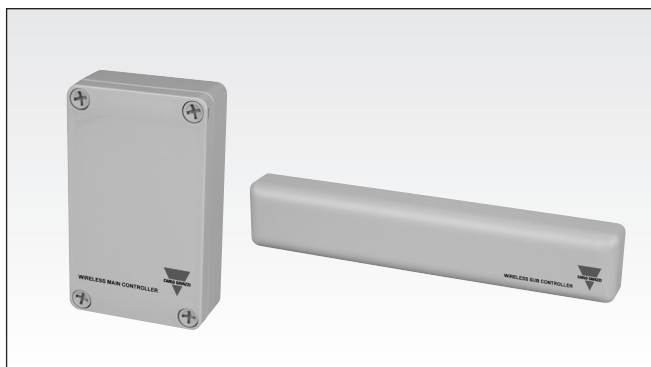


Wireless Entrapment Protection Device For Industrial Gates ESPE Type WSM / WSS ...

CARLO GAVAZZI



- Wireless Entrapment Protection Device for Industrial Gates
- Input for two ESPE (electro-sensitive protective equipment)
- Replaces cable between Gate controller and ESPE
- Output ESPE: 2 x SPST NC or 2 x SPST NO (8,2kΩ) or 2 x Photoelectric sensors
- Output low battery: 1 x SPST NC or NO
- 2,4 GHz duplex communication
- Built-in antenna
- IP66 ratings



Product Description

Wireless Entrapment Protection Device (EPD) for Industrial Gates. The system is designed to replace the connection cable between the ESPE (electro-sensitive protective equipment) and the gate controller. The sub-controller has input for either N.C. ESPE, N.O. 8.2 kΩ ESPE or the Carlo Gavazzi low consumption photoelectric ESPE N.C. contact. The system is designed for high reliability

using 2.4 GHz duplex communication between the main controller and sub controller. The main controller can handle up to 6 sub controllers i.e. one system can handle 12 ESPEs. The active time is initiated with a test signal applied on the main controller. The duration of this can be fixed or defined by the length of the test signal.

Ordering Key

WSM 6 G A 00 D24

Function	_____
Main/Sub Controller	_____
No. of submodules	_____
Function: Gate version	_____
Adjustment	_____
Main: NO 8K2 or NC output	_____
Sub: No. of Safety edges	_____
Main: Low bat. output NO or NC	_____
Sub: Not used	_____
Power supply	_____

Type Selection

Housing W x H x D	Range Wireless	Output	Type	Ordering no.
75 x 125 x 35 mm	15 m	NO 8K2	Main Controller	WSM6GAOOD24
75 x 125 x 35 mm	15 m	NC	Main Controller	WSM6GACCD24
45 x 214 x 22 mm	15 m	-	Sub Controller	WSS2GA2BAT
Housing W x H x D	Range S _n	Cable length	Type Photoelectric Sensor	Ordering no.
Ø11 x 24.5 mm	2.5 m	2 m	Emitter	PB 11 CNT 15 WE
Ø11 x 24.5 mm	2.5 m	12 m	Receiver	PB 11 CNT 15 WR

Specifications Main Controller (WSM)

Rated operational volt. (U_B)	12 to 24 VAC/DC (-10 +15%)	Low Battery	SPST 1 A / 30 VDC 0.5 A / 30 VAC >100,000 AC11 or DC11
Ripple (U_{pp})	≤ 10%	Protection	Reverse polarity, transients
Supply current	< 50 mA	Indications Main Controller	Green LED 2 x yellow LEDs Red LED Toggle red & green LED
Communication Frequency	2.4 GHz Duplex	Power supply	
Channel number	16 selectable via DIP switch	ESPE 1 or 2 active	
Active time	15 – 105 s, fixed time or manually set	Low Battery	
Relay		Channels not synchronized	
2 x ESPE NC or	SPST	Test input	Selectable via DIP switch
2 x ESPE NO 8.2 kΩ	SPST	(active high or active low)	12-24 V
		Active high	0 V
		Active low	



Specifications Main Controller (WSM) (cont.)

Test impulse time		Size	75 x 35 x 125 mm
Minimum pulse width	> 100 ms	Material	
Maximum pulse width	< 2 s	Housing	Light Grey ABS
Response time		Top	Light Grey ABS
t _{OFF} Fast mode	< 15 ms	Weight	230 g
t _{OFF} Normal mode (1 sub)	< 42 ms	Approvals	cULus cURus FCC IC
t _{OFF} Normal mode (2 sub)	< 42 ms		UL508 UL325 port 15 B,C FCC-ID: Y55WSM0001 RSS210, RSS GEN, RSS-102 IC-ID: 7188C-WSM0001
t _{OFF} Normal mode (3 sub)	< 56 ms	CE-marking	EN12445, EN12453, EN12978 Radio Equipment and Telecommunications Terminal Equipment
t _{OFF} Normal mode (4 sub)	< 70 ms		(R&TTE) Directive 1999/5/EC Low Voltage Directive 2006/95/EC Electromagnetic Compatibility Directive 2004/108/EC Machinery Directive 2006/42/EC, amended by Directive 98/79/EC For industrial doors only See EN13241-1
t _{OFF} Normal mode (5 sub)	< 85 ms		
t _{OFF} Normal mode (6 sub)	< 100 ms		
t _{OFF} Idle mode	< 5000 ms		
t _{ON}	> 250 ms		
Safe state reaction time (In case of Sub module failure)			
Fast mode	< 16 ms		
Normal mode	Same as response time		
Idle mode	Same as response time		
Power ON delay (t_v)	≤ 500 ms		
Environmental			
Installation category	III (IEC 60664/60664A; 60947-1)		
Pollution degree	3 (IEC 60664/60664A; 60947-1)		
Degree of protection	IP66		
Rated insulation voltage	50 VDC		
Temperature			
Operating Temperature	-25° to +55°C (-13° to +131°F)		
Storage Temperature	-40° to +70°C (-40° to +158°F)		

NOTE: Changes/modifications not approved by Carlo Gavazzi could void the user's authority to operate the equipment.

Specifications Sub Controller (WSS)

Rated operational volt. (U_B)	1 to 4 ER14505 3.6 VDC size AA, ≥ 2700 mAh Lithium batteries (Supplied with 2 batteries)	Indications Sub Controller	
Supply current	< 40 mA	ESPE 1	Yellow LED
Communication Frequency	2.4 GHz Duplex	ESPE 2	Yellow LED Active in 30 sec. after a short activation on the push button
Channel number	16 selectable on DIP switch	Environmental	
Power ON delay (t_v)	3 s	Installation category	III (IEC 60664/60664A; 60947-1)
ESPE inputs		Pollution degree	3 (IEC 60664/60664A; 60947-1)
ESPE NC	Standard NC ESPE	Degree of protection	IP66
ESPE NO 8.2 kΩ	Standard NO, 8.2 kΩ	Rated insulation voltage	50 VDC
Photoelectric ESPE	Carlo Gavazzi Low current ESPE PES for wireless applications	Temperature	
Normal/Fast mode		Operating Temperature	-25° to +55°C (-13° to +131°F)
Normal mode	Connection between the two "LIMIT SWITCH" ter- minals (factory setting)	Storage Temperature	-40° to +70°C (-40° to +158°F)
Fast mode	No connection between the two "LIMIT SWITCH" termi- nals	Size	22 x 45 x 214 mm
Protection	Reverse polarity	Material	
		Housing	Light Grey PC
		Bottom	Black PC
		Weight	220 g



Specifications Sub Controller (WSS) (cont.)

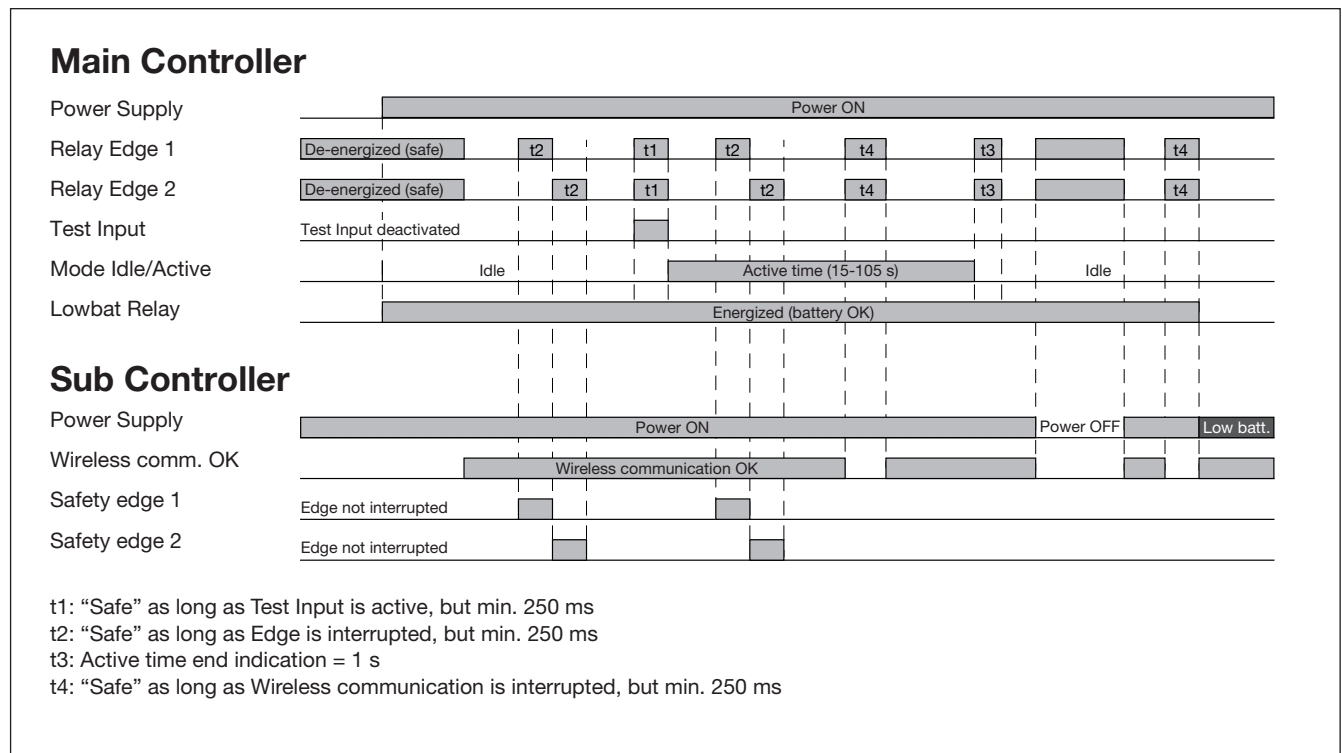
Approvals	cULus cURus FCC IC	UL508 UL325 port 15 B,C FCC-ID: Y55WSM0001 RSS210, RSS GEN, RSS-102 IC-ID: 7188C-WSM0001	(R&TTE) Directive 1999/5/EC Low Voltage Directive 2006/95/EC Electromagnetic Compatibility Directive 2004/108/EC Machinery Directive 2006/42/EC, amended by Directive 98/79/EC For industrial doors only See EN13241-1
CE-marking	EN12445, EN12453, EN12978 Radio Equipment and Telecommunications Terminal Equipment		

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Specifications Photoelectric Sensors ESPE (PB11)

Rated operational volt. (U_B)	From Sub Controller	Degree of protection	IP67
Rated operational dist. (S_n)	2.5 m	Housing size	Ø11 x 24.5 mm
Light source	LED 880 nm	Housing Material	PA6 Glass reinforced
Light Type	Infrared Modulated	UL-Approvals	UL508
Ambient light	< 20,000 lux	CE-marking	EN12978

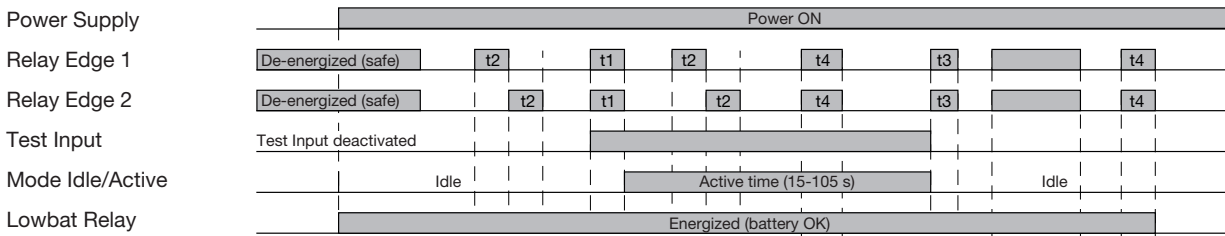
Operation Diagram: Fixed Active Time



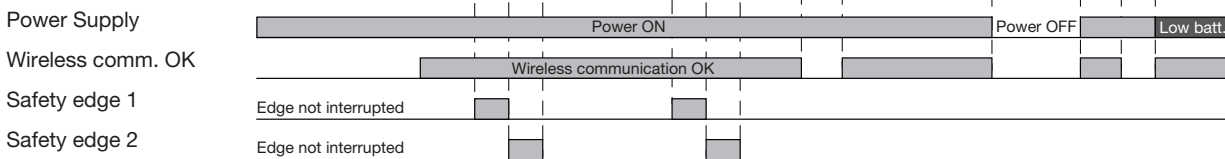


Operation Diagram: Manual Active Time

Main Controller

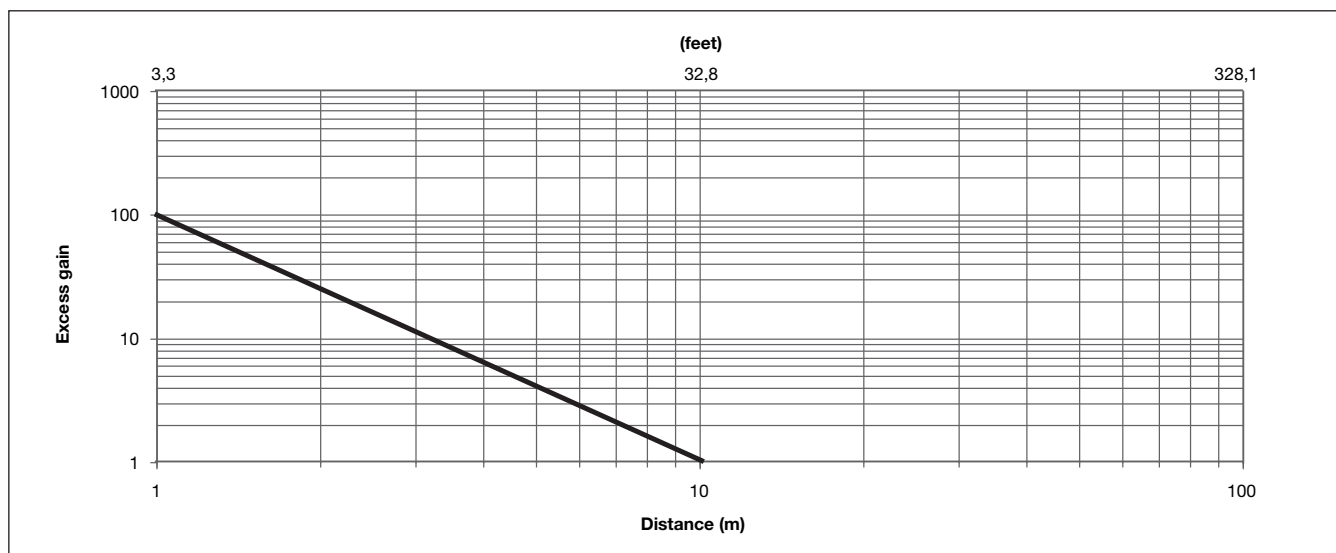


Sub Controller



- t1: "Safe" as long as Test Input is active, but min. 250 ms
- t2: "Safe" as long as Edge is interrupted, but min. 250 ms
- t3: Active time end indication = 1 s
- t4: "Safe" as long as Wireless communication is interrupted, but min. 250 ms

Excess Gain PB11



Wiring Diagrams

WSM6GACCD24

WIRELESS MAIN CONTROLLER

NB: Relays shown in operational state

WSM6GAOOD24

WIRELESS MAIN CONTROLLER

NB: Relays shown in operational state

WSS2GA2BAT

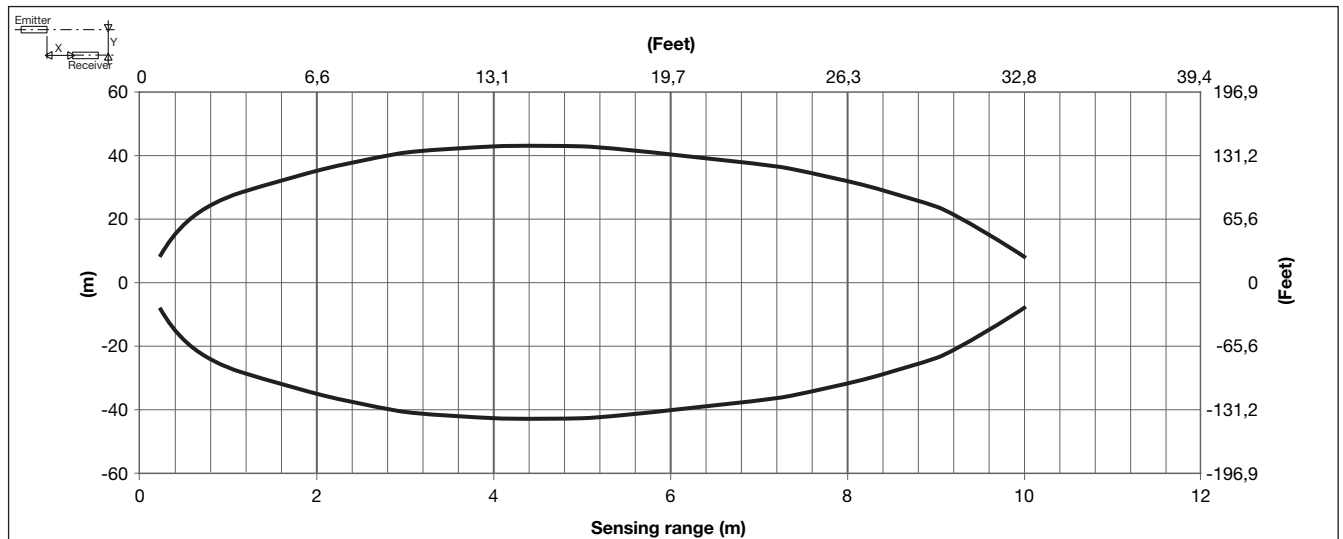
WIRELESS SUB CONTROLLER

RX1: PHOTELECTRIC RECEIVER 1
 RX2: PHOTELECTRIC RECEIVER 2
 TX1: PHOTELECTRIC EMITTER 1
 TX2: PHOTELECTRIC EMITTER 2

Photoelectric Transmitter

Photoelectric Receiver

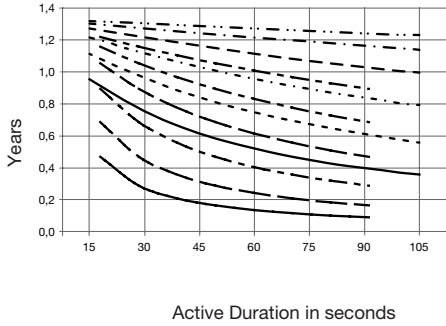
Detection Diagram PB 1 1



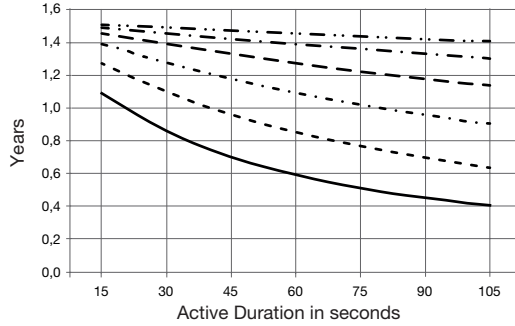
Lifetime of batteries

Normal speed

3 Sub ctrl., 2 x optical sensors



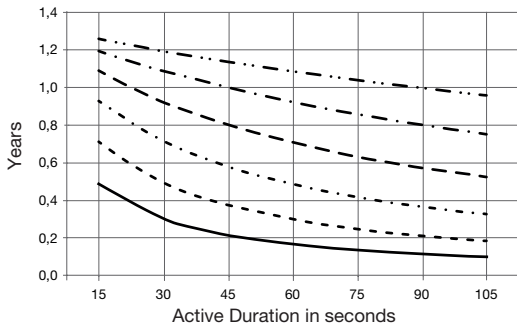
3 Sub ctrl., 2 x Mech NO-8K2



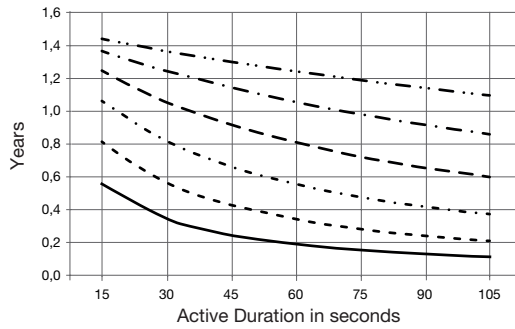
- 12 Cycles/day
- - - 25 Cycles/day
- - - 50 Cycles/day
- - - 100 Cycles/day
- - - 200 Cycles/day
- 400 Cycles/day

Fast speed

1 Sub ctrl., 2 x optical sensors



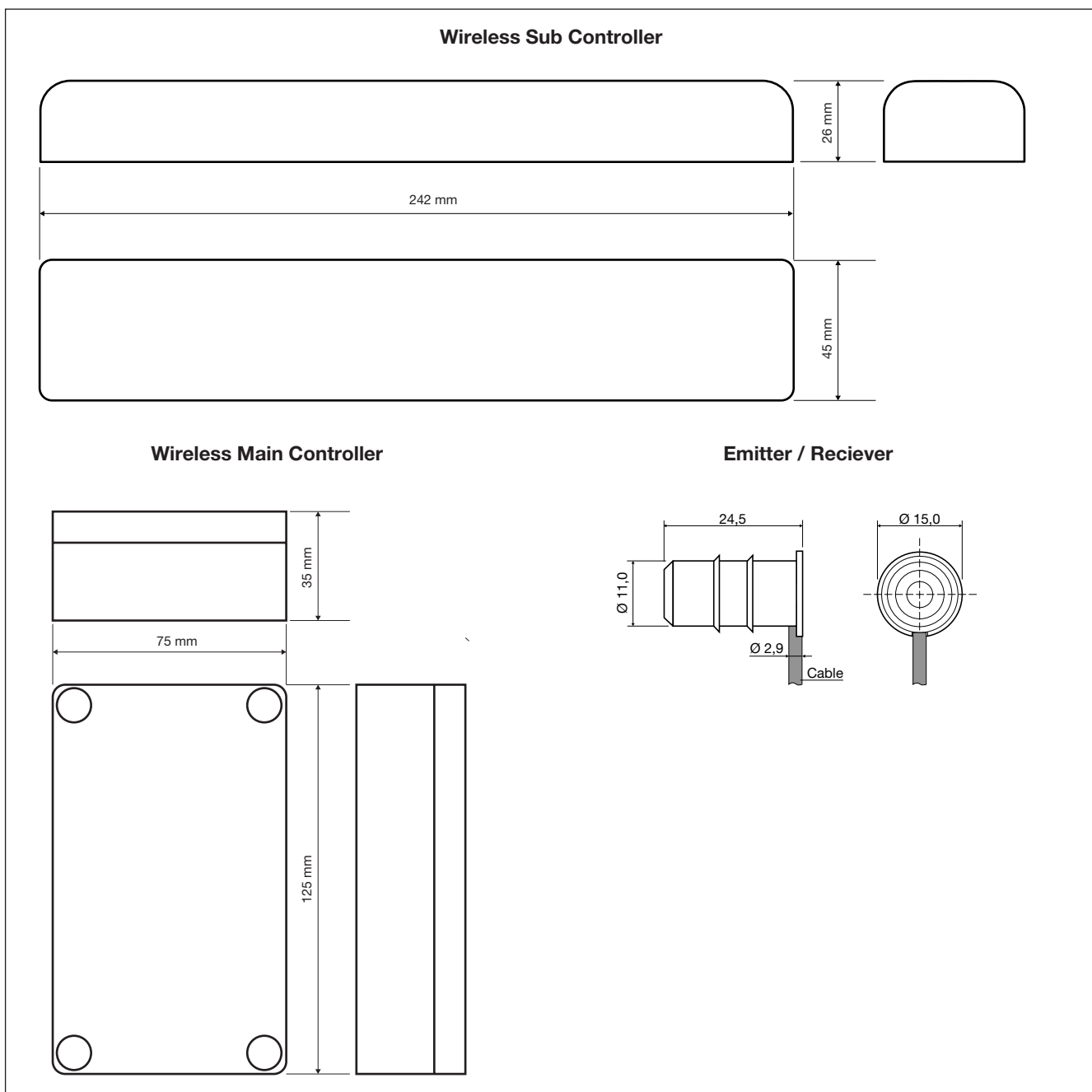
1 Sub ctrl., 2 x Mech. NO-8K2



- 12 Cycles/day
- - - 25 Cycles/day
- - - 50 Cycles/day
- - - 100 Cycles/day
- - - 200 Cycles/day
- 400 Cycles/day

Conditions: 240 working days, ambient temperature 20°C, 85% battery efficiency. "Duration" is gate opening or closing time. One cycle is an opening AND closing cycle.
 4 x ER14505 3.6 VDC size AA, ≥ 2700 mAh Lithium batteries

Dimensions



Delivery Contents Main Controller

- Wireless Main Controller: WSM6GAOOD24 or WSM6GACCD24
- Manual
- 4 x SCREW M4.5X45 MM BOSSARD BN615
- 4 x RAWLPLUG SX8 NYLON
- **Packaging:** Cardboard box

Delivery Contents Receiver

- Receiver: PB11CNT15WR
- **Packaging:** Plastic bag

Delivery Contents Sub Controller

- Wireless Sub Controller: WSS2GA2BAT
- Manual
- 2 x ER14505 3.6 VDC size AA, ≥ 2700 mAh Lithium batteries
- 4 x SCREW M4X10 MM BOSSARD BN1023
- **Packaging:** Cardboard box

Delivery Contents Emitter

- Emitter: PB11CNT15WE
- **Packaging:** Plastic bag