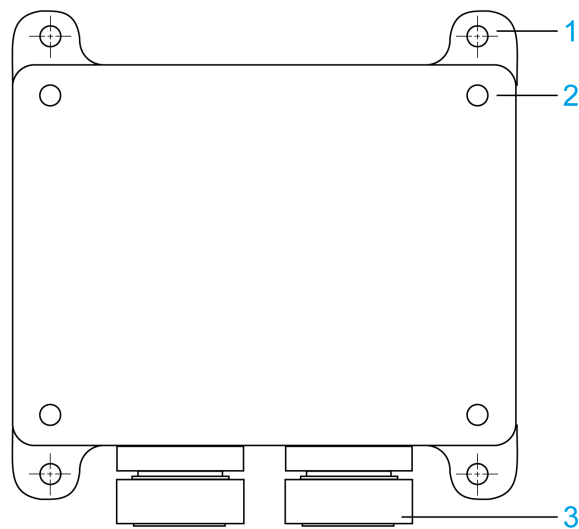
- Receiver Internal Board (*see page 12*)
- Receiver Analog Expansion Board (*see page 13*)

ZARBB28W is composed by:

- Receiver Internal Board (*see page 14*)
- Display Internal Board (*see page 15*)
- Receiver Relay Expansion Board (*see page 16*)

Receiver External Parts Identification

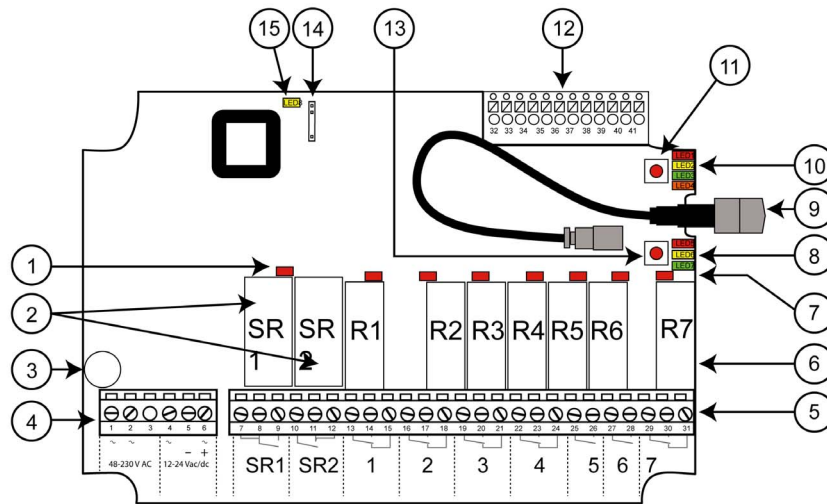
ZARBB17W / ZARBB7A11W / ZARBB28W:



Part	Description
1	4 x Ø5.5 (0.2 in) holes for standard mounting on support
2	4 x screws to maintain the cover of the Receiver
3	2 x cable glands for cables diameter 15 mm (0.6 in)

ZARBB17W and ZARBB7A11W Receivers Internal Board Parts Identification

The ZARBB17W and ZARBB7A11W receivers have an internal board:



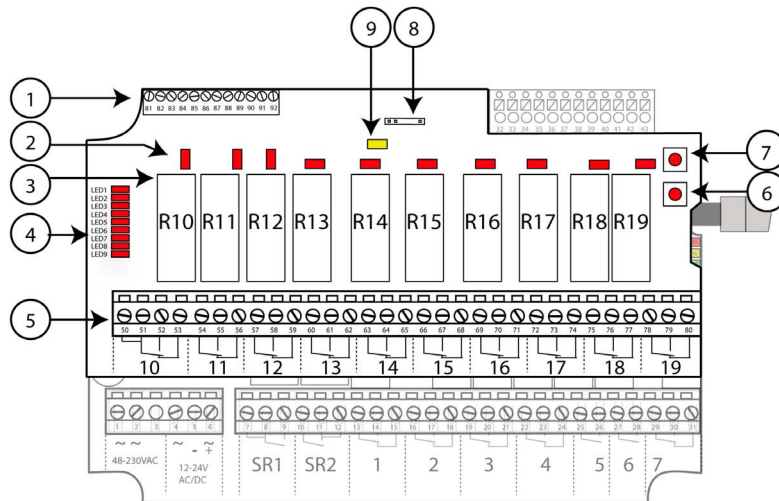
Part	Description
1	LED indicator for stop relays SR1...SR2 (red)
2	Stop relays (SR1...SR2)
3	Obligatory fuse 2 A (slow)
4	Terminal block for input power
5	Terminal blocks for function relays R1...R7
6	Function relays 1...7 (1...4 and 7 = NO+NC, 5 and 6 = NO)
7	LED indicators for function relays R1...R7 (red)
8	Function LEDs (5 = red, 6 = yellow, 7 = green)
9	Antenna connector
10	Function LEDs (1 = red, 2 = yellow, 3 = green, 4 = orange)
11	Function button (Cancel)
12	Terminal block for mixed I/O
13	Select button (OK)
14	Programming connector
15	Power LED (yellow)

For more information, refer to:

- ZARBB17W / ZARBB7A11W diagnostic (*see page 83*)
- ZARBB17W / ZARBB7A11W Base Board Installation Wiring (*see page 37*)

ZARBB17W Receiver Relay Expansion Board Parts Identification

The ZARBB17W receiver has an expansion board:



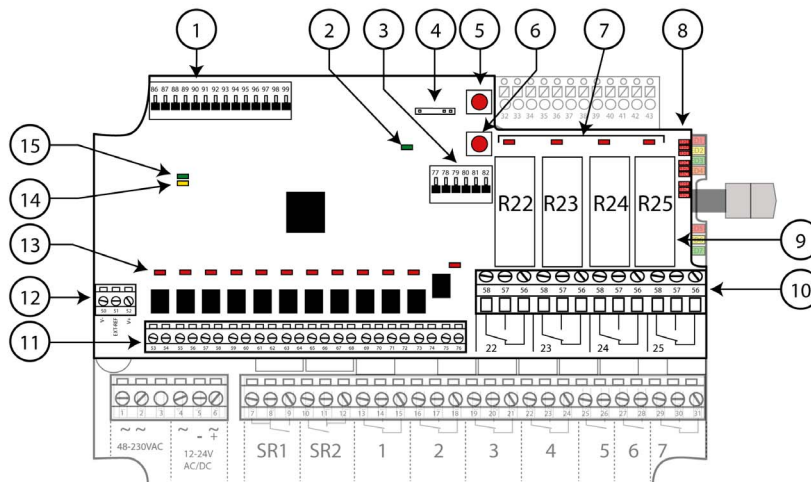
Part	Description
1	Terminal block for digital inputs
2	LED indicators for relays R10...R19 (red)
3	Function relays R10...R19 (NO+NC)
4	LED indicators for the base board relays
5	Terminal block for function relays R10...R19
6	Select button (OK)
7	Function button (Cancel)
8	Programming connector
9	Power LED (yellow)

For more information, refer to:

- ZARBB17W diagnostic ([see page 83](#))
- ZARBB17W Relay Expansion Board Installation Wiring ([see page 38](#))

ZARBB7A11W Receiver Analog Expansion Board Parts Identification

The ZARBB7A11W receiver has an expansion board:



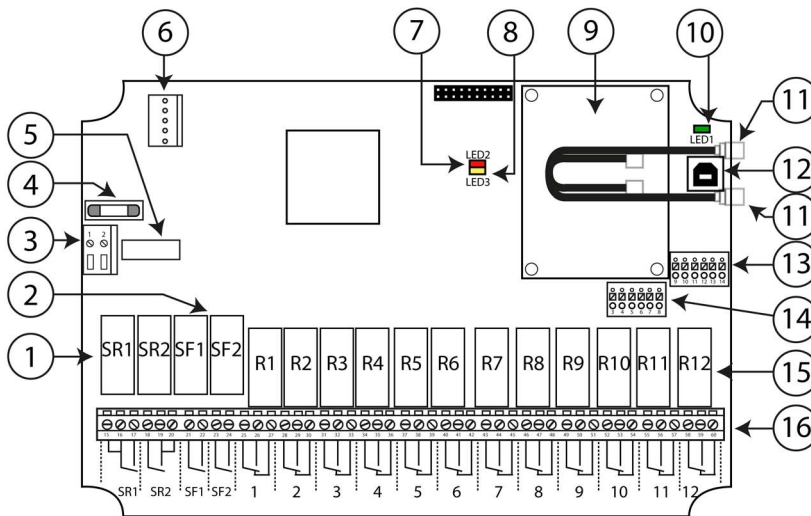
Part	Description
1	Terminal block for analog outputs
2	LED indicator for the communication with the base board (green)
3	Terminal block for digital inputs
4	Programming connector
5	Function button (Cancel)
6	Select button (OK)
7	LED indicators for function relays R22...R25 (red)
8	LED indicators for the base board relays
9	Function relays R22...R25 (NO+NC)
10	Terminal block for function relays R22...R25
11	Terminal block for digital outputs
12	Terminal block for external analog reference
13	LED indicators for the digital outputs (red)
14	LED indicator for the internal DC/DC converter (yellow)
15	LED indicator for the base board communication (green)

For more information, refer to:

- ZARBB7A11W diagnostic (see page 83)
- ZARBB7A11W Analog Expansion Board Installation Wiring (see page 39)

ZARBB28W Receiver Internal Board Parts Identification

The ZARBB28W receiver has an internal board:



Part	Description
1	Stop relays SR1...SR2
2	Safety function relays SF1...SF2
3	Terminal block for input power
4	Obligatory fuse: Ceramic 3.15 A(T)
5	Optional fuse ⁽¹⁾
6	Reserved
7	Function LED 2 (red)
8	Function LED 3 (yellow)
9	Radio module
10	Function LED 1 (green)
(1) Can be used for connecting input power from the power supply connector (pin 2) with the relay outputs (Common of SR1). Select a fuse that matches the application, max. 16 A.	

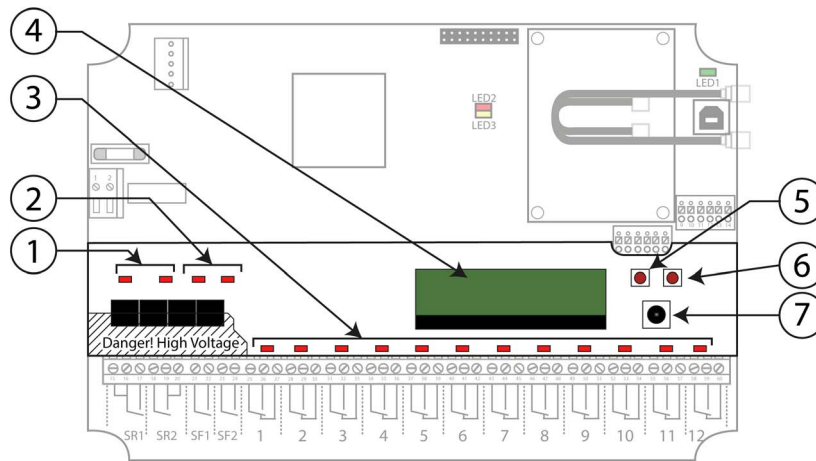
Part	Description
11	Antenna connectors
12	USB programming connector
13	Terminal block for RS232/RS485
14	Terminal block for digital I/O
15	Relays 1...12 (NO+NC)
16	Terminal blocks for SR1...SR2, SF1...SF2, and R1...R12
(1) Can be used for connecting input power from the power supply connector (pin 2) with the relay outputs (Common of SR1). Select a fuse that matches the application, max. 16 A.	

For more information, refer to:

- ZARBB28W diagnostic ([see page 84](#))
- ZARBB28W Base Board Installation Wiring ([see page 42](#))

ZARBB28W Display Internal Board Parts Identification

The ZARBB28W receiver has a display board:

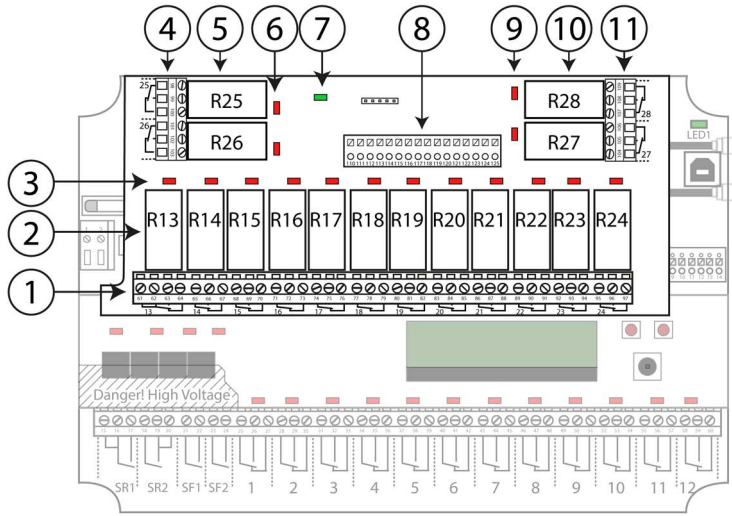


Part	Description
1	LED indicators for stop relays SR1...SR2 (red)
2	LED indicators for Safety function relays SF1...SF2 (red)
3	LED indicators for function relays R1...12 (red)
4	Display
5	Left push button
6	Right push button
7	Mini joystick

For more information, refer to ZARBB28W diagnostic ([see page 84](#)).

ZARBB28W Receiver Relay Expansion Board Parts Identification

The ZARBB28W receiver has an expansion board:



Part	Description
1	Terminal block for relays R13...R24
2	Function relays R13...R28 (NO+NC)
3	LED indicators for relays R13...R24
4	Terminal block for relays R25...R26
5	Function relays R25...R26 (NO+NC)
6	LED indicators for relays R25...R26
7	Communication LED (green)
8	Terminal block for digital inputs
9	LED indicators for relays R27...R28
10	Function relays R27...R28 (NO+NC)
11	Terminal block for relays R27...R28

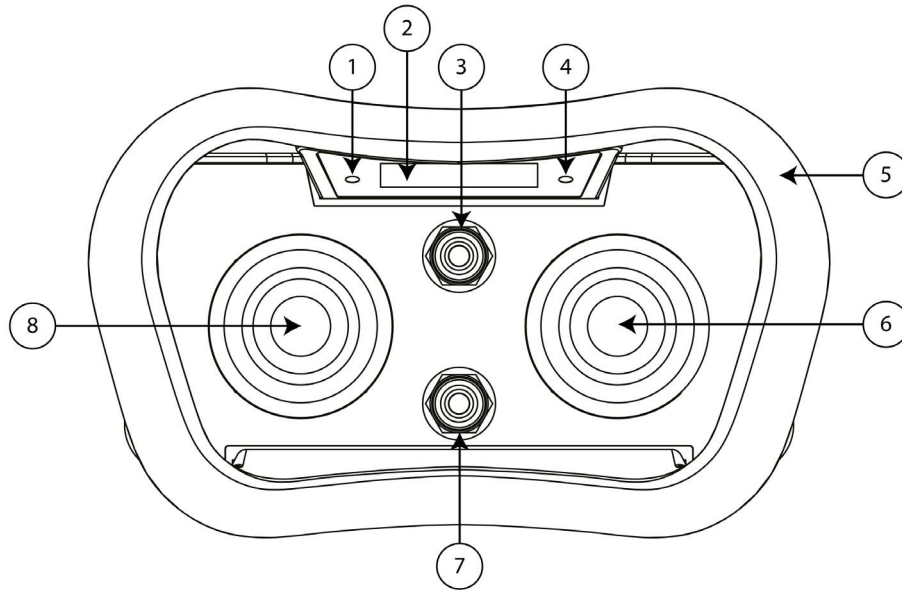
For more information, refer to:

- ZARBB28W diagnostic (*see page 84*)
- ZARBB28W Relay Expansion Board Installation Wiring (*see page 44*)

Transmitter Parts Identification

Transmitter Front View Parts Identification

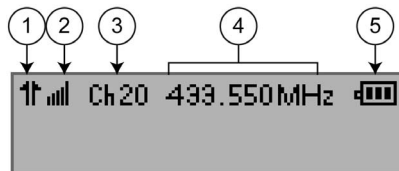
ZARTJ•••



Part	Description
1	LED 1
2	Display
3	Upper function switch
4	LED 2
5	Handle bar
6	Right joystick
7	Lower function switch
8	Left joystick

Transmitter Display

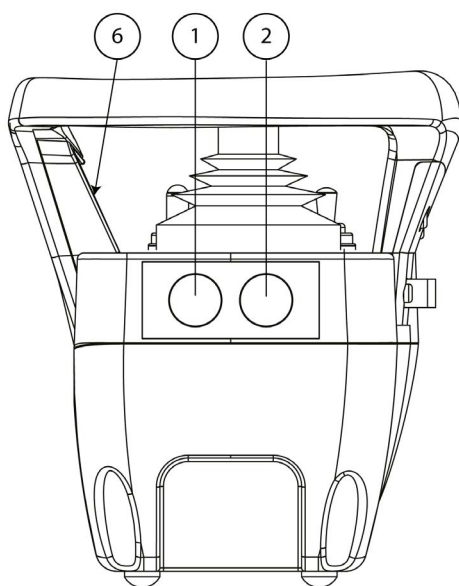
The transmitter display is intended for receiving and visualizing feedback information from the system as well as for basic configuration. The first row shows factory default information.



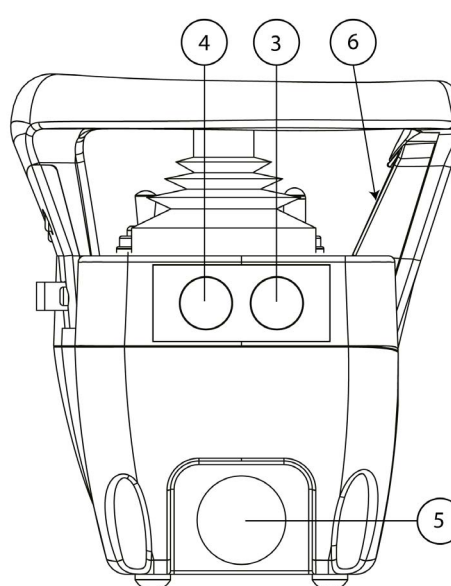
Part	Description		
1	Radio communication	Simplex	
		Duplex	
2	Signal strength	Minimum	
		Maximum	
3	Channel number		
4	Operating frequency		
5	Battery level indication ⁽¹⁾		
(1) Approximate values with a new, fully charged battery.			

Transmitter Side Views Parts Identification

ZARTJ... Left:



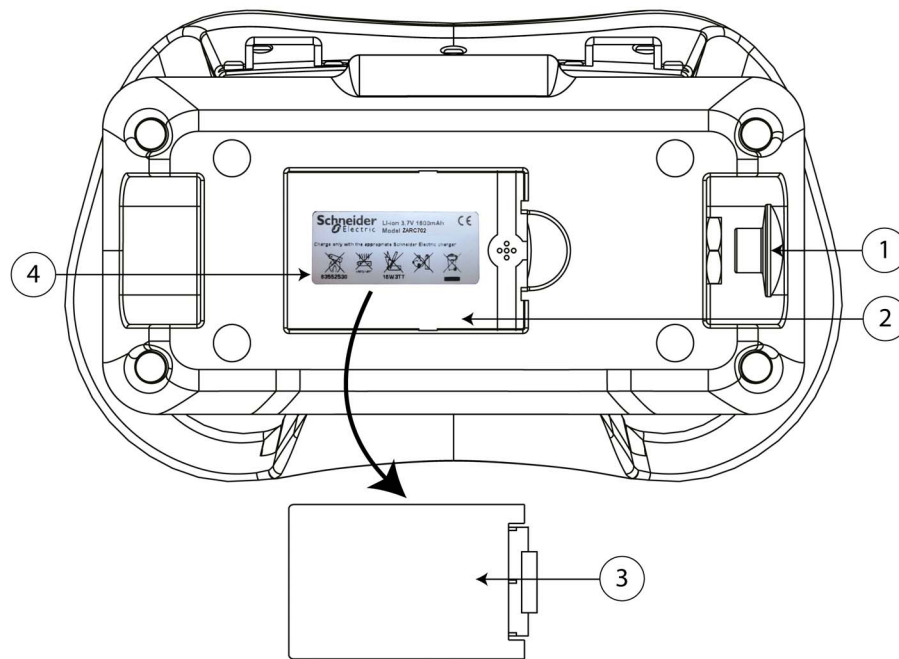
ZARTJ... Right:



Part	Description
1	Side button 1
2	Side button 2 (Safety button)
3	Side button 3 / start button / back
4	Side button 4 (Safety button) / start button / select/confirm
5	Stop button
6	Display

Transmitter Rear View Parts Identification

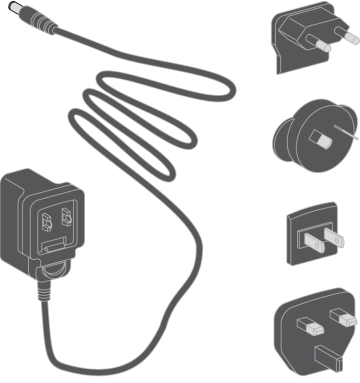
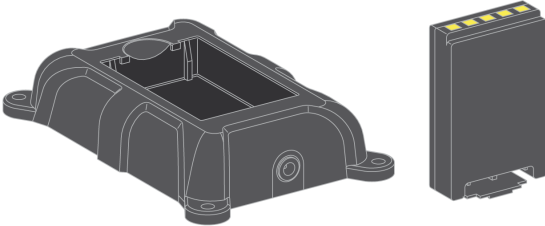
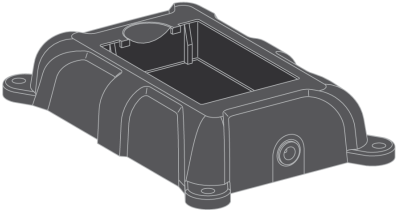
ZARTJ...:



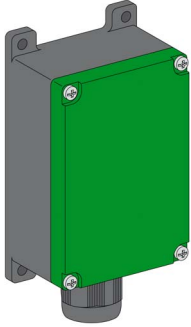
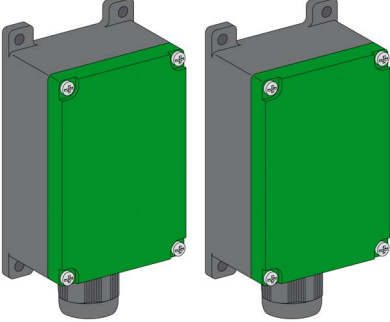
Part	Description
1	Stop button
2	Battery compartment
3	Replaceable battery
4	Product label (placed in the battery compartment)

Accessories

Transmitter Accessories

Device	Reference	Description
	ZARC701	Multi-charger power supply (6 W) 5 Vdc / 1.2 A Only for ZARC702 Li-Ion rechargeable battery
	ZARC702	Li-Ion rechargeable battery with battery table charger
	ZARC703	Battery Table Charger Only for ZARC702 Li-Ion rechargeable battery

Receiver Accessories

Device	Reference	Description
	ZARBB2AI	1 External module: 2 analog inputs
	ZARBBFBM	2 External modules: Machine to machine system for tandem via Modbus

Chapter 2

Specifications

What Is in This Chapter?

This chapter contains the following sections:

Section	Topic	Page
2.1	Specifications	24
2.2	Dimensions	29

Section 2.1

Specifications

What Is in This Section?

This section contains the following topics:

Topic	Page
Receiver Specifications	25
Transmitter Specifications	27

Receiver Specifications

Environment

The receivers specifications are described in the table:

Specifications	Value		
	ZARBB17W	ZARBB7A11W	ZARBB28W
Number of stop relays	2, potential free ⁽¹⁾		
Stop relays maximum resistive load	16 A, 250 Vac		10 A, 250 Vac
Number of safety relays	-		2, potential free ⁽¹⁾
Safety relays maximum resistive load	-		10 A, 250 Vac
Safety relays maximum inductive load	-		10 A, 250 Vac
Number of function relays	17	11	28
	Potential free ⁽¹⁾ , 10 A resistive load, 250 Vac		
Input power	12...24 Vac/dc 48...230 Vac/dc		12...350 Vdc 24...230 Vac
	50...60 Hz, maximum 2 A		
Digital inputs	10	5	2
Digital Outputs	1	12	0
Digital transistor Outputs	1		
Bus system	-	Analog	-
Radio communication	Simplex (default), support for duplex		
Maximum number of registered transmitters	15		
Dimensions	176 x 126 x 75 mm (6.9 x 5 x 2.9 in)		256 x 175 x 85 mm (10.1 x 6.9 x 3.3 in)
Weight	0.950 kg (2.2 lbs)		1.8 kg (3.9 lbs)
Operating temperature	-20...55 °C (-4...130 °F)		
Radio type	Low IF topology		
Radio frequency band	433.075...434.775 MHz		
Number of radio frequency channels	69 (channel 1...69)		
Radio frequency output power	<10 mW		
Antenna connector	1 BNC for internal antenna		2 RPSMA for up to 2 external antennas
Degree of protection	IP66		
Safety integrity level	SIL3, PLe		
(1) Potential free means that a supply voltage is needed to get voltage out of a relay.			

NOTE: When the equipment controlled by the standard relays of the receiver is connected via the stop relays, make sure that the maximum current through the stop relays is still within the specification.

Current Consumption

Input power	ZARBB17W		ZARBB7A11W		ZARBB28W	
	Minimum ⁽¹⁾	Maximum ⁽²⁾	Minimum ⁽¹⁾	Maximum ⁽²⁾	Minimum ⁽¹⁾	Maximum ⁽²⁾
12 Vac	0.13 A	0.40 A	0.20 A	0.51 A	-	-
24 Vac	0.06 A	0.24 A	0.09 A	0.20 A	0.2 A	0.8 A
48 Vac	0.04 A	0.16 A	0.06 A	0.14 A	0.06 A	0.5 A
115 Vac	0.02 A	0.07 A	0.02 A	0.06 A	0.02 A	0.2 A
230 Vac	0.01 A	0.04 A	0.01 A	0.04 A	0.02 A	0.08 A
12 Vdc	0.13 A	0.52 A	0.18 A	0.45 A	0.3 A	1.3 A
24 Vdc	0.06 A	0.14 A	0.09 A	0.22 A	0.2 A	0.8 A
(1) Minimum current consumption = Receiver powered, no active relays, no radio session established.						
(2) Maximum current consumption = Receiver powered, all relays on the receiver active, radio session established.						

Response Time

Input/Output	Maximum response time (ms)
Stop	500
Safety	500
Motion/Auxiliary	500

Transmitter Specifications

Environment

Specification	Value
Number of front switches <ul style="list-style-type: none"> ● Upper switch ● Lower switch 	2 toggle switches, SPDT, (On)-None-(On) <ul style="list-style-type: none"> ● Momentary function (spring return) ● Stay-put function
Number of joysticks	2, 2-axis with spring return for step or analog control (see Joystick directions below)
Number of side buttons	4
Battery	Replaceable, rechargeable lithium-ion
I/O switch	No
Radio communication	Simplex (default), support for duplex
Maximum number of registered receivers	15
Maximum number of PIN codes	10
Dimensions	210 x 140 x 130 mm (8.3 x 5.5 x 5.1 in)
Weight	1.2 kg (2.6 lbs)
Radio Frequency band	433.075...434.775 MHz
Number of radio frequency channels	69 (channel 1...69) ⁽¹⁾
Radio frequency output power	<10 mW
Operating time (continuous usage)	Approximately 16 h
Degree of protection	IP65
Operating temperature	-20...+55 °C (-4...+130 °F)
(1) To know what is the radio frequency channel on your system, refer to the Transmitter display overview (see page 17).	

Radio Frequency Band

For radio systems operating on frequency band 433 MHz, the frequency band is divided into 69 channels (channel 1...69). Once the channel has been selected on the transmitter, the receiver automatically detects and switches to the same channel.

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	433.075	24	433.650	47	434.225
02	433.100	25	433.675	48	434.250
03	433.125	26	433.700	49	434.275
04	433.150	27	433.725	50	434.300
05	433.175	28	433.750	51	434.325
06	433.200	29	433.775	52	434.350
07	433.225	30	433.800	53	434.375
08	433.250	31	433.825	54	434.400
09	433.275	32	433.850	55	434.425
10	433.300	33	433.875	56	434.450
11	433.325	34	433.900	57	434.475
12	433.350	35	433.925	58	434.500
13	433.375	36	433.950	59	434.525
14	433.400	37	433.975	60	434.550
15	433.425	38	434.000	61	434.575
16	433.450	39	434.025	62	434.600
17	433.475	40	434.050	63	434.625
18	433.500	41	434.075	64	434.650
19	433.525	42	434.100	65	434.675

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20	433.550	43	434.125	66	434.700
21	433.575	44	434.150	67	434.725
22	433.600	45	434.175	68	434.750
23	433.625	46	434.200	69	434.775

Section 2.2

Dimensions

What Is in This Section?

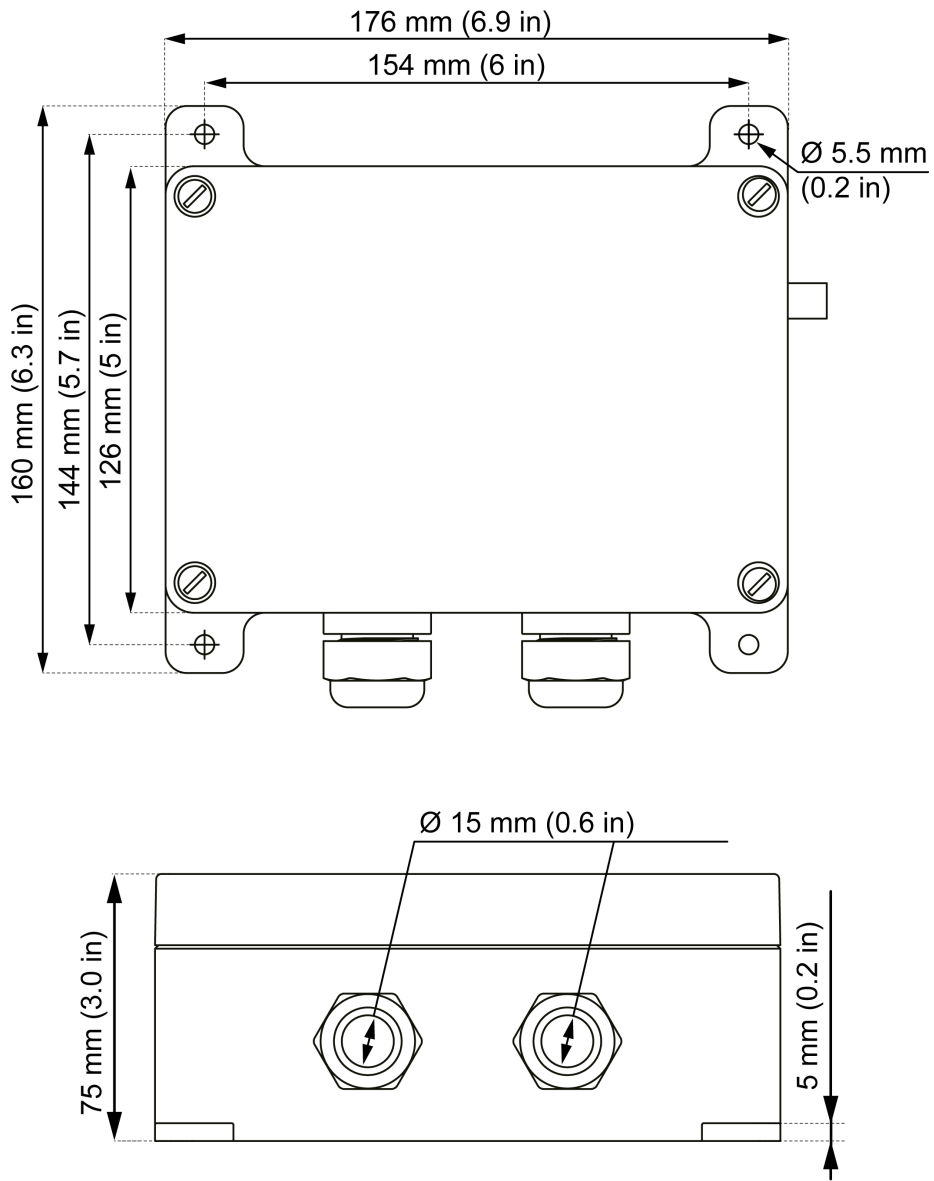
This section contains the following topics:

Topic	Page
Receiver Dimensions	30
Transmitter Dimensions	32

Receiver Dimensions

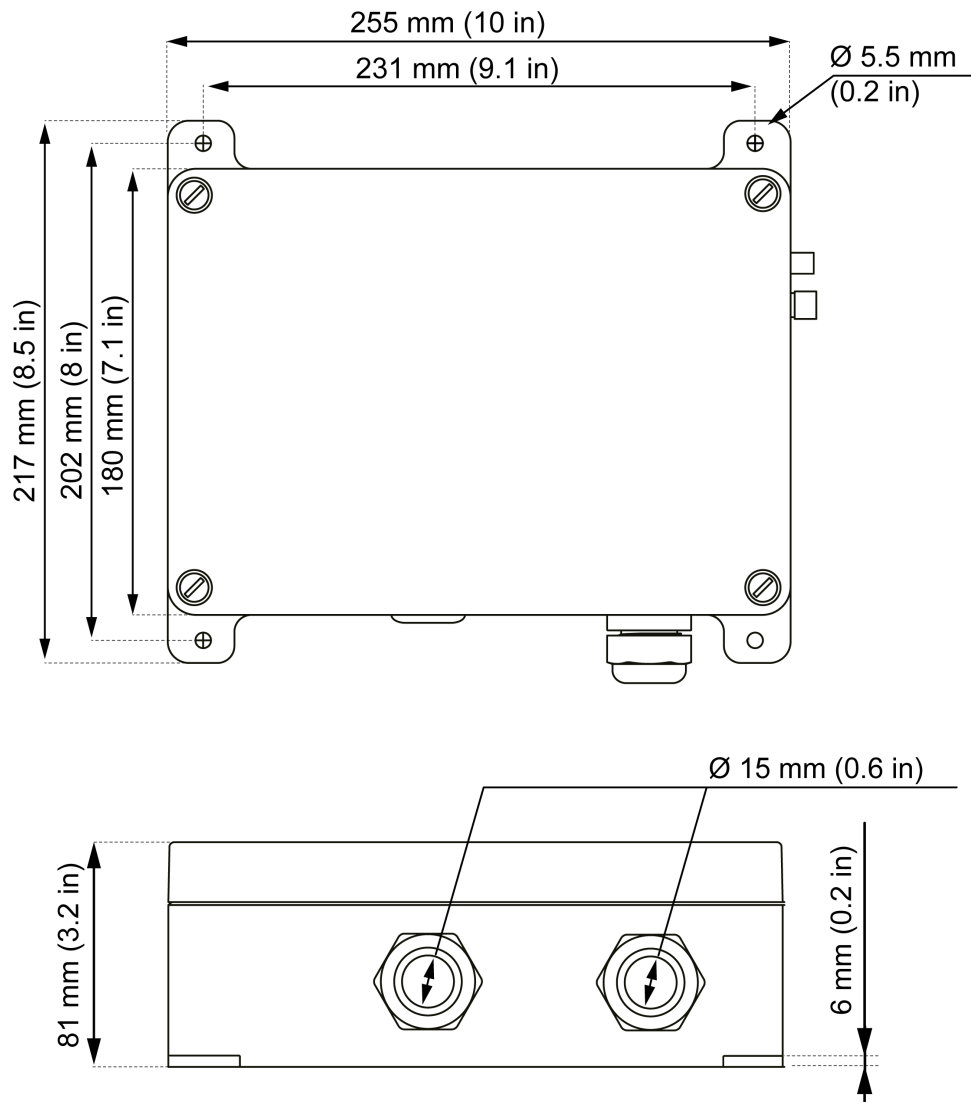
ZARBB17W / ZARBB7A11W Dimensions

The following figure shows the receiver dimensions:



ZARBB28W Dimensions

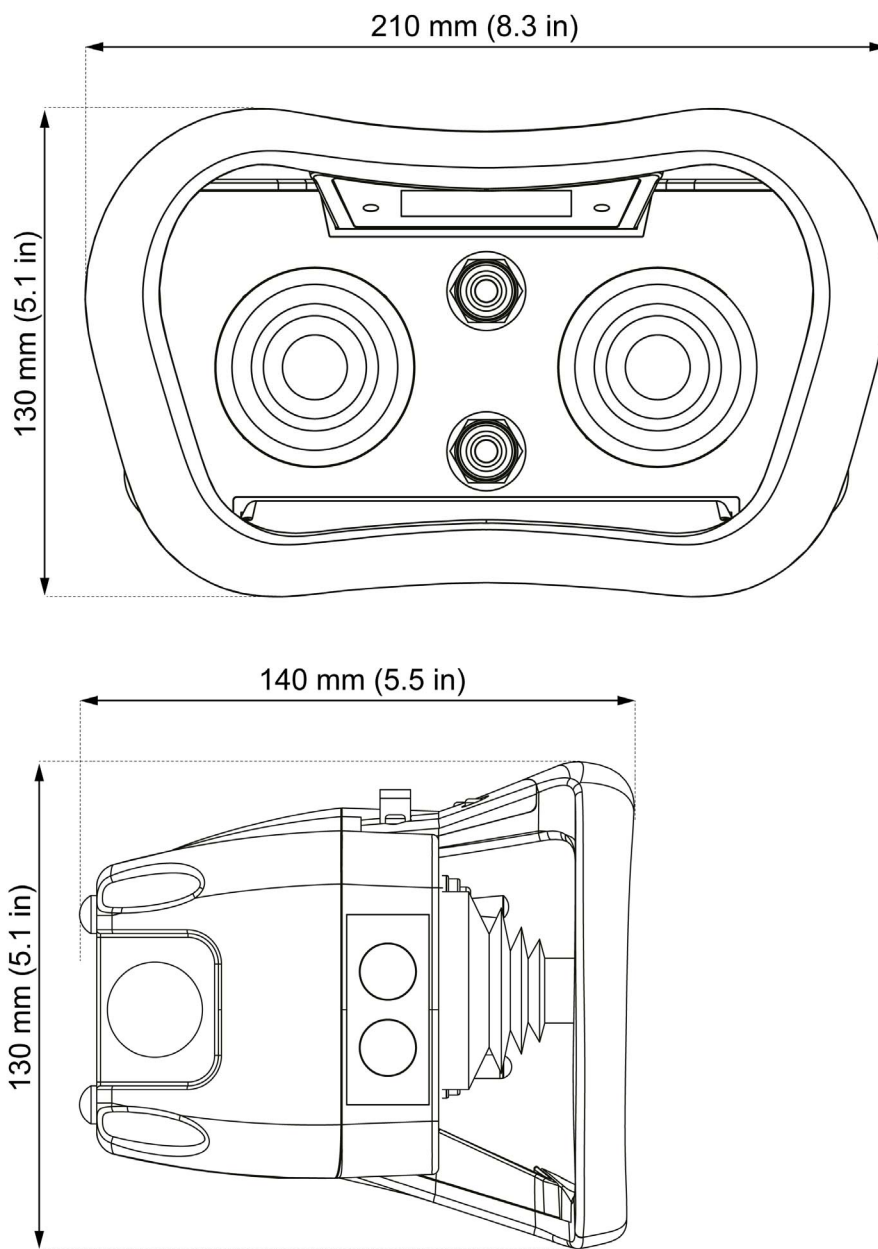
The following figure shows the receiver dimensions:



Transmitter Dimensions

ZARTJ... Dimensions

The following figure shows the transmitter dimensions:



Chapter 3

Installation and Wiring

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Receiver Installation Precaution	34
Receiver Wiring Overview	36
ZARBB17W / ZARBB7A11W Receiver Wiring	37
ZARBB28W Receiver Wiring	42
Wiring Best Practices	46

Receiver Installation Precaution

Installation Precaution

Receiver location:

The receiver must be installed vertically, on a flat and rigid surface, with the cable at the bottom.

Consider the wiring limitation and the radio communication limitation to choose the receiver location.

Do not create obstacle between the receiver and the transmitter to optimize the radio communication level.

The receiver must not be installed inside closed metal containers.

To prevent communication perturbation:

- Do not place cables or metallic parts in front of the receiver cover.
- Do not place obstacles between the receiver and the transmitter.
- It is recommended to identify the devices with radio communication in the environment and to use only certified products.

According to IEC 61010-1, it is recommended to install the power switch of the receiver close to the receiver.

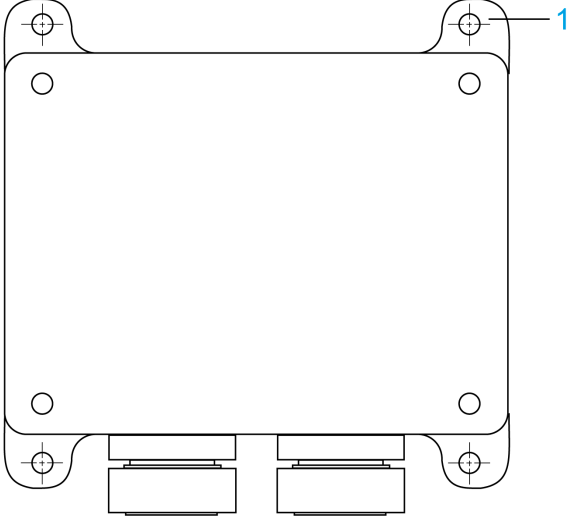
To be compliant with IEC 61508, EN 62061 and EN ISO 13849, cable ends must be used for the output wiring of the ZARBB•••••.

⚠ DANGER
HEAVY LOAD MOVING HAZARD
The working range must be free of people when the hoisting system is operating.
Failure to follow these instructions will result in death or serious injury.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Install and operate this equipment according to the environmental conditions described in the operating limits.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
<ul style="list-style-type: none">• Use appropriate safety interlocks where personnel and/or equipment hazards exist.• Use the actuator power supplies only for supplying power to the actuators connected to the device.• Power line must be wired and protected with fuse or thermal magnetic switch (ex: Schneider-Electric GV2) in compliance with local and national regulatory requirements for the rated current and voltage of the particular equipment.• Test the functions at each commissioning.• Do not disassemble, repair, or modify this equipment.• Do not drill hole in the receiver.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Installation

Step	Action
1	<p data-bbox="491 286 1166 315">Introduce 4 mounting M4 screws in the Ø5.5 (0.20 in) holes (legend 1):</p>  <p>The diagram shows a rectangular mounting plate with rounded corners. It has four circular holes, one in each corner. Four screws are shown being inserted into these holes. A blue number '1' with a line pointing to the top-right hole indicates the location for the screws. Below the plate, two rectangular components are shown, which are likely the devices being mounted.</p>
2	<p data-bbox="491 900 1358 952">Screw the 4 mounting M4 screws. Engage at least 6 mm (0.23 in) of the thread in mounting plate.</p>

Receiver Wiring Overview

Receiver Wiring Procedure

ZARBB17W / ZARBB7A11W / ZARBB28W receiver is delivered without cable. You must wire to the terminals.

Wiring procedure:

Step	Action
1	Unscrew the 4 screws at the front of the receiver.
2	Remove the cover.
3	Introduce the cable through the dedicated cable gland.
4	Connect the wires in the dedicated terminals. Use, if necessary, cable ends.
5	Tight the cable gland.
6	Install the receiver cover.
7	Screw the 4 screws to fasten the receiver cover.

For more details, refer to:

- ZARBB17W / ZARBB7A11W Installation Wiring (*see page 37*)
- ZARBB28W Installation Wiring (*see page 42*)

General Wiring Rules

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
Power line must be wired and protected with fuse or thermal magnetic switch (ex: Schneider Electric GV2) in compliance with local and national regulatory requirements for the rated current and voltage of the particular equipment.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

The power supply cables should be cross-sectional conductor area = 1 mm² (AWG 16).

The output cables should be cross-sectional conductor area = 1 mm² (AWG 16).

The power supply cable lengths should not exceed 50 m (164 ft).

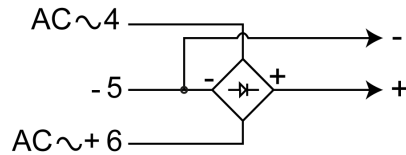
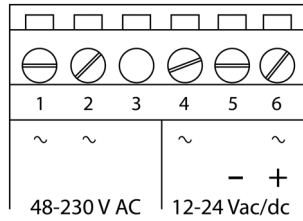
The recommended cable diameter in the cable gland is 6...13 mm (0.25...0.50 in).

For more details, refer to Wiring Best Practices (*see page 46*).

ZARBB17W / ZARBB7A11W Receiver Wiring

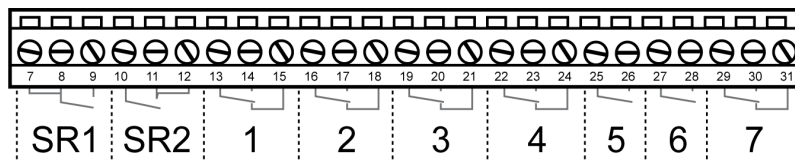
ZARBB17W / ZARBB7A11W Base Board Installation Wiring

Terminal block for input power



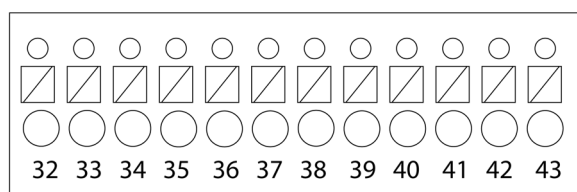
Signal	Pin nb.	Signal	Pin nb.
Power Supply 48...230 Vac	1	Power Supply 12...24 Vac	4
Power Supply 48...230 Vac	2	Power Supply 0 Vdc	5
Not connected	3	Power Supply 12...24 Vac/dc	6

Terminal block for relays



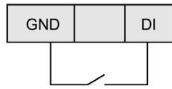
Signal	Pin nb.	Signal	Pin nb.
Stop relay SR1	Common	Relay R3	Common
	Common		Output (NO type)
	Output (NO type)		Output (NC type)
Stop relay SR2	Common	Relay R4	Common
	Common		Output (NO type)
	Output (NO type)		Output (NC type)
Relay R1	Common	Relay R5	Common
	Output (NO type)		Output (NO type)
	Output (NC type)	Relay R6	Common
Relay R2	Common		Output (NO type)
	Output (NO type)		Common
	Output (NC type)	Output (NO type)	
		Relay R7	Common
			Output (NO type)
			Output (NC type)

Terminal block for mixed I/O



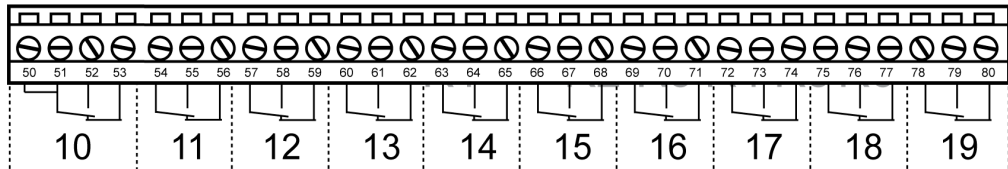
Signal	Pin nb.	Signal	Pin nb.
+12 Vdc output	32	Digital input DI2	38
+5 Vdc output	33	GND	39
GND	34	+3.3 Vdc output	40
GND	35	RS485A-	41
Digital input DI1	36	RS485A+	42
Transistor output	37	GND	43

Digital input wiring example:



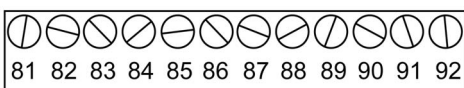
ZARBB17W Relay Expansion Board Installation Wiring

Terminal block for relays



Signal	Pin nb.	Signal	Pin nb.		
Relay R10	Common	50	Relay R15	Common	66
	Common	51		Output (NO type)	67
	Output (NO type)	52		Output (NC type)	68
	Output (NC type)	53		Relay R16	Common
Relay R11	Common	54	Output (NO type)		70
	Output (NO type)	55	Output (NC type)		71
	Output (NC type)	56	Relay R17	Common	72
Relay R12	Common	57		Output (NO type)	73
	Output (NO type)	58		Output (NC type)	74
	Output (NC type)	59	Relay R18	Common	75
Relay R13	Common	60		Output (NO type)	76
	Output (NO type)	61		Output (NC type)	77
	Output (NC type)	62	Relay R19	Common	78
Relay R14	Common	63		Output (NO type)	79
	Output (NO type)	64		Output (NC type)	80
	Output (NC type)	65			

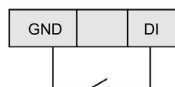
Terminal block for digital inputs



Signal	Pin nb.	Signal	Pin nb.
GND	81	Digital input DI5	87
GND	82	Digital input DI6	88
GND	83	Digital input DI7	89
GND	84	Digital input DI8	90

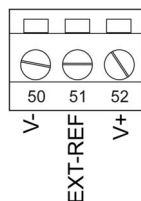
Signal	Pin nb.	Signal	Pin nb.
Digital input DI3	85	Digital input DI9	91
Digital input DI4	86	Digital input DI10	92

Digital input wiring example:



ZARBB7A11W Analog Expansion Board Installation Wiring

Terminal block for external analog reference

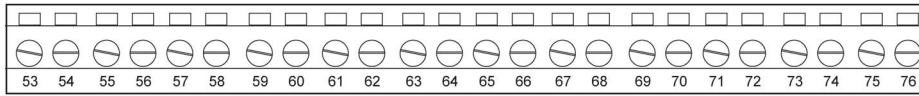


Signal	Pin nb.	
External analog reference	V-	50
	EXT-REF	51
	V+	52

How to connect to the terminal block for external analog reference depends on the receiver configuration. Contact your representative for assistance.

Voltage on AO	Internal DC/DC converter	Terminal connections	
		Pin nb.	Description
0...+10 V	On	50 51 52	Leave unconnected Leave unconnected Leave unconnected
0...+10 V	Off	50 51 52	Negative supply voltage Leave unconnected Positive supply voltage
-10...+10 V	On	50 51 52	Leave unconnected External reference ⁽¹⁾ Leave unconnected
	External supply voltage shall not be connected. Guaranteed output range is -5...+5 V.		
-10...+10 V	Off ⁽²⁾	50 51 52	Negative supply voltage External reference ⁽¹⁾ Positive supply voltage
	External supply voltage of 22...35 Vdc is required to achieve full -10...+10 V output.		
25...75% or 10...90% of the supply voltage ⁽²⁾	Off	50 51 52	Negative supply voltage Leave unconnected Positive supply voltage
(1) Analog output reference follows this voltage. If unconnected, the analog output reference is in the middle of the external supply voltage. (2) Depending on the configuration of the receiver.			

Terminal block for the digital outputs



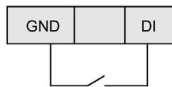
Signal		Pin nb.	Signal		Pin nb.
Digital output DO10	DO10	53	Digital output DO16	DO16	65
	DO10 reference	54		DO16 reference	66
Digital output DO11	DO11	55	Digital output DO17	DO17	67
	DO11 reference	56		DO17 reference	68
Digital output DO12	DO12	57	Digital output DO18	DO18	69
	DO12 reference	58		DO18 reference	70
Digital output DO13	DO13	59	Digital output DO19	DO19	71
	DO13 reference	60		DO19 reference	72
Digital output DO14	DO14	61	Digital output DO20	DO20	73
	DO14 reference	62		DO20 reference	74
Digital output DO15	DO15	63	Digital output DO21	DO21	75
	DO15 reference	64		DO21 reference	76

Terminal block for digital inputs



Signal	Pin nb.	Signal	Pin nb.
Digital input DI3	77	GND	80
Digital input DI4	78	GND	81
Digital input DI5	79	GND	82

Digital input wiring example:



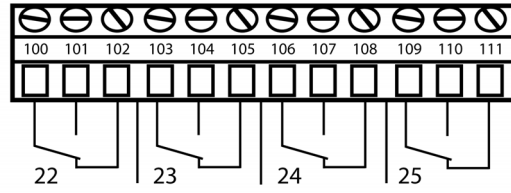
Terminal block for analog outputs



Signal	Pin nb.	Signal	Pin nb.
Analog GND	86	Analog output AO1	93
Analog GND	87	Analog output AO2	94
Analog GND	88	Analog output AO3	95
Analog GND	89	Analog output AO4	96
Analog GND	90	Analog output AO5	97

Signal	Pin nb.	Signal	Pin nb.
Analog GND	91	Analog output AO6	98
Analog GND	92	Analog output AO7	99

Terminal block for relays

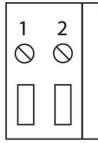


Signal		Pin nb.	Signal		Pin nb.
Relay R22	Common	100	Relay R24	Common	106
	Output (NO type)	101		Output (NO type)	107
	Output (NC type)	102		Output (NC type)	108
Relay R23	Common	103	Relay R25	Common	109
	Output (NO type)	104		Output (NO type)	110
	Output (NC type)	105		Output (NC type)	111

ZARBB28W Receiver Wiring

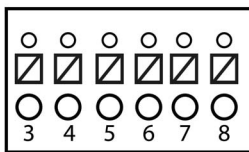
ZARBB28W Base Board Installation Wiring

Terminal block for input power



For input power 12...350 Vdc	For input power 24...230 Vac	Pin nb.
Negative terminal DC voltage	24...230 Vac	1
+12...350 Vdc	24...230 Vac	2

Terminal block for digital I/O

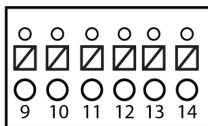


Signal	Pin nb.	Signal	Pin nb.
GND	3	Transistor output	6
Digital input DI1	4	+12 Vdc output	7
Digital input DI2	5	+3.3 Vdc output	8

Digital input wiring example:

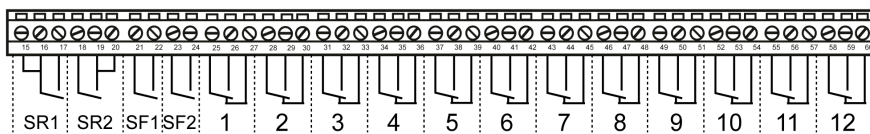


Terminal block for RS232/RS485



Signal	Pin nb.	Signal	Pin nb.
RS232	RX	+12 Vdc	12
	TX	A-	13
GND	11	A+	14

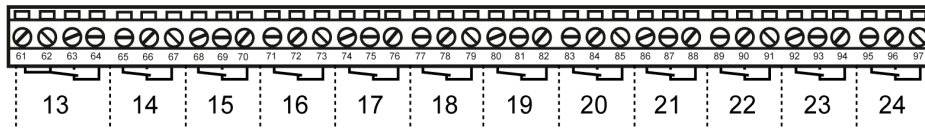
Terminal block for relays



Signal		Pin nb.	Signal		Pin nb.
Stop relay SR1	Common	15	Relay R5	Common	37
	Common	16		Output (NO type)	38
	Output (NO type)	17		Output (NC type)	39
Stop relay SR2	Common	18	Relay R6	Common	40
	Common	19		Output (NO type)	41
	Output (NO type)	20		Output (NC type)	42
Safety function relay SF1	Common	21	Relay R7	Common	43
	Output (NO type)	22		Output (NO type)	44
Safety function relay SF2	Common	23		Relay R8	Output (NC type)
	Output (NO type)	24	Common		46
Relay R1	Common	25	Relay R9		Output (NO type)
	Output (NO type)	26		Output (NC type)	48
	Output (NC type)	27		Common	49
Relay R2	Common	28	Relay R10	Output (NO type)	50
	Output (NO type)	29		Output (NC type)	51
	Output (NC type)	30		Common	52
Relay R3	Common	31	Relay R11	Output (NO type)	53
	Output (NO type)	32		Output (NC type)	54
	Output (NC type)	33		Common	55
Relay R4	Common	34	Relay R12	Output (NO type)	56
	Output (NO type)	35		Output (NC type)	57
	Output (NC type)	36		Common	58
				Output (NO type)	59
				Output (NC type)	60

ZARBB28W Relay Expansion Board Installation Wiring

Terminal blocks for relays

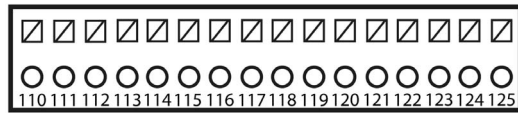


	Signal	Pin nb.		Signal	Pin nb.
Relay R13	Common	61	Relay R19	Common	80
	Common	62		Output (NO type)	81
	Output (NO type)	63		Output (NC type)	82
	Output (NC type)	64		Relay R20	Common
Relay R14	Common	65	Output (NO type)		84
	Output (NO type)	66	Output (NC type)		85
	Output (NC type)	67	Relay R21	Common	86
Relay R15	Common	68		Output (NO type)	87
	Output (NO type)	69		Output (NC type)	88
	Output (NC type)	70	Relay R22	Common	89
Relay R16	Common	71		Output (NO type)	90
	Output (NO type)	72		Output (NC type)	91
	Output (NC type)	73	Relay R23	Common	92
Relay R17	Common	74		Output (NO type)	93
	Output (NO type)	75		Output (NC type)	94
	Output (NC type)	76	Relay R24	Common	95
Relay R18	Common	77		Output (NO type)	96
	Output (NO type)	78		Output (NC type)	97
	Output (NC type)	79			

	Signal	Pin nb.		Signal	Pin nb.
Relay R25	Common	98	Relay R26	Common	101
	Output (NO type)	99		Output (NO type)	102
	Output (NC type)	100		Output (NC type)	103

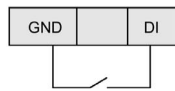
	Signal	Pin nb.		Signal	Pin nb.
Relay R27	Common	104	Relay R28	Common	107
	Output (NO type)	105		Output (NO type)	108
	Output (NC type)	106		Output (NC type)	109

Terminal block for digital inputs



Signal	Pin nb.	Signal	Pin nb.
GND	110	Digital input DI9	118
GND	111	Digital input DI10	119
Digital input DI3	112	+3.3 Vdc output	120
Digital input DI4	113	GND	121
Digital input DI5	114	GND	122
Digital input DI6	115	GND	123
Digital input DI7	116	GND	124
Digital input DI8	117	GND	125


Digital input wiring example:




Wiring Best Practices

Overview

This section describes the wiring guidelines and associated best practices to be respected when using the system.


 DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH
<ul style="list-style-type: none">• Disconnect all power from all equipment including connected devices prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires except under the specific conditions specified in the appropriate hardware guide for this equipment.• Always use a properly rated voltage sensing device to confirm that the power is off where and when indicated.• Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the unit.• 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
LOSS OF CONTROL
<ul style="list-style-type: none">• The designer of any control wiring diagram must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure.• Separate or redundant control paths must be provided for critical control functions.• System control paths may include communication links. Consider the implication of unanticipated transmission delays or failures of the link.• Observe all accident prevention regulations and local safety guidelines.• Each implementation of this equipment must be individually and thoroughly tested for proper operation before being placed into service.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Wiring Guidelines

The following rules must be applied when wiring the system:

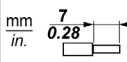








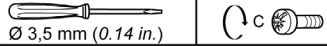
- I/O wiring must be kept separate from the power wiring. Route these 2 types of wiring in separate cable ducting.
- Verify that the operating conditions and environment are within the specification values.
- Use proper wire sizes to meet voltage and current requirements.
- Use copper conductors (highly recommended).
- Use twisted pair, shielded cables.

 WARNING
UNINTENDED EQUIPMENT OPERATION
<ul style="list-style-type: none">• Use shielded cables wherever specified for inputs and outputs connections.• Properly ground the cable shields as indicated in the related documentation.• Route I/O cables separately from power cables.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

 WARNING
UNINTENDED EQUIPMENT OPERATION
Power line must be wired and protected with fuse or thermal magnetic switch (ex: Schneider Electric GV2) in compliance with local and national regulatory requirements for the rated current and voltage of the particular equipment.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Rules for Screw Terminal Block

The following tables show the cable types and wire sizes for a 5.08 mm (0.19 in) pitch screw terminal block:

								
mm ²	0.2...2.5	0.2...2.5	0.25...2.5	0.25...2.5	2 x 0.2...1	2 x 0.2...1.5	2 x 0.25...1	2 x 0.5...1.5
AWG	24...14	24...14	23...14	23...14	2 x 24...17	2 x 24...16	2 x 23...17	2 x 20...16
	N•m		0.5...0.6					
	lb-in		4.42...5.31					

The use of copper conductors is required.

The use of cable ends is required.

⚠ DANGER

FIRE HAZARD
 Use only the recommended wire sizes for I/O channels and power supplies.
Failure to follow these instructions will result in death or serious injury.

NOTICE

INOPERABLE EQUIPMENT
 Do not tighten screw terminals beyond the specified maximum torque (Nm / lb-in.).
Failure to follow these instructions can result in equipment damage.

Chapter 4

Using The Wireless Remote Control System

What Is in This Chapter?

This chapter contains the following sections:

Section	Topic	Page
4.1	Overview	50
4.2	Functional Description	55
4.3	Configuration	64
4.4	Transmitter Battery Information	78

Section 4.1

Overview

What Is in This Section?

This section contains the following topics:

Topic	Page
Register and Pairing/Unpairing	51
Joystick Directions	52
Operating Mode	53

Register and Pairing/Unpairing

Overview

This part describes how to make the system (transmitter + receiver) operational:

- The transmitter must be registered in the receiver.
- The transmitter must be paired with the receiver.

Register

Registering means storing the replace ID of the transmitter in the receiver.

More than one transmitter can be registered in the receiver, but only one transmitter can be paired at a time. This functionality ables you to command 1 receiver with several transmitters alternatively.

Pairing/Unpairing

Pairing means establishing communication between the transmitter and the receiver.

To be paired, the transmitter must be registered to the receiver first.

Only one transmitter can be paired to a receiver at a time.

If a transmitter is paired with the receiver, you must unpair it before pairing a new one.

If no transmitter is paired with the receiver, a registered transmitter automatically pairs when you start it.

The transmitter stays paired until you unpair it.

To unpair a transmitter, you can:

- Quick unpairs the transmitter (*see page 60*)
- Unpair the transmitter via the menu (*see page 72*)
- Unpair the transmitter in the receiver (*see page 60*)
- Erase all the transmitters from the receiver (*see page 61*)

NOTE: When a transmitter is powered-off, it stays paired with the receiver.

Joystick Directions

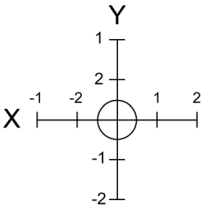
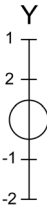
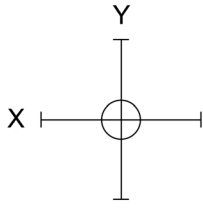

Joystick Directions

The ZARTJ*** transmitters have two 2-axis with spring-to-center joysticks. Depending on the model, the joysticks allow for a 2 or 4 graduated steps or step-less control.

Joystick	ZARTJ2S3	ZARTJ2S4	ZARTJ4S3	ZARTJ4S4	ZARTJA3	ZARTJA4
Left Joystick (XY)	2x2	2x2	4x4	4x4	Analog XY	Analog XY
Right Joystick (XY)	0x2	2x2	0x4	4x4	Analog Y	Analog XY

Code (XY)	Movement control on X	Movement control on Y
0x2	-	2-step
2x2	2-step	2-step
2x0	2-step	-
4x4	4-step	4-step
4x0	4-step	-
Analog XY	step-less	step-less
Analog Y	-	step-less

Example:

XY = 2x2	XY= 0x2	Analog XY	Analog Y
The joystick operates on both X and Y axes, with 2 steps right and left, up and down from the center.	The joystick operates on the Y axis only, with 2 steps up and down from the center.	The joystick operates on both X and Y axes with step-less movement.	The joystick operates on the Y axis only with step-less movement from center and back.
			

Operating Mode

Overview

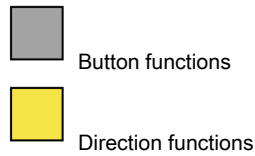
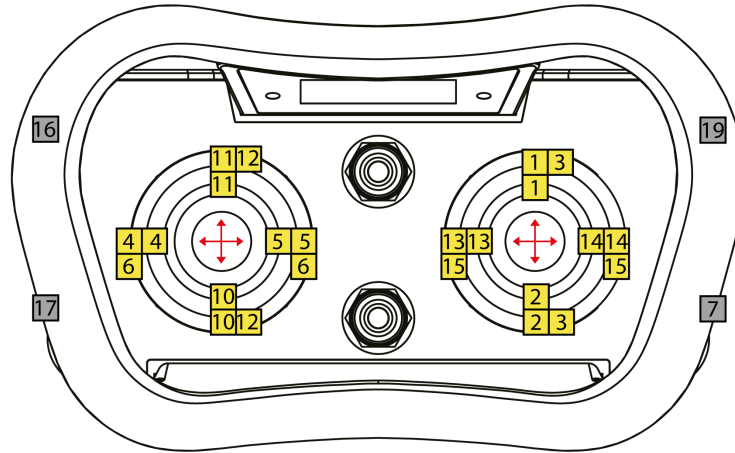
The operating mode of your system depends on the transmitter and the receiver used.

3 operating modes are described:

- ZARBB17W + ZARTJ2S4 (see page 53)
- ZARTJ4S4 + ZARBB28W (see page 53)
- ZARTJA4 + ZARBB7A11W (see page 54)

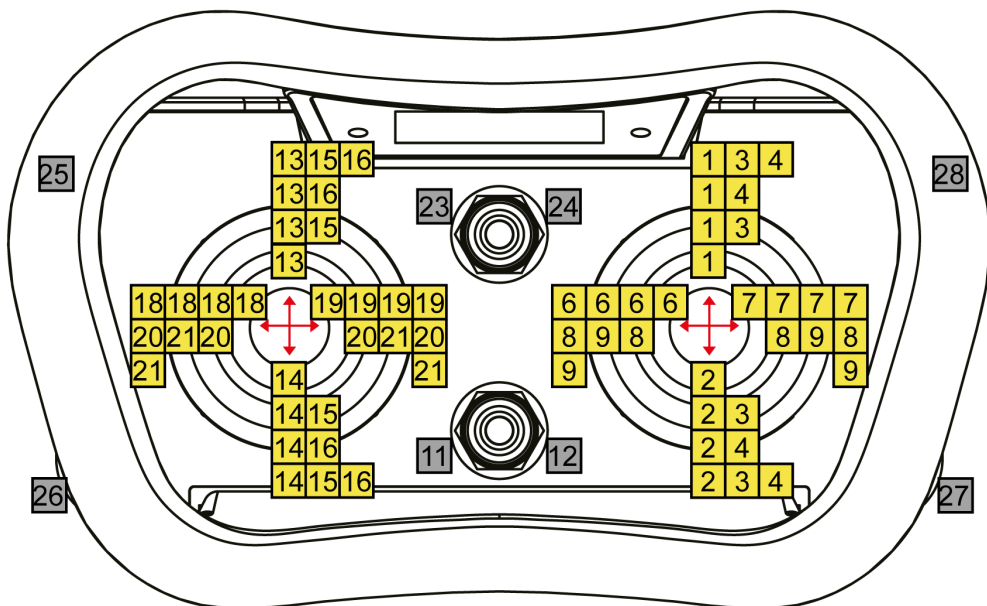
For more details on operating mode of other combinations, contact your representative for assistance.


Operating Mode of ZARBB17W + ZARTJ2S4



For more details, contact your representative for assistance.

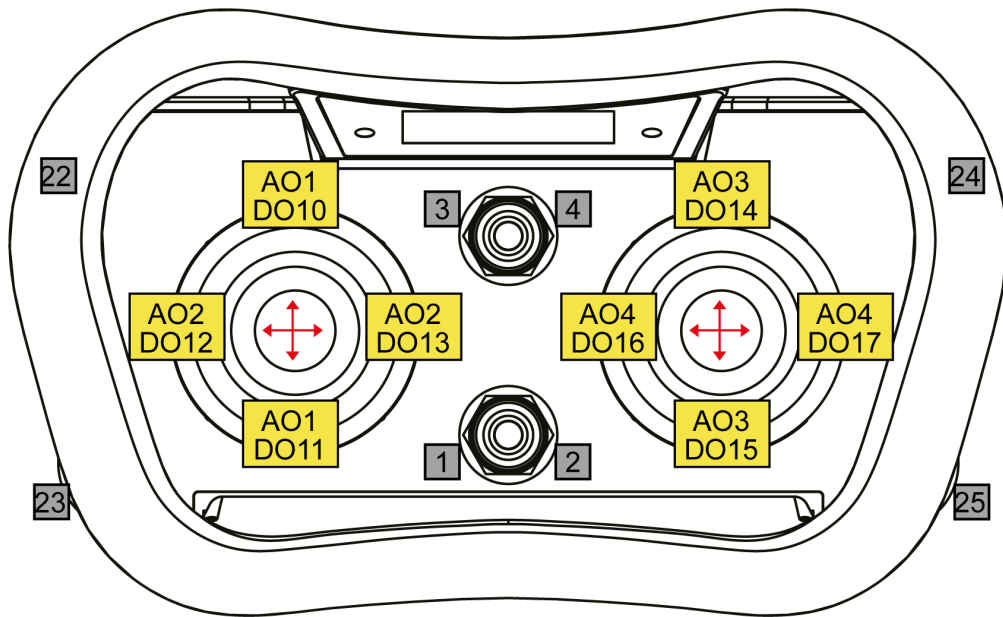
Operating Mode of ZARTJ4S4 + ZARBB28W





 Direction functions

Transistor output (buzzer)	Transistor output activates together with relay 27
Programmable relay functions	All relays can be set to latching
Interlocking	Interlocking between positive and negative side of each joystick axis
Zero position check	Active for all functions

Operating Mode of ZARTJA4 + ZARBB7A11W



 Button functions

 Direction functions

For more details, contact your representative for assistance.

Section 4.2

Functional Description

What Is in This Section?

This section contains the following topics:

Topic	Page
Register the Transmitter in the Receiver	56
Start the Transmitter	58
Switch the Transmitter Off	59
Unpairing	60
Replace a Transmitter	61
Erase All Transmitters from the Receiver	61
Master Reset of the Receiver	62

Register the Transmitter in the Receiver

Overview

The transmitter can have up to 15 registered receivers (location 1...15).
 The registration instructions require access to the receiver circuit board.

⚡ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

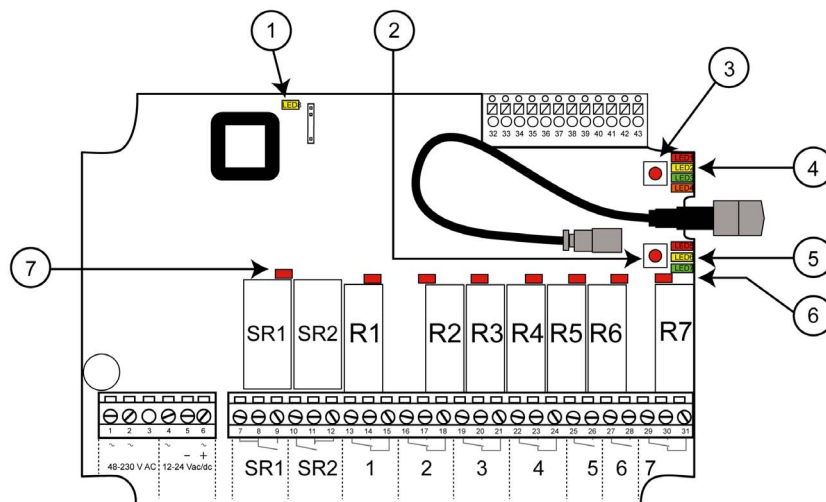
Make sure that the power supply is switched off before opening the receiver.

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

Before starting the registration of a transmitter, prepare the receiver as follows:

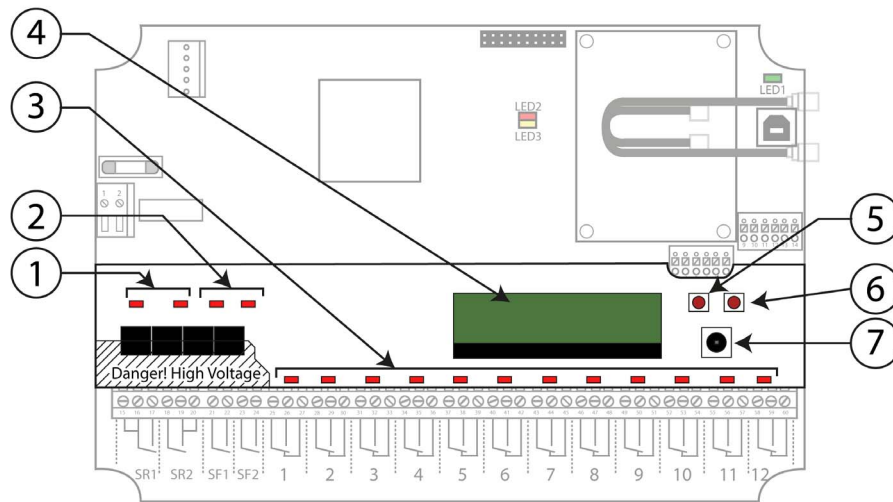
Step	Action	Comment
1	Remove the front cover of the receiver. Use a screwdriver to remove the screws.	-
2	Power the receiver up.	The yellow LED lights.
3	Proceed with the registration procedure for the corresponding receiver.	-

ZARBB17W / ZARBB7A11W



- 1 Power LED
- 2 Select button
- 3 Function button
- 4 / 5 Function LEDs
- 6 / 7 Relay LEDs

ZARBB28W



- 1 LED indicators for stop relays SR1...SR2 (red)
- 2 LED indicators for Safety function relays SF1...SF2 (red)
- 3 LED indicators for function relays R1...12 (red)
- 4 Display
- 5 Left push button
- 6 Right push button
- 7 Mini joystick

Register the Transmitter in the Receiver

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Only keep the transmitters that you intend to use registered in the receivers.

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

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted.

On the transmitter:

Step	Action	Comment
1	Make sure that the transmitter stop button is pressed.	-
2	Pull out the stop button.	LEDs 1 + 2 light.
3	Press side button 3. Keep pressed.	-
4	Press the stop button.	-
5	Release side button 3.	Use the joystick to move up and down the menu options.
6	Navigate to [Register]. Press side button 4 to enter the menu.	-
7	Select an empty location. Press side button 4 to confirm.	The display shows [Register][No].
8	Use the left joystick to select [Yes]. Press side button 4 to confirm.	The display shows [Registering].

On the ZARBB17W / ZARBB7A11W receivers:

Step	Action	Comment
1	Press the top button (Function button).	Function LED 1 flashes (red). Red lit relay LEDs 1...7 show the number of transmitters already registered in the receiver. Example: LED1 = 1 registered TX, LED2 = 2 registered TX, and so on).
2	Press the bottom button (Select button).	All relay LEDs light red. The receiver remains in registration mode for 1 minute. Once the receiver has found the transmitter, all the receiver relay LEDs flash. The transmitter's display shows [Confirm on RX].
3	Press the bottom button (Select button) again. Keep pressed.	Function LEDs 1...7 flash 3 times (multicolor). All relay LEDs go off. All function LEDs light for approximately 1 second. The transmitter is now registered in the receiver. The transmitter's display shows [REGISTRATION OK]. The transmitter switches off.

On the ZARB28W receiver:

Step	Action	Comment
1	Use the mini joystick to select [Register TX] in the receiver display menu. Press to confirm.	-
2	Use the mini joystick to select [Register TX] in the receiver display menu. Press to confirm.	The receiver remains in registration mode until a transmitter has been registered or for up to 1 minute. Once the receiver has found the transmitter, the display shows [Confirm TX][TXID:]. The transmitter's display shows [Confirm on RX].
3	Press the mini joystick to accept.	The receiver's display shows [OK]. The transmitter is now registered in the receiver. The transmitter's display shows [REGISTRATION OK]. The transmitter switches off.

If not successfully completed, the top LED lights red, the display shows [FAILED] and the buzzer emits a beep. The transmitter switches off.

Start the Transmitter

Start the Transmitter

When starting the transmitter, it automatically pairs with receivers if:

- The transmitter is paired to receiver
- No other transmitter is already paired to receiver

If the transmitter was not unpaired after the last session, it remains paired when starting a new session.

NOTE: To be able to control a receiver with the transmitter, the transmitter must be registered in the receiver. If no receiver is registered, the display will show [No receivers] [Press Menu + Stop] after the stop button has been pulled out.

Steps to start the transmitter:

Step	Action	Comment
1	Make sure that the stop button is pressed.	-
2	Pull out the stop button.	LEDs 1 + 2 light. The receiver(s) selected in the last session are indicated by the corresponding highlighted number. The display shows [Push start buttons]. <ul style="list-style-type: none"> • Go to step 4 to pair to the previously selected receiver. • Go to step 3 to select another receiver. If no receiver is selected, LEDs 1 + 2 go out and the display shows [Select receiver(s)].

Step	Action	Comment
3	Select a receiver. Move the left joystick right/left to step between the registered receivers. Move down to select the receiver(s) to operate (move up to deselect).	Once a receiver has been selected, LEDs 1 + 2 light and the display shows [Push start buttons].
4	Press both side buttons 3 and 4 at the same time.	The buzzer beeps. LEDs 1 + 2 flash.
5	Release the start buttons.	The buzzer stops beeping. LEDs 1 + 2 go out. The display briefly shows [Logging in]. Once the radio link has been established, the stop relays activate.

If not successfully completed, the display shows [LOGIN FAILED][ANOTHER TX IS LOGGED IN].

If no radio link is established within 25 seconds, the transmitter switches off.

Start the transmitter with PIN code

Step	Action	Comment
1	Make sure that the stop button is pressed.	-
2	Pull out the stop button.	LEDs 1 + 2 light.
3	Enter the PIN code. Move the left joystick right/ left to select a digit and up/ down to select the desired number (0...9).	-
4	Move the left joystick to the left or press side button 4 to confirm.	The receiver(s) selected in the last session are indicated by the corresponding highlighted number. The display shows [Push start buttons]. <ul style="list-style-type: none"> Go to step 6 to pair to the previously selected receiver. Go to step 5 to select another receiver. If no receiver is selected, LEDs 1 + 2 go out and the display shows [Select receiver(s)].
5	Select a receiver. Move the left joystick right/left to step between the registered receivers. Move down to select the receiver(s) to operate (move up to deselect).	Once a receiver has been selected, LEDs 1 + 2 light and the display shows [Push start buttons].
6	Press both side buttons 3 and 4 at the same time.	The buzzer beeps. LEDs 1 + 2 flash.
7	Release the start buttons.	The buzzer stops beeping. LEDs 1 + 2 go out. The display briefly shows [Logging in]. Once the radio link has been established, the stop relays activate.

If no radio link is established within 25 seconds, the transmitter switches off.

Switch the Transmitter Off

Switch the Transmitter Off

Step	Action	Comment
1	Press the stop button.	The display shows [Stopping]. The transmitter switches off. All relays deactivate.

NOTE: When the transmitter is switched off, it remains paired to receivers. For more details on how to unpair, refer to the section Unpairing ([see page 72](#)).

Unpairing

Overview

Unpairing means stopping the communication between the transmitter and the receiver. For more details, refer to the section Pairing/Unpairing (*see page 51*).

A transmitter already paired in to the receiver has to be unpaired before any other transmitter can be paired.

NOTE: If a transmitter has been lost or seriously damaged, use the replace procedure whenever possible. Unpairing a transmitter directly from the receiver is possible, however this is not recommended. Contact your representative for assistance.

NOTE: Unpairing can only be performed when the transmitter is on and a radio link with one or more receivers has established. The receiver must be powered-up for the unpairing procedure to be successful.

Quick Unpairing

NOTE: Quick Unpairing can only be performed when the transmitter is on and the radio link is up. The Quick Unpairing procedure unpairs the transmitter from all receivers that are part of the radio session.

Steps to proceed a Quick Unpairing:

Step	Action	Comment
1	Press side button 4. Keep pressed.	-
2	Press the stop button.	-
3	Release side button 4.	LEDs 1 + 2 flash. The display shows [Logging out]. The transmitter takes approximately 3 seconds to unpair. When successfully completed, the display shows [Logout OK]. The transmitter switches off.

Unpairing from Receiver ZARBB17W / ZARBB7A11W

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

Function LED 1 (red) and 2 (yellow) are lit (one or more transmitters are registered in the receiver and one transmitter is paired).

Steps to unpair from receiver:

Step	Action	Comment
1	Press the Select (bottom) button for 5 s.	Function LED 2 flashes fast (yellow).
2	Release the Select (bottom) button.	Function LED 2 goes off. All function LEDs light briefly. The paired transmitter has been unpaired. The receiver returns to normal operation.

This Unpairing function is used when a lost or damaged transmitter must be unpaired from the receiver.

Unpairing from Receiver ZARBB28W

Ensure that the stop relays are deactivated before proceeding with the following instructions; LEDs 1–2 must be Off.

Steps to unpair from receiver:

Step	Action	Comment
1	Use the mini joystick to select [Logout TX]. Press to confirm.	-
2	Use the mini joystick to select [Yes]. Press to confirm.	The display returns to the menu list. The transmitter has been unpaired.

This Unpairing function is used when a lost or damaged transmitter must be unpaired from the receiver.

Replace a Transmitter


Replace a Transmitter

A registered transmitter can be replaced by another transmitter without need to have access to the receiver, but the receiver needs to be powered up and within transmission range.

Use the new transmitter that replaces the old one to perform the following instruction.

If the transmitter being replaced is registered in more than one receiver, it will only be replaced in one receiver at a time. To replace a transmitter in more than one receiver, the replacement procedure must be completed for each receiver.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted.

 WARNING	
UNINTENDED EQUIPMENT OPERATION	
Before replacing a damaged or missing transmitter with a new one, you must verify that the transmitter used as replacement is not registered in any other receiver. If necessary, erase the transmitter from other receivers before performing the replacement procedure.	
Failure to follow these instructions can result in death, serious injury, or equipment damage.	

Steps to replace a transmitter:

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu options.
2	Navigate to [Replace]. Press side button 4 to enter the menu.	-
3	Enter the serial number (SN) for the transmitter to be replaced Move the left joystick right/ left to select a digit and up/ down to select the desired number (0...9).	-
4	Press side button 4 to confirm.	The display shows [Replace][No].
5	Use the left joystick to select [Yes]. Press side button 4 to confirm.	The display shows [Replacing] while the process is ongoing. LED 1+ 2 flash. When successfully completed, the display shows [Replace OK]. The transmitter switches off.

If not successfully completed, the display shows [FAILED] and the buzzer emits a beep. The transmitter switches off.

NOTE: The serial number is printed on the product label located in the battery compartment (*see page 19*).

Erase All Transmitters from the Receiver

Erase All Transmitters from the Receiver

An erased transmitter cannot be paired to the receiver until it has been registered in the receiver again.

If a transmitter has been lost or seriously damaged, use the replace procedure on the transmitter whenever possible. It is possible to erase a transmitter directly from the receiver, however this is not recommended.

The following instructions erase all registered transmitters from the receiver. Use the erase procedure on each transmitter that have the receiver registered in.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted.

ZARBB17W / ZARBB7A11W

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

Function LED 1 should be lit (one or more transmitters are registered in the receiver).

Steps to erase all transmitters from the ZARBB17W / ZARBB7A11W receivers:

Step	Action	Comment
1	Press the Function (top) button 1 time.	Function LED 1 flashes fast (red). Relay LEDs 1–7 light to indicate the location number of the registered transmitters.
2	Press and hold the Select (bottom) button for 10 s or until all function LEDs light briefly.	Function LED 1 flashes slow (red). Relay LEDs 1–7 light (red).
3	Release the Select (bottom) button	Relay LEDs 1–7 go off. All function LEDs light briefly. All the registered transmitters have been erased from the receiver. The receiver returns to normal operation.

ZARBB28W

Ensure that the stop relays are deactivated before proceeding with the following instructions; LEDs 1–2 must be Off.

Steps to erase all transmitters from the ZARBB28W receiver:

Step	Action	Comment
1	Enter the Service menu <i>(see page 65)</i>	-
2	Use the mini joystick to select [Erase all TX]. Press to confirm.	-
3	Use the mini joystick to select [Yes]. Press to confirm.	The display returns to the menu list. All the registered transmitters have been erased from the receiver.

ZARTJ...

This procedure erases the transmitter from the selected receiver and conversely.

Step	Action	Comment
1	Enter menu mode <i>(see page 68)</i> .	The top LED flashes. Use the left joystick to move up and down the menu option.
2	Navigate to [Erase]. Press side button 4 to enter the menu.	-
3	Select the receiver to be erased.	-
4	Press side button 4 to confirm.	The display shows [Erase][No].
5	Use the left joystick to select [Yes]. Press side button 4 to confirm.	The display shows [Erasing] while the process is ongoing. When successfully completed, the display shows [Erase OK], the top LED stops flashing and remains lit. The transmitter switches off.

If not successfully completed, the top LED lights red, the display shows [FAILED] and the buzzer emits a beep. The transmitter switches off.

Master Reset of the Receiver

Master Reset of the Receiver

This procedure erases all settings and all relay mapping from the receiver. This is not recommended if the receiver's TRS files are missing or when there is no programming possibilities. This function can be activated/deactivated in the configuration software.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted.

ZARBB17W / ZARBB7A11W

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

Steps to erase all settings and all relay mapping from the ZARBB17W / ZARBB7A11W receivers:

Step	Action	Comment
1	Press and hold both the Select (bottom) and the Function (top) button for approx. 20 s or until the function LEDs go off.	Function LEDs go off
2	Release both buttons.	All function LEDs light. All relay LEDs flash fast.
3	Press the Select (bottom) button.	All function LEDs and relay LEDs go off. All function LEDs light briefly. The receiver has been reset. The receiver returns to normal operation.

Section 4.3 Configuration

What Is in This Section?

This section contains the following topics:

Topic	Page
Configuration Menus	65
Momentary or Latching Relay Functions	66
Menu Mode	68
Switch Radio Frequency Channel	70
Automatic Shutdown	71
Unpairing	72
User Permissions	73
Load at Startup	76
Load Select Mode	77

Configuration Menus

Configuration Menus on ZARBB28W

Menu	Submenu	Description
[Session]	[Register TX]	Register a transmitter in the receiver
	[Logout TX]	Unpair the receiver from a transmitter
	[Show TX]	Show the registered transmitters
[System]	[Show SW]	Display the software version
	[Show ID code]	Display the receiver's ID number
[Relay]	[Operating mode]	Not in use
	[Latching]	Set the relays functionality
	[Start Phase]	-
[Service]	[Packet counter]	Show information about the packet
	[Show freq. scan]	Show information about frequency
	[Debug Radio]	Debug mode for R&D purpose only
	[Test Mode]	Test mode for R&D purpose only
	[Change RF]	Select RF chip (1 or 2). 1 is the default chip.
	[Change Channel]	Select channel
	[1] CW Mode]	Enable CW (Yes/No)
	[2] RX mode]	Enable RX (Yes/No)
	[3] Preamble Mode]	Enable Preamble (Yes/No)
	[4] PN9 mode]	Enable PN9 (Yes/No)
	[5] Send data]	Enable Send Data (Yes/No)
	[6] BER Mode]	Enable BER (Yes/No)
	[Show AFC]	Show the automatic frequency correction
	[Show RSSI]	Show the received signal strength indicator
	[Displ. Contrast]	Set the contrast (1..62). 0 is the factory setting.
	[Erase all TX]	Erase all the registered transmitters from the receiver
[Factory default]	Restore factory settings ⁽¹⁾	
(1) Performing a "factory reset" returns the settings to the factory defaults: all customized settings, button, and relay mappings are lost.		

Enter Service Menu

Steps to enter Service menu

Step	Action	Comment
1	Move the mini joystick to the right until the last menu is reached ([Relay] menu).	-
2	Press the left push button.	-
3	Press the right push button.	-
4	Move the mini joystick to the right.	The service mode is displayed.

Momentary or Latching Relay Functions

Overview

Relays of the receiver can be set in to functionality types:

- **Momentary relay functionality:** The relay remains active while a button on the transmitter is pressed. When the button is released the relay deactivates.
- **Latching relay functionality:** The relay becomes active when a button on the transmitter is pressed. The relay remains active until the button is pressed again.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted.


NOTE: The relay functionality settings depend on the selected Operating mode. Relay functionality can only be changed for relays assigned to a button function. Relays assigned to direction function are not available for functionality changes.

Momentary or Latching Relay Functions ZARBB17W / ZARBB7A11W

The receiver is set to momentary relay functionality by default.

Select momentary or latching relay functionality

NOTE: If Operating mode 0 has been selected, the relay functionality settings are not available. Contact your representative for assistance.

 WARNING
<p>UNINTENDED EQUIPMENT OPERATION</p> <p>Before changing these settings, make sure that the stop relays are deactivated; LED SR/ LED 9 must be Off.</p> <p>Failure to follow these instructions can result in death, serious injury, or equipment damage.</p>

Steps to set latching or momentary functionality:

Step	Action	Comment
1	Press the Function (top) button 5 times.	Function LED 5 flashes (red). Relay LEDs 1–19 indicate if the corresponding relay has a momentary or latching functionality: <ul style="list-style-type: none"> ● Relay On = Latching relay ● Relay Off = Momentary relay
2	Press the Select (bottom) button to enter the setting mode.	Function LED 5 goes off. The relay LED for the first available relay flashes. If the relay is momentary, Function LED 5 remains off. If the relay is latching, Function LED 5 lights (red).
3	Press the Function (bottom) button to switch functionality.	Function LED 5 changes status.
4	Press the Select (top) button to confirm and move to the next available relay.	-
5	Repeat step 3–4 for all available relays.	After the last change, all function LEDs light briefly. The receiver exits the setting mode and returns to normal operation.

Momentary or Latching Relay Functions ZARBB28W

WARNING

UNINTENDED EQUIPMENT OPERATION

Before changing these settings, make sure that the stop relays are deactivated; LEDs 1–2 must be Off.

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

Steps to set latching or momentary functionality:

Step	Action	Comment
1	Use the mini joystick to select [Relay]. Press to confirm.	The display shows the setting for the first relay: <ul style="list-style-type: none"> ● [M] = momentary, ● [L] = latching.
2	Press the mini joystick to change the setting.	The change is indicated by square bracket around the setting. When the brackets disappear, the setting has been saved.
3	Use the mini joystick to move down to the next available relay.	-
4	Repeat step 2–3 for all available relays.	After making the last change, either use the mini joystick to go back to the menu list or wait until the receiver automatically returns to the start screen.

Menu Mode

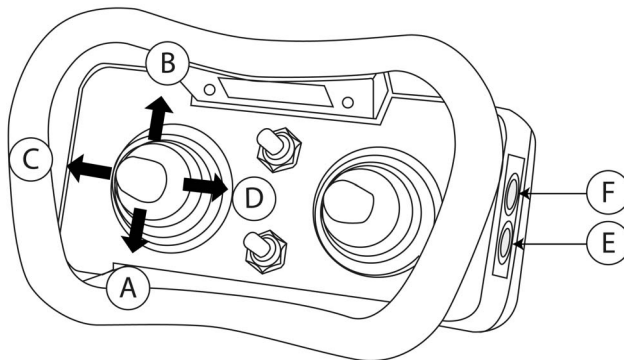
Overview

The transmitter settings are configured in the menu mode.

Enter Menu Mode

Steps to enter menu mode:

Step	Action	Comment
1	Make sure that the stop button is pressed.	-
2	Pull out the stop button.	LEDs 1 + 2 light.
3	Press side button 3. Keep pressed.	-
4	Press the stop button.	-
5	Release side button 3.	-
6	Select a menu by using the left joystick and the buttons according to the following illustration.	-



- A Step down
- B Step up
- C Step left/ Go back
- D Step right
- E Select/Confirm
- F Exit (also called side button 3 in this document)

Exit Menu Mode

At any time, press side button 3 to exit menu mode. The transmitter switches off.

Menu Overview

Once in menu mode, you have access to the following configuration menus:

Menus	Description
[Channel]	Select the channel/bank to use
[Register]	Register the transmitter in a receiver
[Logout]	Unpair the transmitter from a receiver
[Erase]	Erase the transmitter from a receiver
[Replace]	Replace a lost or damaged transmitter
[Show receivers]	Show the registered receivers
[Auto shutdown]	Enable/Disable the auto-shutdown option
[Load selection]	Select a load option (0...7)
[Load at startup]	Select the default load at startup (A...H)
<p>(1) For more information about Permission on RX/ RFID, contact your representative. (2) The test modes are intended for showing axis and switches values and are mainly R&D tools. Contact your representative for assistance.</p>	

Menus	Description
[Startup protect.]	Enable/disable PIN code(s)/RFID for starting the transmitter
[Stored PIN]	Only PIN codes registered in the transmitter are accepted
[Any PIN]	Any PIN code is accepted
[Any keyring]] ⁽¹⁾	Any Schneider Electric keyring tag is accepted
[Any wall tag] ⁽¹⁾	Any Schneider Electric wall tag is accepted
[Stored RFID] ⁽¹⁾	Only stored RFID keyring tags or wall tags are accepted
[Allow skip]	Allows to skip start-up authorization
[Settings protect.]	Enable/disable PIN code(s) for accessing the menu mode
[No protection]	Permit access to menu mode at all times
[Disable menu]	Disable menu mode completely
[Use menu PIN]	Only PIN codes registered in the transmitter are accepted
[PIN]	Manage the transmitter PIN codes
[Show PIN]	Display the list of saved PIN codes
[Enter PIN]	Add new PIN code(s) in the list
[Erase PIN]	Delete a PIN code from the list
[Permission on RX] ⁽¹⁾	Manage PIN codes/RFID on the receiver
[Add RFID/PIN]	Add a PIN code/RFID tag in the list
[Erase one]	Erase a PIN code/RFID tag from the list
[Erase all]	Erase all PIN codes/RFID tags from the list
[Utilities] ⁽²⁾	Test modes for R&D purpose only
[Show SW version]	Display the software version
<p>(1) For more information about Permission on RX/ RFID, contact your representative.</p> <p>(2) The test modes are intended for showing axis and switches values and are mainly R&D tools. Contact your representative for assistance.</p>	

Switch Radio Frequency Channel

Switch Radio Frequency Channel

Steps to switch the radio frequency channel:

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu options.
2	Navigate to [Channel] or [Bank]. Press side button 4 to enter the menu.	-
3	Select a channel in the list.	-
4	Press side button 4 to confirm.	The display shows [Channel][No].
5	Use the left joystick to select [Yes]. Press side button 4 to confirm.	When successfully completed, the transmitter returns to the menu list.

NOTE: The radio frequency channel is displayed on the transmitter display (*see page 17*).

Automatic Shutdown

Automatic Shutdown

You can set the automatic shutdown time that automatically switches off the transmitter following a period of inactivity.

This functionality can save battery capacity.

Setting the Automatic Shutdown Time

Steps to set the automatic shutdown time:

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu options.
2	Navigate to [Auto Shutdown]. Press side button 4 to enter the menu.	-
3	Select the automatic shutdown time, 0...255 minutes. Move the left joystick right/ left to select a digit and up/ down to select the desired number (0...9).	To deactivate the automatic shutdown, select 0.
4	Press side button 4 to confirm.	-
5	Use the left joystick to select [Yes]. Press side button 4 to confirm.	When successfully completed, the transmitter returns to the menu mode.

Unpairing

Unpairing from Menu Mode

Steps to unpair from menu mode:

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	-
2	Navigate to [Logout]. Press side button 4 to enter the menu.	-
3	Press side button 4 to confirm. Use the left joystick to select [Yes]. Press side button 4 to confirm.	The display shows [Logging out]. When successfully completed, the display shows [Logout OK]. The transmitter switches off.

NOTE: This Unpairing function is used when the Quick Unpairing button is being used by another function. If not successfully completed, the display shows [FAILED]. The transmitter switches off.

User Permissions

Overview

'Setting protection' or 'Start up protection' can be activated to prevent unauthorized personnel from accessing the configuration menus and/or from starting the transmitter.

Settings Protection

Enable a PIN code or disable the menu to restrict access to the configuration menus (menu mode).

Protection option	Description
[No protection]	Permit access to menu mode at all times.
[Disable menu]	Disable menu mode completely.
[Use menu PIN]	Permit access to menu mode when the correct PIN code has been entered.

If the 'menu PIN code' option is enabled, the transmitter requires a PIN code for accessing the menu mode each time the transmitter is restarted.

NOTE: The menu PIN code is set by default to 1234.

If the 'disable menu' option is enabled, the menu mode will no longer be available after turning off the transmitter. Contact your representative for assistance.

Steps to set the access right:

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu options.
2	Navigate to [Settings Protect.]. Press side button 4 to enter the menu.	-
3	Select a menu mode protection according to the table above.	-
4	Press side button 4 to confirm.	The display shows either: <ul style="list-style-type: none"> • [No protection][No], • [Disable menu][No], • or [Use menu PIN][No].
5	Use the left joystick to select [Yes]. Press side button 4 to confirm.	The transmitter returns to the settings protection list.
6	Move the left joystick to the left to return to the menu list or press side button 3 to exit menu mode.	-

Start Up Protection

RFID tags and PIN codes can be activated to prevent unauthorized personnel from operating the transmitter.

To activate RFID functions, contact your representative for assistance. All RFID settings require assistance.

Protection option	Description
[Stored PIN]	The transmitter can only be started with registered PIN codes.
[Any PIN]	The transmitter can be started with any PIN code.
[Any keyring]	The transmitter can only be started with a Schneider Electric keyring tag.
[Any walltag]	Not available.
[Stored RFID]	The transmitter can only be started with registered RFID keyring tags or wall tags.
[Allow skip]	Skip start up authorization (no startup protection).

Once PIN code protection has been activated, the transmitter requires a PIN code each time it is restarted. The transmitter will only start after a valid PIN code has been correctly entered.

NOTE: One or more PIN codes must be created before PIN codes can be enabled.

Steps to set the startup protection:

Step	Action	Comment
1	Enter menu mode <i>(see page 68)</i> .	Use the left joystick to move up and down the menu options.
2	Navigate to [Startup Protect]. Press side button 4 to enter the menu.	-
3	Select the startup protection choices according to the table above.	-
4	Press side button 4 to confirm.	The display shows either: <ul style="list-style-type: none"> ● [Stored PIN][No], ● [Any PIN][No], ● or [Allow skip][No].
5	Use the left joystick to select [Yes]. Press side button 4 to confirm.	The transmitter returns to the start-up protection list. An x mark is displayed in the check box on the right of the corresponding protection choice.
6	Move the left joystick to the left to return to the menu list or press side button 3 to exit menu mode.	-

Create PIN Codes

If PIN codes are enabled, the transmitter requires a PIN code each time it is restarted. You can store up to 10 PIN codes in the transmitter.

NOTE: One or more PIN codes must be created before PIN codes can be enabled. '0000' is not a valid PIN code.

Steps to set a PIN code:

Step	Action	Comment
1	Enter menu mode <i>(see page 68)</i> .	Use the left joystick to move up and down the menu option.
2	Navigate to [PIN] -> [Enter PIN]. Press side button 4 to enter the menu.	-
3	Select the location in the list to store the new PIN code. Press side button 4 to confirm.	-
4	Enter the new PIN code (4 digits) by moving the left joystick.	<ul style="list-style-type: none"> ● one step up: count +1 ● one step down: count -1 ● right: step to the right ● left: step to the left
5	Press side button 4 to confirm.	The display shows [Enter PIN][No].
6	Use the left joystick to select [Yes]. Press side button 4 to confirm.	The transmitter returns to the PIN list.
7	Move the left joystick to the left to return to the menu list or press side button 3 to exit menu mode.	-

Show Registered PIN Codes

Steps to show registered PIN codes:

Step	Action	Comment
1	Enter menu mode <i>(see page 68)</i> .	Use the left joystick to move up and down the menu option.
2	Navigate to [PIN] -> [Show PIN]. Press side button 4 to enter the menu.	-
3	Move the left joystick to the left to return to the menu list or press side button 3 to exit menu mode.	-

Erase PIN Codes

Steps to erase PIN codes:

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu option.
2	Navigate to [PIN] -> [Erase PIN]. Press side button 4 to enter the menu.	-
3	Select the PIN code to be erased.	-
4	Press side button 4 to confirm.	The display shows [Erase PIN][No].
5	Use the left joystick to select [Yes]. Press side button 4 to enter the menu.	The transmitter returns to the PIN list.
6	Move the left joystick to the left to return to the menu list or press side button 3 to exit menu mode.	-

Load at Startup

Load at Startup

Up to 7 loads (A to H) can be saved in the transmitter. These loads (receivers) are then preset and will be automatically selected next time you log in.

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu option.
2	Navigate to [Load at startup]. Press side button 4 to enter the menu.	-
3	Select a load.	-
4	Press side button 4 to enter the menu.	The display shows [Load + letter][No].
5	Use the left joystick to select [Yes]. Press side button 4 confirm.	-
6	Move the left joystick to the left to return to the menu list or press side button 3 to exit menu mode.	-

For more details, refer to Load select mode (*see page 77*).

Load Select Mode

Overview

By default, a transmitter controls one receiver. You can modify the Load Select mode of the transmitter to make it able to control receivers alternatively.

Load Select Mode

There are 8 different load select modes (0...7).

Step	Action	Comment
1	Enter menu mode (<i>see page 68</i>).	Use the left joystick to move up and down the menu option.
2	Navigate to [Load Selection]. Press side button 4 to enter the menu.	-
3	Select the number corresponding to the desired Load select mode.	-
4	Press side button 4 confirm.	The display shows [Load selection][No].
5	Use the left joystick to select [Yes]. Press side button 4 confirm.	When successfully completed, the transmitter returns to menu mode.

In load select mode 0 (default), the transmitter can control only one receiver.

For more details on load select mode 1...7, contact your representative for assistance.

Section 4.4


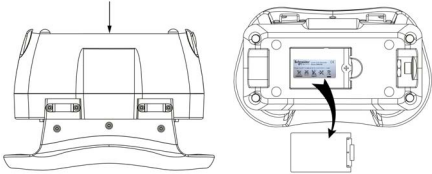
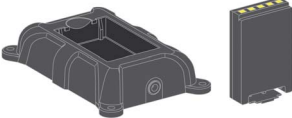
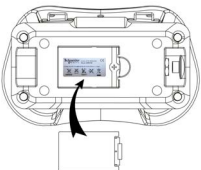
Transmitter Battery Information

Transmitter Battery Information

Battery Type

	ZARC702
Type of battery	Lithium-ion battery: replaceable, rechargeable
Operating time	Approximately 16 h with continuous usage. ⁽¹⁾
Charger	Charge in the charger device ZARC703 ⁽²⁾ 5 Vdc, 1.2 A
Charging temperature	0...+45 °C (+32...+113 °F)
(1) When the battery capacity reaches approximately 10 %, LEDs 1+2 light red. (2) Must be ordered separately.	

Charge the Battery

Step	Action	
1	When the battery capacity reaches approximately 10 %, LEDs 1 + 2 light red and the internal buzzer beeps 3 times.	
2	Remove the battery from the transmitter.	
3	Charge the external battery using the charger device ZARC703. While charging, the charger unit LED lights red.	
4	When the battery is fully charged, the LED turns green.	
5	Put the battery back into the transmitter.	

Chapter 5

Functional Safety

Functional Safety

Stop Function

The safety-related stop function in the radio system complies with IEC 61508 SIL3.

The stop relays on the receiver are controlled by the stop button on the transmitter. When the stop button is pressed, the stop relays interrupt the power to the safety-related application. The complete end-user system, including the radio system, enters a safety state. The maximum response time for the safety-related stop function is 500 ms.

The following transmitter and receivers are designed to comply with the appointed safety requirements:

Receiver: ZARBB17W, ZARBB7A11W, and ZARBB28W

Transmitter: ZARTJ•••

NOTE: Both the receiver and the transmitter used in the specific end-user system must be compliant.

Safety Function

The safety function in the radio system complies with IEC 61508 SIL3.

The safety relays on the receiver are controlled by the safety buttons on the transmitter. Both safety buttons must be pressed at the same time to activate the safety function. When the safety buttons are pressed, the safety relays interrupt the power to a dedicated safety function in the end-user system. The maximum response time for the safety function is 500 ms.

The safety function is supported by the receiver and transmitter units equipped with built-in safety relays and safety buttons respectively.

The following transmitter and receivers are designed to comply with the appointed safety requirements:

Receiver: ZARBB28W

Transmitter: ZARTJ•••

NOTE: Both the receiver and the transmitter used in the specific end-user system must be compliant.

Installation

The stop relays on the receiver must be correctly installed on the end-user system to ensure that opened/deactivated stop relays interrupt the power to the safety-related application. The safety integrity level of the stop function can only be credited when used in a complete end-user system that complies with IEC 61508 SIL3.

The safety relays on the receiver must be correctly installed on the end-user system to ensure that opened/deactivated stop relays interrupts the power to the dedicated safety function. The safety integrity level of the safety function can only be credited when used in a complete end-user system that complies with IEC 61508 SIL3.

Measures for Probability of Hardware Failures

Transmitter stop function	Value
Probability of dangerous failure per hour	PFHd = 8.5 FITs (=λdu)
Fraction of total failure rate with dangerous and detected consequence	λdd = 357 FITs
Diagnostic coverage	DC = 98.3 %
Safety failure fraction	SFF = 99.1 %
Common cause failure	0 FIT
Level of hardware fault tolerance	HFT = 1
Proof test interval	10 years
Diagnostic test interval	Continuous

Receiver stop function	Value
Probability of dangerous failure per hour	PFHd = 30.1 FITs (=λdu)
Fraction of total failure rate with dangerous and detected consequence	λdd = 685 FITs
Diagnostic coverage	DC = 96.9 %
Safety failure fraction	SFF = 98.7 %
Common cause failure	8.0 FIT
Level of hardware fault tolerance	HFT = 1
Proof test interval	10 years
Diagnostic test interval	Continuous

Transmitter safety function	Value
Probability of dangerous failure per hour	PFHd = 5.5 FITs (=λdu)
Fraction of total failure rate with dangerous and detected consequence	λdd = 255 FITs
Diagnostic coverage	DC = 98.1 %
Safety failure fraction	SFF = 99.2 %
Common cause failure	0.5 FIT
Level of hardware fault tolerance	HFT = 1
Proof test interval	10 years
Diagnostic test interval	Continuous

Receiver safety function	Value
Probability of dangerous failure per hour	PFHd = 30.1 FITs (=λdu)
Fraction of total failure rate with dangerous and detected consequence	λdd = 685 FITs
Diagnostic coverage	DC = 96.9 %
Safety failure fraction	SFF = 98.7 %
Common cause failure	8.0 FIT
Level of hardware fault tolerance	HFT = 1
Proof test interval	10 years
Diagnostic test interval	Continuous

Chapter 6

Certifications and Standards

Certifications and Standards

CE Marking

Hereby, Schneider Electric, declares that the radio equipment type(s) listed above is/ are in compliance with Directive 2014/53/EU.

The latest version of the complete EU Declaration of Conformity is available on the Schneider Electric website.

WEEE Directive

This symbol means that inoperative electrical and electronic products must not be mixed with household waste. The European Union has implemented a collection and recycling system for which producers are responsible. For proper treatment, recovery and recycling, please take this product to a designated collection point.

Schneider Electric strives to minimize the use of hazardous materials, promotes reuse and recycling, and reduces emissions to air, soil and water. When a commercially viable alternative is available, Schneider Electric strives to restrict or eliminate substances and materials that pose an environmental, health or safety risk.

Chapter 7

Diagnostic

Diagnostic

ZARBB17W / ZARBB7A11W LED Indicators for the Base Board Function Relays (LEDs 1...9)

On the expansion board, LEDs 1...9 provide feedback information about the stop relays (SR1...2) and the function relays (R1...R7) on the base board, hidden behind the expansion board.

The LEDs light when the corresponding relays on the base board are activated.

Feedback LEDs	LED	Description
LED 1	LED 1	Relay 1
LED 2	LED 2	Relay 2
LED 3	LED 3	Relay 3
LED 4	LED 4	Relay 4
LED 5	LED 5	Relay 5
LED 6	LED 6	Relay 6
LED 7	LED 7	Relay 7
LED 8	LED 8	Not used
LED 9	LED 9	Stop relays 1-2

ZARBB17W / ZARBB7A11W Fatal Error Indications and Error Code Messages

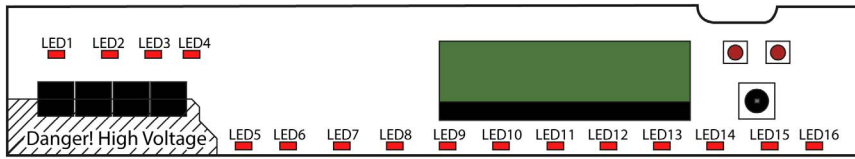
Fatal errors are indicated by function LEDs 1...7, which are all flashing at the same time. Each fatal error is identified by a code indicated by relay LEDs 1...5.

Fatal errors are indicated on the display

Relay LED1 red	Relay LED2 red	Relay LED3 red	Relay LED4 red	Relay LED5 red	Error code message	Indicates
On					Invalid PD CPU3	Invalid/ missing production data in the CPUs
	On				Wrong SW CPU4	Incompatible software in the CPUs
On	On				Xapp init failed	Bad settings data
		On			No reply CPU1/2	No reply from CPU1 or CPU2
On		On			Test mode	Receiver in test mode (no error)
	On	On			IF cal. failed	Initialization of the radio module failed
On	On	On			Bad exp. in rly	Incompatible expansion board ⁽¹⁾
On			On		SIL error	SIL error reported from CPU1 or CPU2
	On		On		Bad radio module	Incompatible radio module
On	On		On		LML error	LML fatal error
		On	On		Bad binDat	Missing or bad binDat
On		On	On		No binDat ID	No binDat ID in binDat
	On	On	On		LML bad SWID	Wrong target software ID in binDat
On	On	On	On		LML bad SW ver	Wrong target software version in binDat
				On	LML bad cclml ver	Wrong cclml version in binDat
On				On	LML buffer full	Buffer is full
(1) * ZARBB17W only						

ZARBB28W Relay LEDs on the Display Board

The relays on the base board are hidden under the display board. The corresponding relay LEDs are placed on the display board. LED 1+2 are the LED indicators for the stop relays. LED 3+4 are the LED indicators for the safety function relay LED. And LED 5...16 are the LED indicators for the function relays 1...12.



LED	Description	LED	Description	LED	Description	LED	Description
1	Stop relay 1	5	Relay 1	9	Relay 5	13	Relay 9
2	Stop relay 2	6	Relay 2	10	Relay 6	14	Relay 10
3	Safety function relay 1	7	Relay 3	11	Relay 7	15	Relay 11
4	Safety function relay 2	8	Relay 4	12	Relay 8	16	Relay 12

ZARBB28W Fatal Error Indications and Error Code Messages

Fatal errors are indicated on the display

Error code message	Indicates
Inv._PD CPU1/2	Invalid/ missing production data in the CPUs
Inv. SW CPU1/2	Incompatible software in the CPUs
Settings init fail""	Bad settings data
No reply CPU1/2	No reply from CPU1 or CPU2
Test mode	Receiver in test mode (no error)
RF setup failed	Initialization of the radio module failed
Bad exp. in rly	Incompatible expansion board
SIL error	SIL error reported from CPU1 or CPU2
Bad radio module	Incompatible radio module
LML error	LML fatal error
Bad binDat	Missing or bad binDat
No binDat ID	No binDat ID in binDat
LML bad SWID	Wrong target software ID in binDat
LML bad SW ver	Wrong target software version in binDat
LML bad cclml ver	Wrong cclml version in binDat
LML buffer full	Buffer is full

Chapter 8

Maintenance / Device Replacement

Maintenance

Cleaning Precautions

<i>NOTICE</i>
EQUIPMENT DAMAGE <ul style="list-style-type: none">• Do not use paint thinner, organic solvents, or a strong acid compound to clean the equipment.• Repairs and maintenance must be carried out by qualified personnel• Only use spare parts from Schneider Electric• Contact your representative for service or any other assistance• Keep the product in a clean, dry place• Keep contacts clean• Wipe off dust using a slightly damp, clean cloth Failure to follow these instructions can result in equipment damage.

Periodic Check Points

Periodically check point for the ZARBB17W / ZARBB7A11W / ZARBB28W receivers: check the good terminal block tightening.



A

AWG

(American wire gauge) The standard that specifies wire section sizes in North America

C

Configuration ID

Numerical code stored in both the transmitter and receiver. The receiver can only be controlled by a transmitter with the correct configuration ID.

Continuous radio mode

In continuous radio mode, the transmitter continuously transmits when it is powered-on.

Custom ID

Numerical code stored in the transmitter, used to replace the unique ID code. One or several transmitter can be configured with the same custom ID and the receiver will recognise them all as the same transmitter.

E

EMC

ElectroMagnetic Compatibility

EN

EN identifies 1 of many European standards maintained by CEN (*European Committee for Standardization*), CENELEC (*European Committee for Electrotechnical Standardization*), or ETSI (*European Telecommunications Standards Institute*).

F

Function relay

Standard relay, controlled by the buttons on the transmitter.

I

ID

IDentification.

IEC

(International Electrotechnical Commission) A non-profit and non-governmental international standards organization that prepares and publishes international standards for electrical, electronic, and related technologies.

Interlocking

Prevents a component from functioning when another component is functioning or operating in a particular way.

IP

(Ingress Protection) The protection classification according to IEC 60529.

L

Latching relay functionality

The relay becomes active every time you press a button and remains active until the button is pressed again.

LED

(Light Emitting Diode) An indicator that illuminates under a low-level electrical charge.

Load select mode

One or more Load select modes are stored in the transmitter unit. Activating a specific Load select mode results in a group of preselected relays on the receiver unit, which may be controlled from the transmitter unit.

M**Momentary relay functionality**

The relay is active while a button is pressed on the transmitter. When the button is released, the relay will no longer be active.

MTTF

(Mean Time To Failure)

N**NC**

(Normally Closed) A contact pair that closes when the actuator is de-energized (no power is applied) and opens when the actuator is energized (power is applied).

NO

(Normally Open) A contact pair that opens when the actuator is de-energized (no power is applied) and closes when the actuator is energized (power is applied).

O**On relay**

Relay active when the receiver is operating and a radio link is established, regardless of whether any other relays are active.

Operating mode

One or more Operating modes are stored in the receiver unit. Each Operating mode describes which relays on the receiver unit are controlled when specific buttons on the transmitter unit are pressed.

P**PFD**

(Probability of Failure on Demand)

PFH

(Probability of Failure per Hour)

PL

(Performance Level)

R**Replace ID**

Numerical code used to identify the transmitter during the Replace procedure.

S**SIL**

(Safety Integrity Level) (according to IEC 61508)

Stop relay

Safety related relay controlled by the stop button on the receiver. Intended to interrupt the power supply to a safety application controlled by the receiver.

U**UL**

(Underwriters Laboratories) A US organization for product testing and safety certification.

W**Work relay**

Relay active when any other specified relay(s) on the receiver is/are active.

Z**Zero position check**

Security function ensuring that potentially active buttons/joysticks upon start up or lost/found radio links must be in the zero position before the system can be used to avoid unplanned movements of the controlled object

