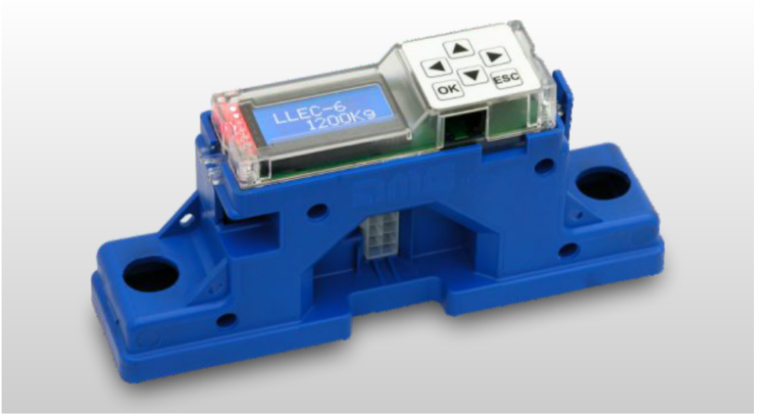
LLEC6 load weighing device

Contents



Safety and usage cautions

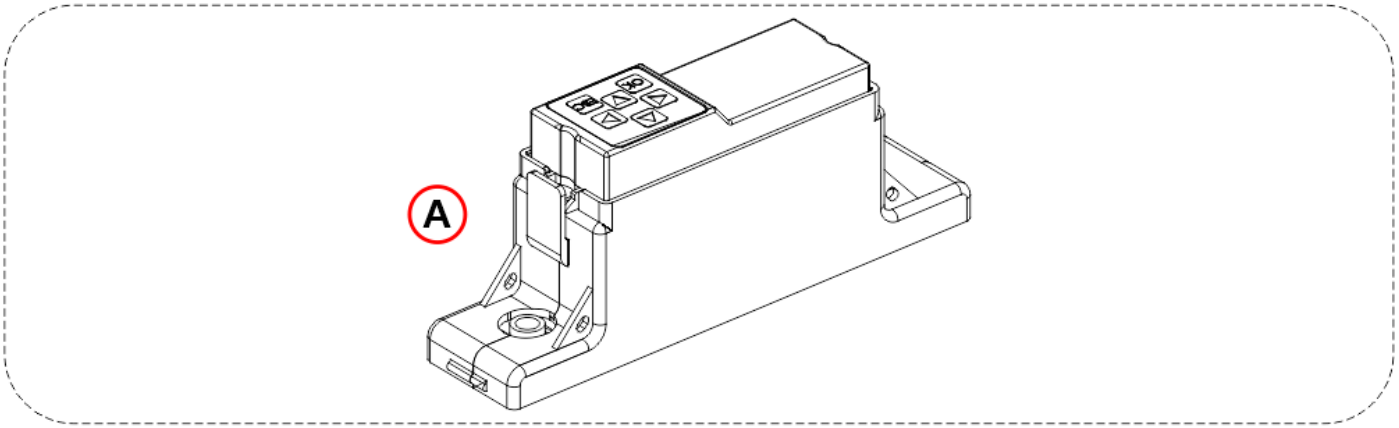
Before installing our products, we recommend you to consult the section about safety and usage cautions at the link below

Main features

- 2 relays thresholds + analog output
- Automatic compensation of elevator car dynamic load during travel (load locking input)
- Automatic compensation of elevator car static load
- Adjustable compensation of travelling cable weight
- Detachable programming tool (2×8 characters)
- External cover water protection (IPX2)

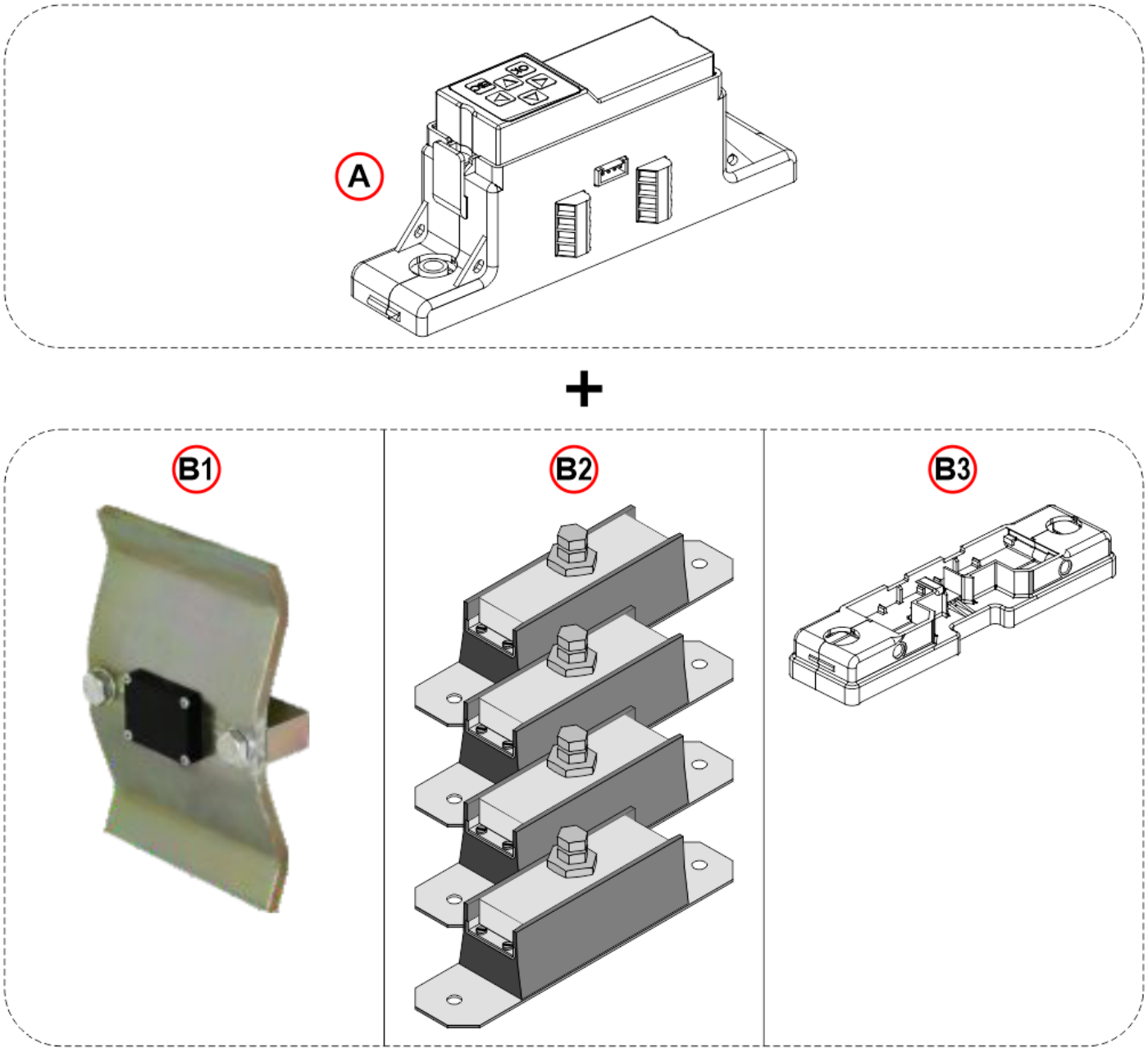
System components

LLEC6 with integrated sensor



A) – code [EWSLL6FRM] – LLEC6 with integrated sensor (for car frame)

LLEC6 for external sensors



A) – code [EWSLL6ROP] – LLEC6 for external sensors

B1) – External sensor for ropes (2mt cable)

code [EWS.RS6X13] – Maximum 6 ropes (Ø 13mm)

code [EWS.RS7X10] – Maximum 7 ropes (Ø 10mm)

code [EWS.RS10X8] – Maximum 10 ropes (Ø 8mm)

B2) – External sensors kit for elevator car bottom (6mt cable)

code [EWS.CS300] – 300 kg for each sensor

code [EWS.CS400] – 400 kg for each sensor

code [EWS.CS700] – 700 kg for each sensor

B3) – code [EWS.CSSLI] – External sensor for car frame (4mt cable)

Optional components

code [AUT.KIT08] – Magnetic sensors (NC)

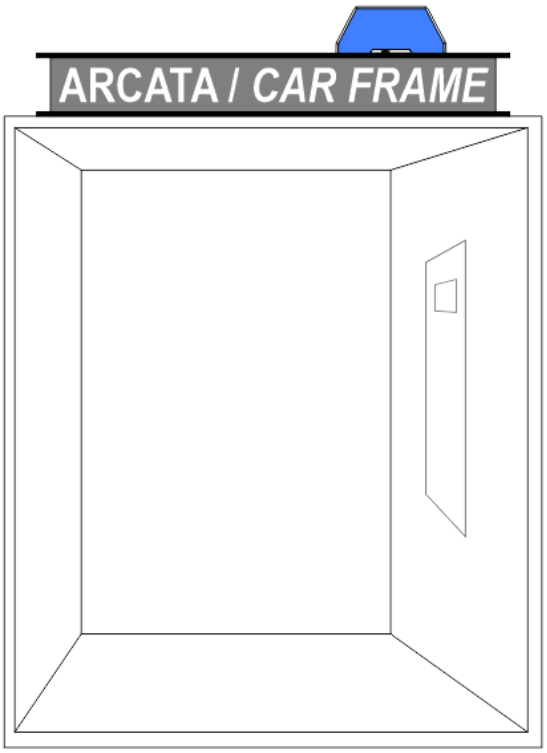
code [EWS.AL212] – Power unit 220V

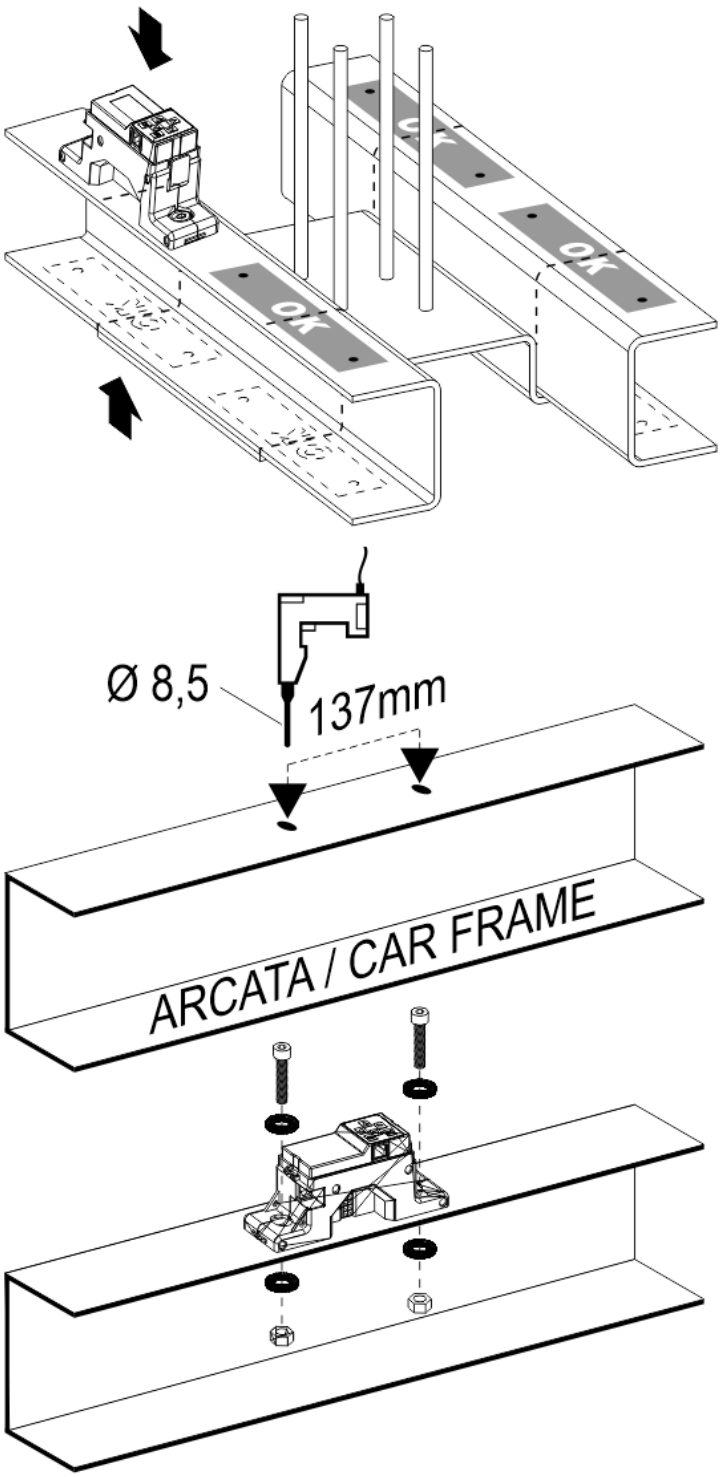
code [EWS.LL3S] – third threshold

Installation

LLEC6 with integrated sensor (for car frame)

code [EWSLL6FRM]

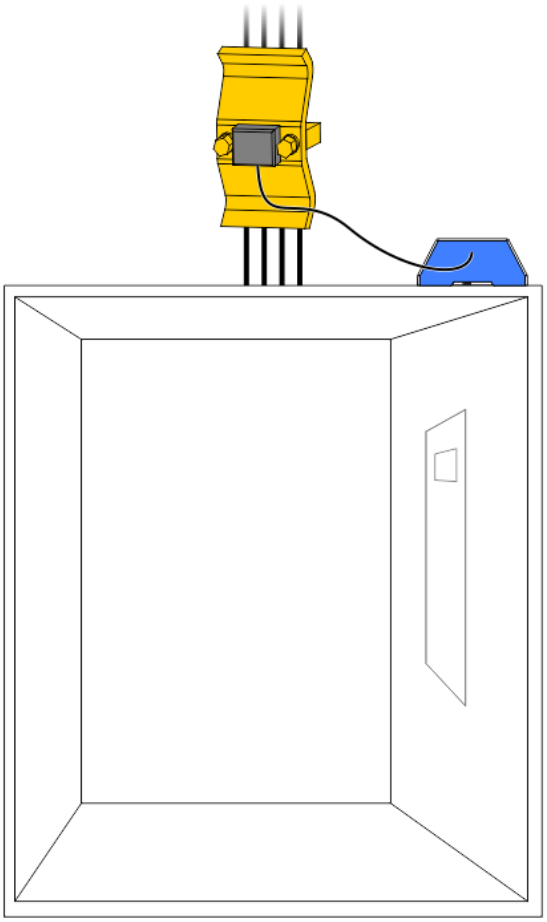




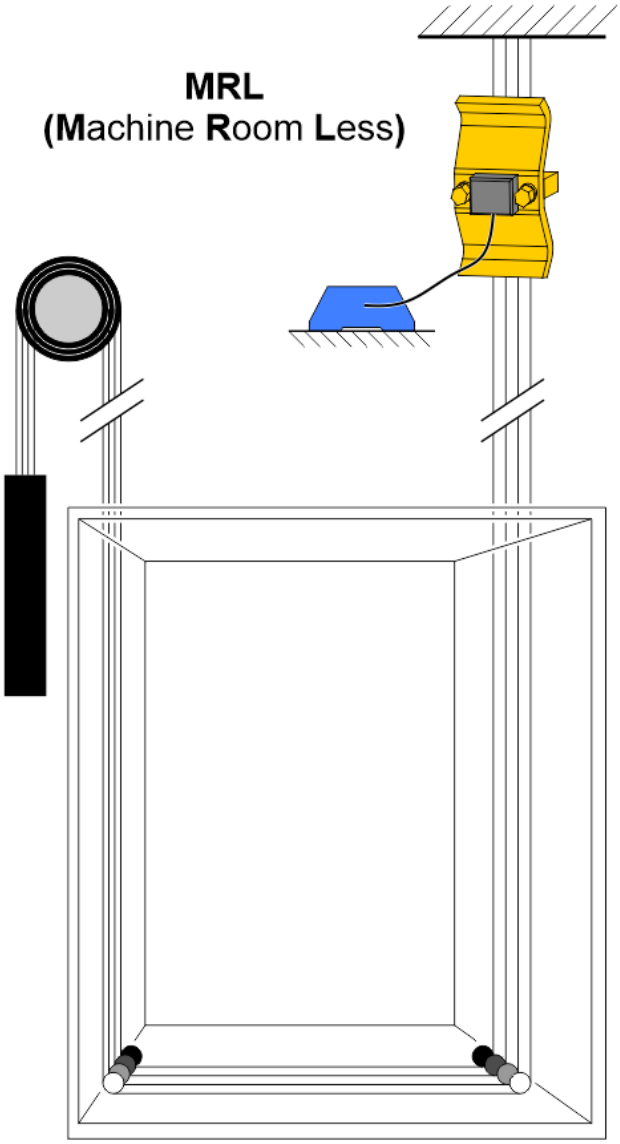
LLEC6 for external sensor (for ropes)

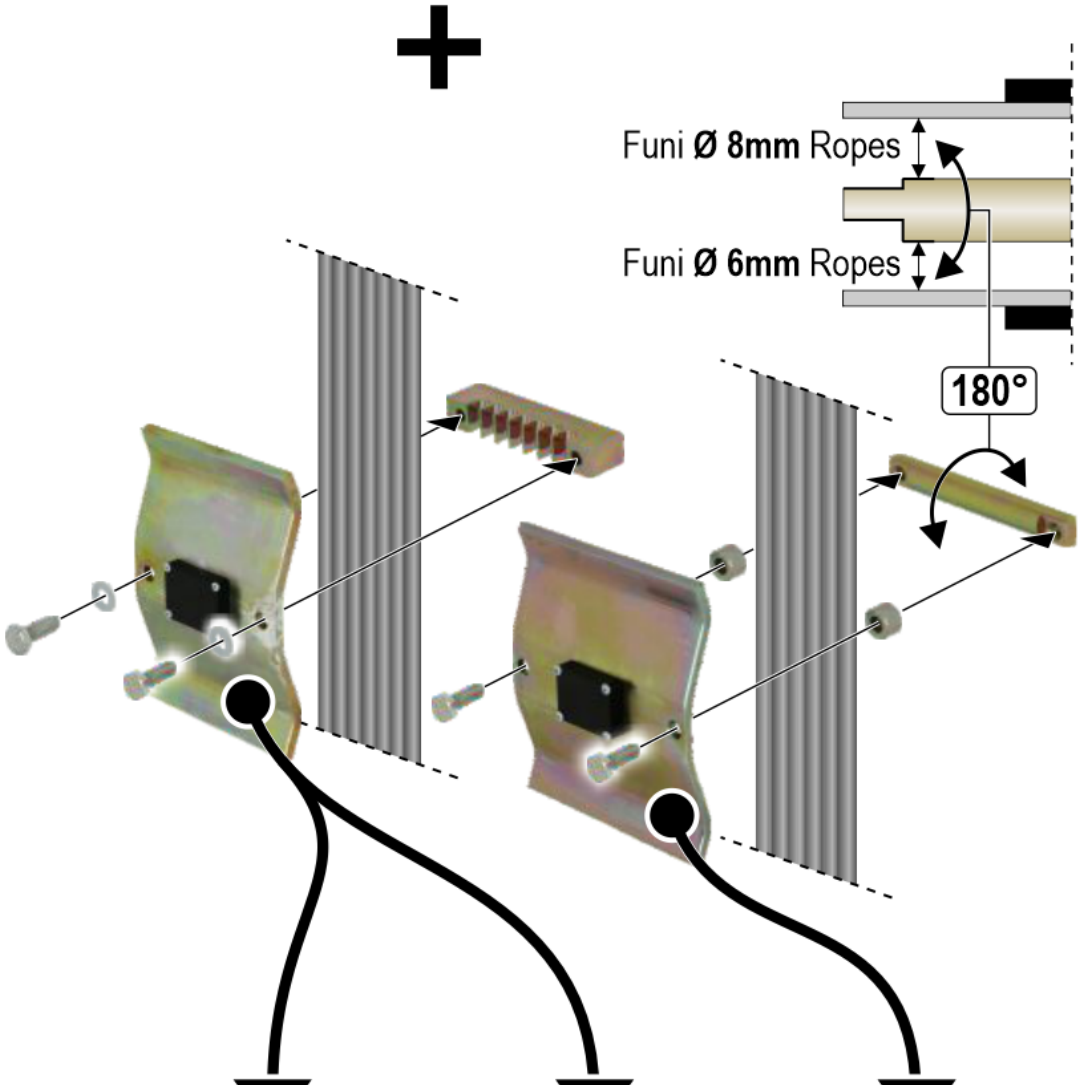
code [EWSLL6ROP] + [EWS.RS6X13] / [EWS.RS7X10] / [EWS.RS10X8]

MR
(Machine **R**oom**)**



MRL
(Machine **R**oom **L**ess**)**





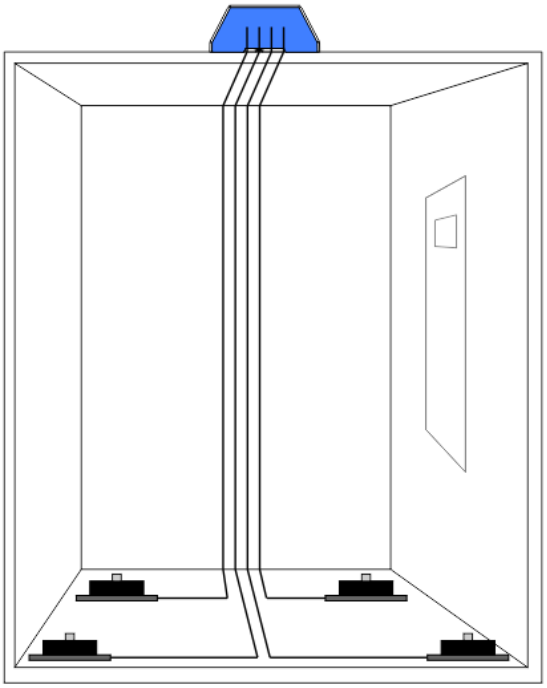
A

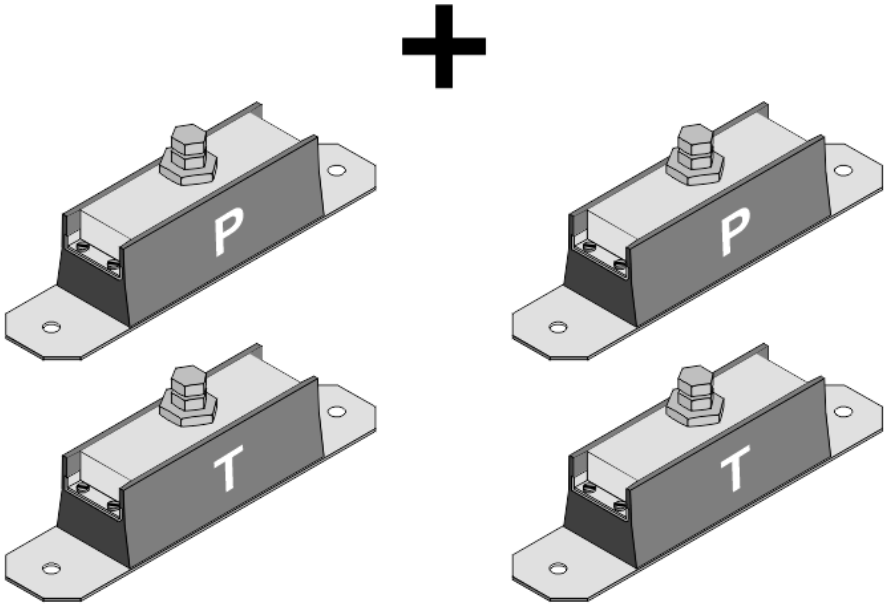
Diametro funi *Ropes diameter*	[EXW.RS6X13] Max **6** funi/*ropes*	[EXW.RS7X10] Max **7** funi/*ropes*	[EXW.RS10X8] Max **10** funi/*ropes*
Fino a/*Up to* Ø **8** mm			2600 Kg
Fino a/*Up to* Ø **10** mm		1200 Kg	
Fino a/*Up to* Ø **12** mm	2200 Kg		
Fino a/*Up to* Ø **13** mm	2000 Kg		

A) – Maximum load table (Mass structure + lift capacity)
In case of lift roping 2:1 (sensor on fixed-ending + pulley) maximum load is doubled.

LLEC6 for external sensors (for elevator car bottom)

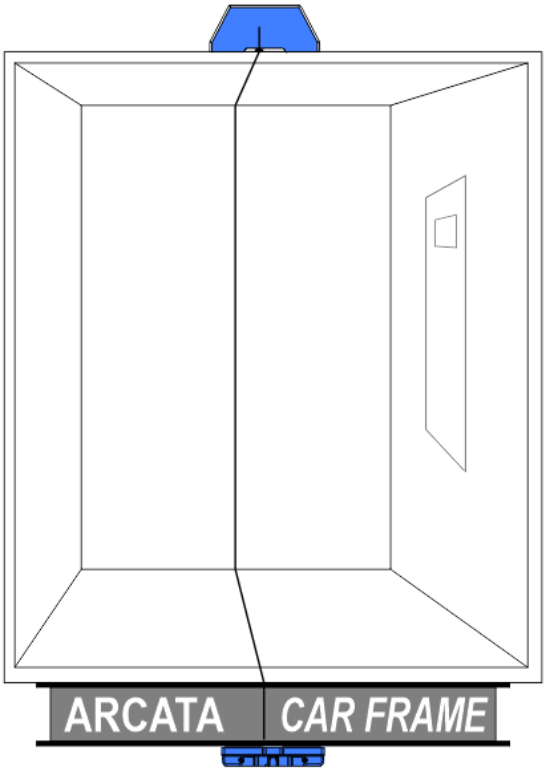
code [EWSLL6ROP] + [EWS.CS300] / [EWS.CS400] / [EWS.CS700]

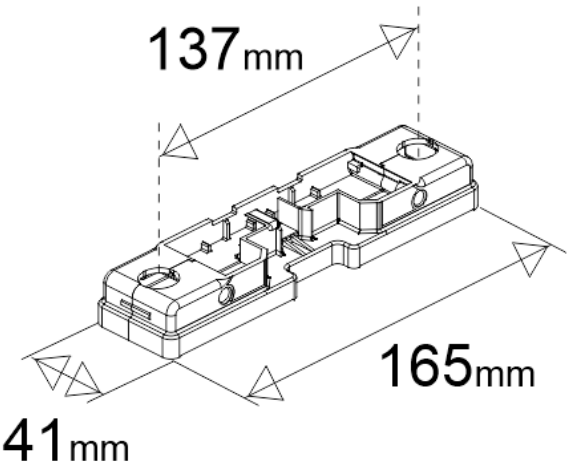




LLEC6 for external sensors (for car frame)

code [EWSLL6ROP] + [EWS.CSLLI]

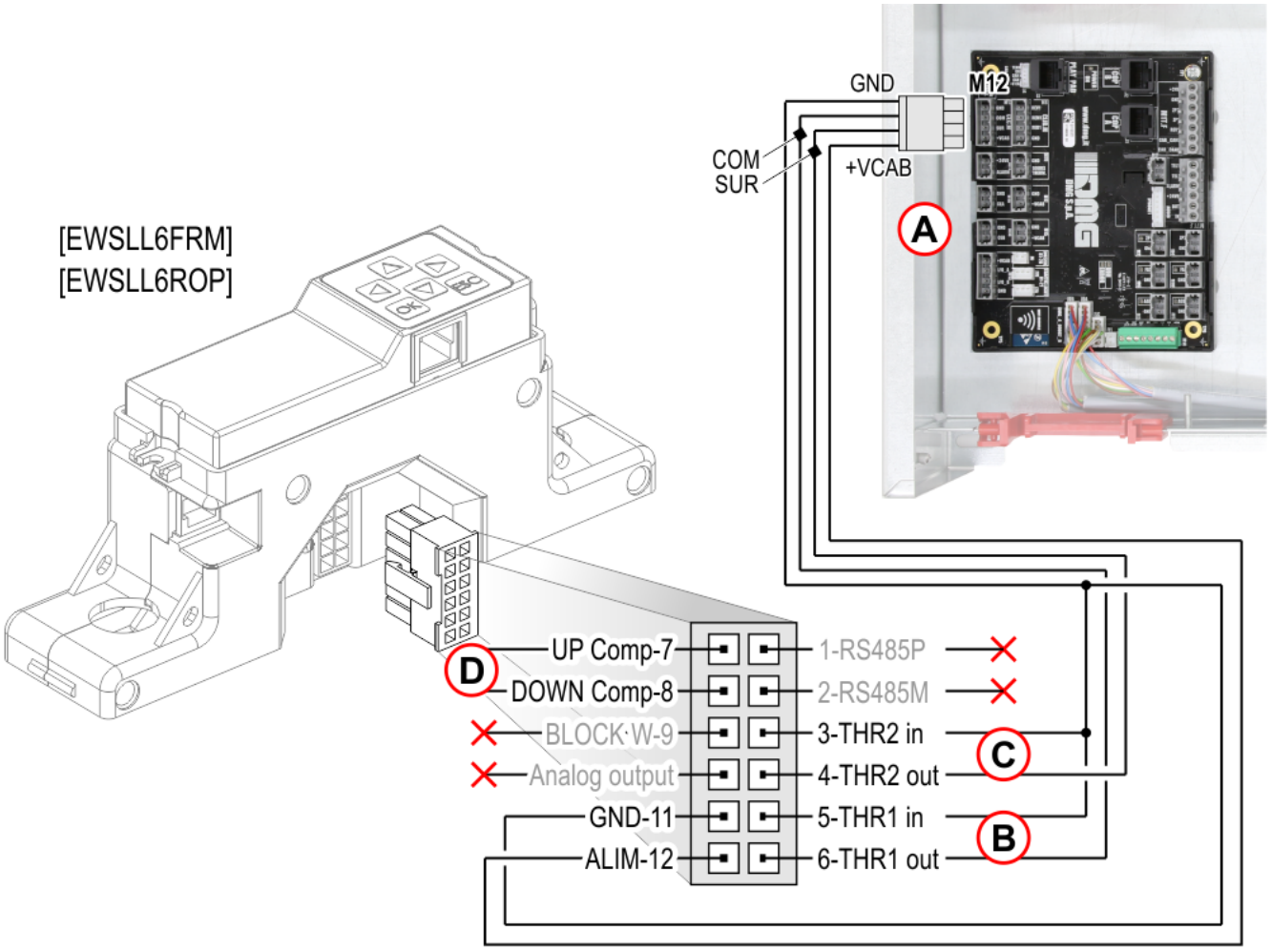




Wiring Instructions

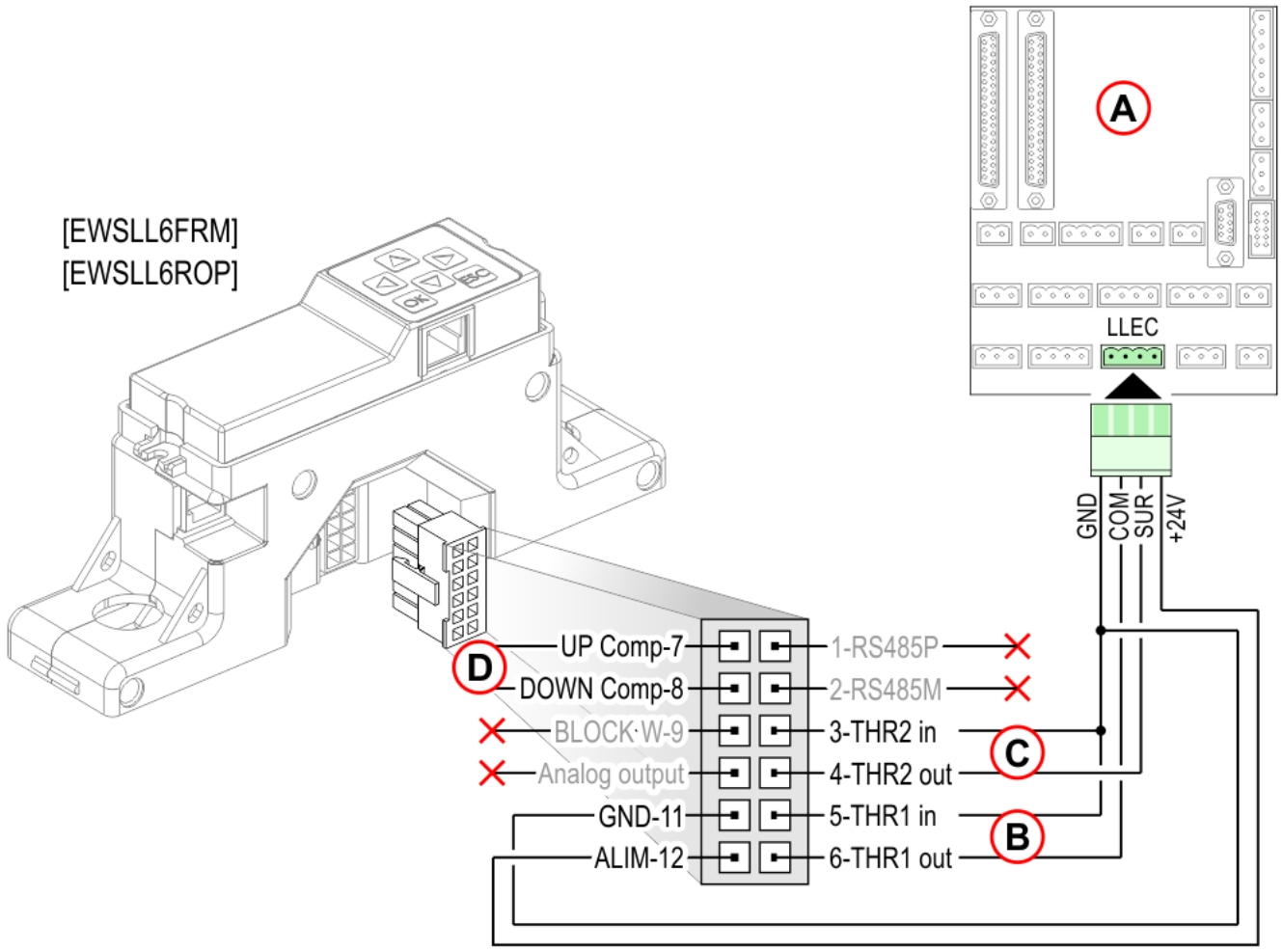
Control unit connections

Connection with controller DMG Pitagora 4.0



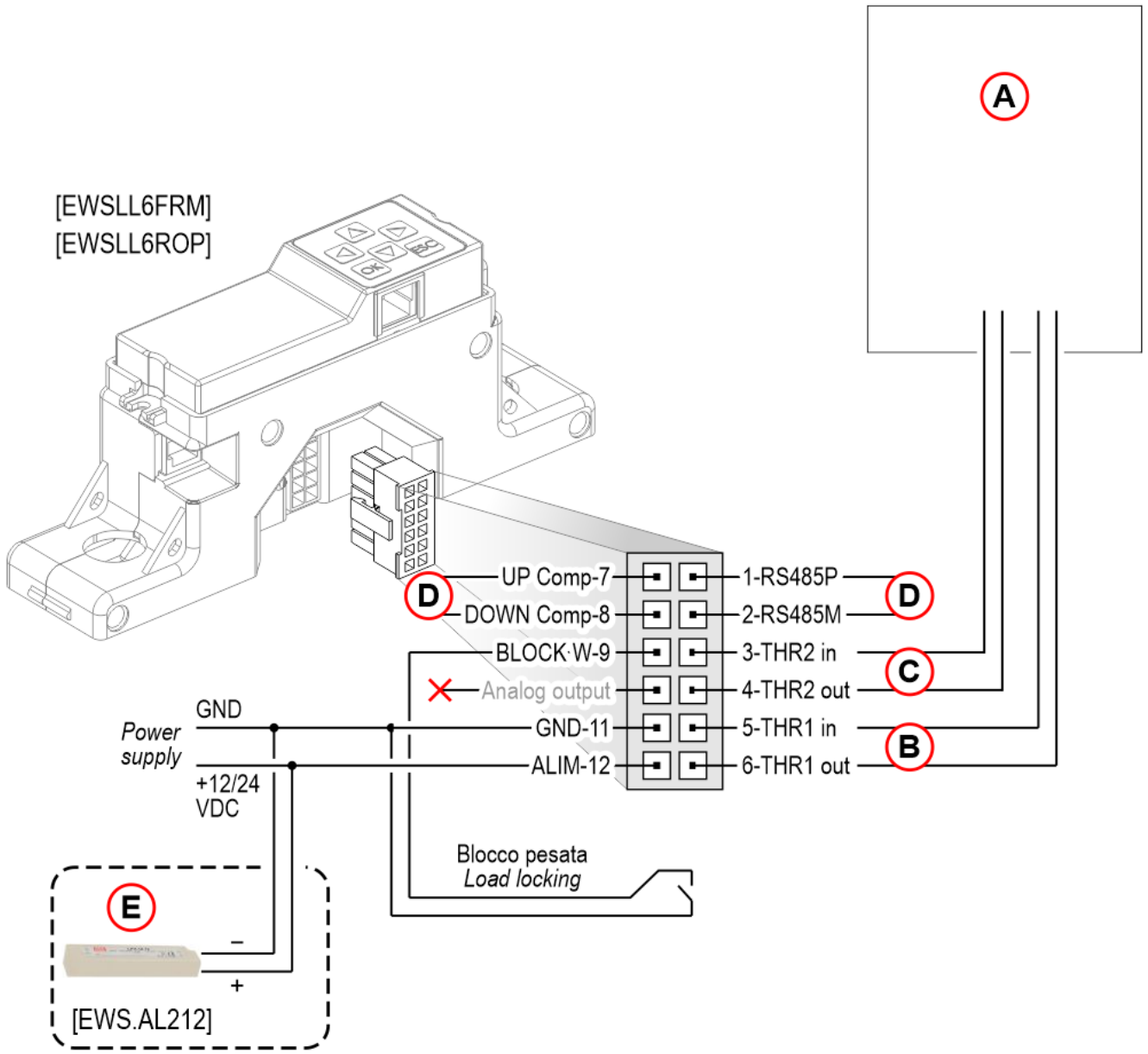
A) – TOC box on the cabin roof
B) – Threshold 1
C) – Threshold 2
D) – Travelling cables compensation
E) – 220V external power unit

Connection with controller DMG Playboard V3



A) – TOC box on the cabin roof
B) – Threshold 1
C) – Threshold 2
D) – Travelling cables compensation
E) – 220V external power unit

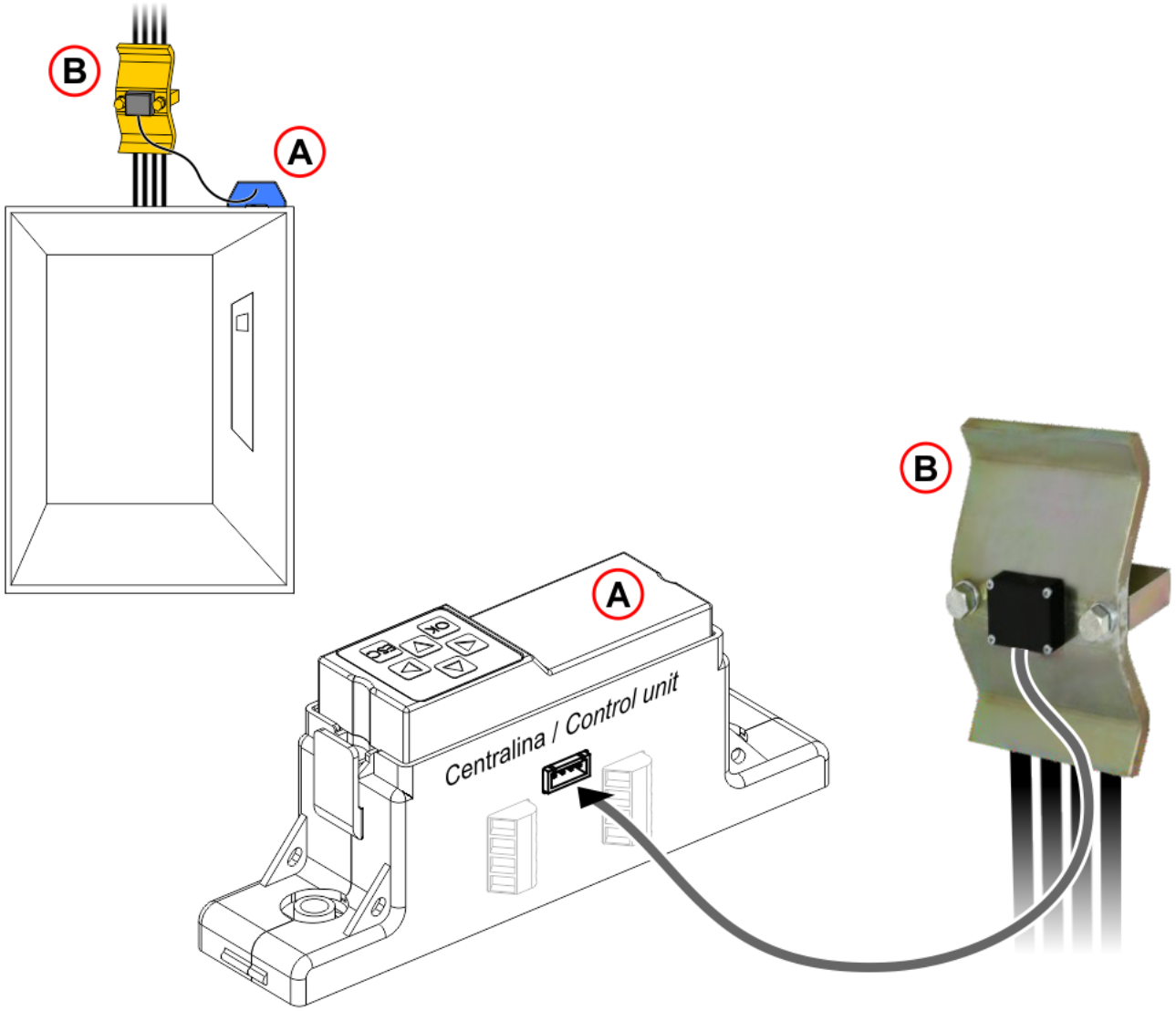
Connection with other controllers



A) – Dry contact (NO/NC) of the controller
B) – Threshold 1
C) – Threshold 2
D) – Travelling cables compensation
E) – 220V external power unit

External sensors connections

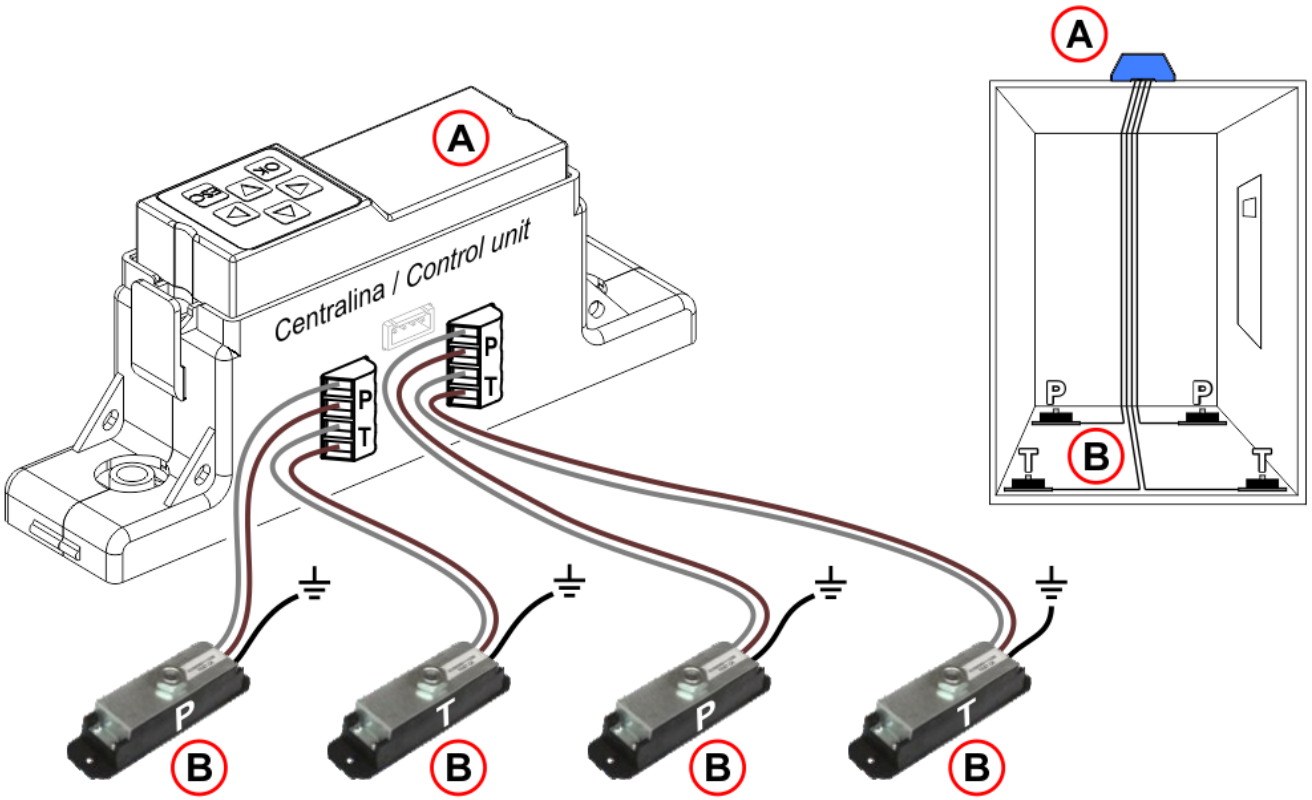
Connection of the ropes' sensor



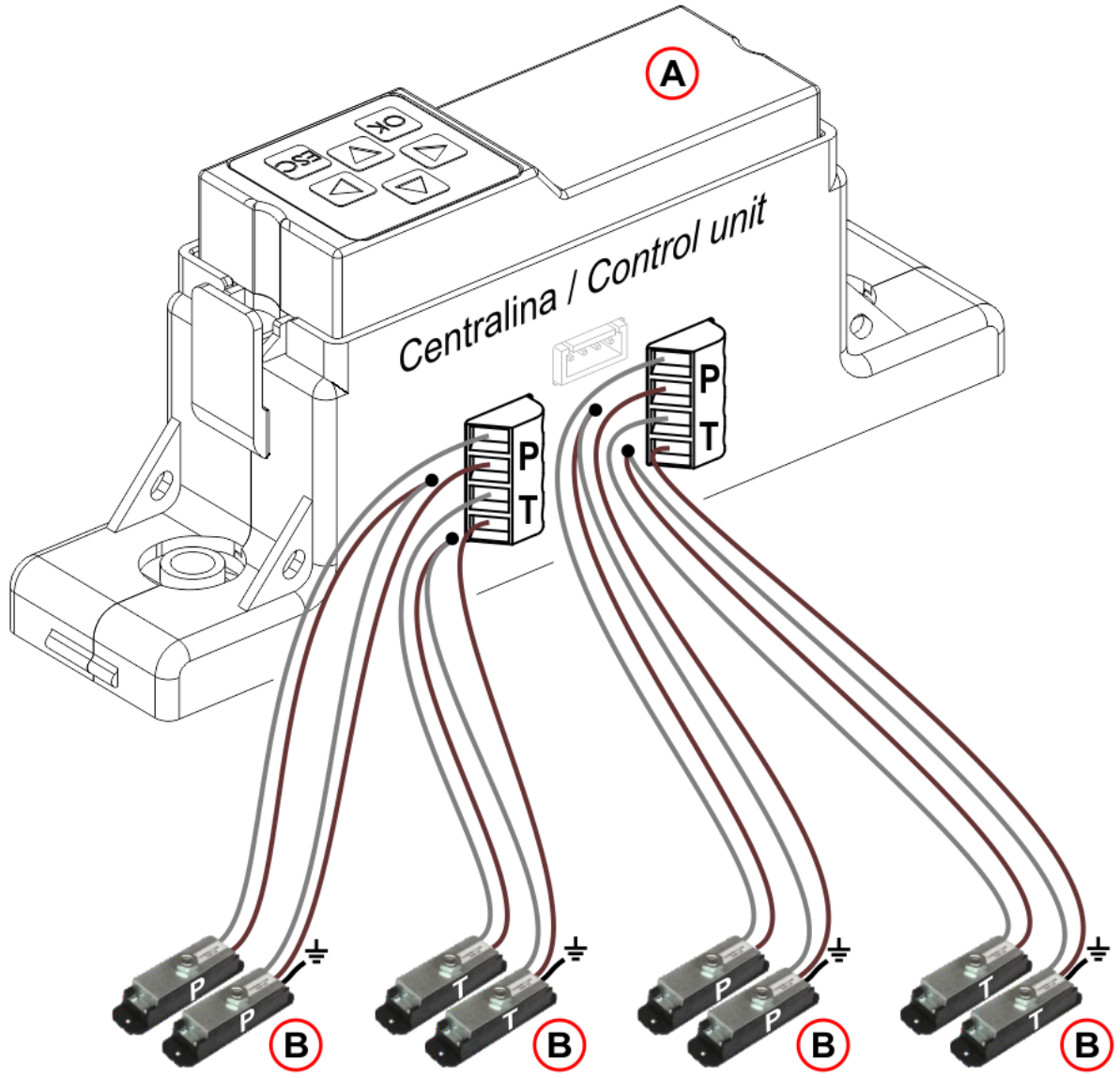
A) – Control unit
B) – Ropes' sensor

Connection of the elevator car bottom sensors

4 sensors wiring diagram

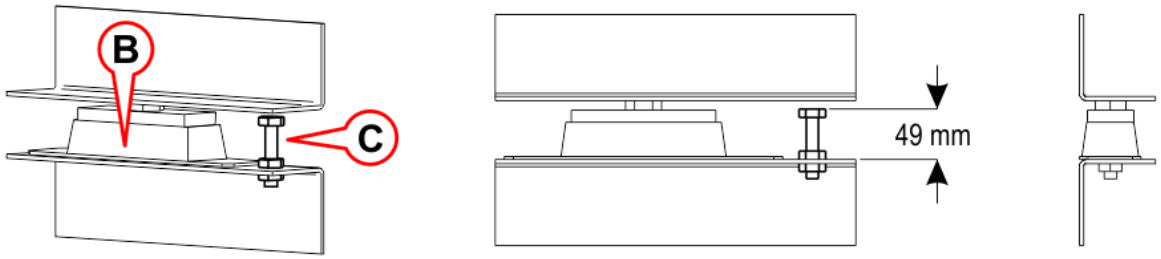


8 sensors wiring diagram



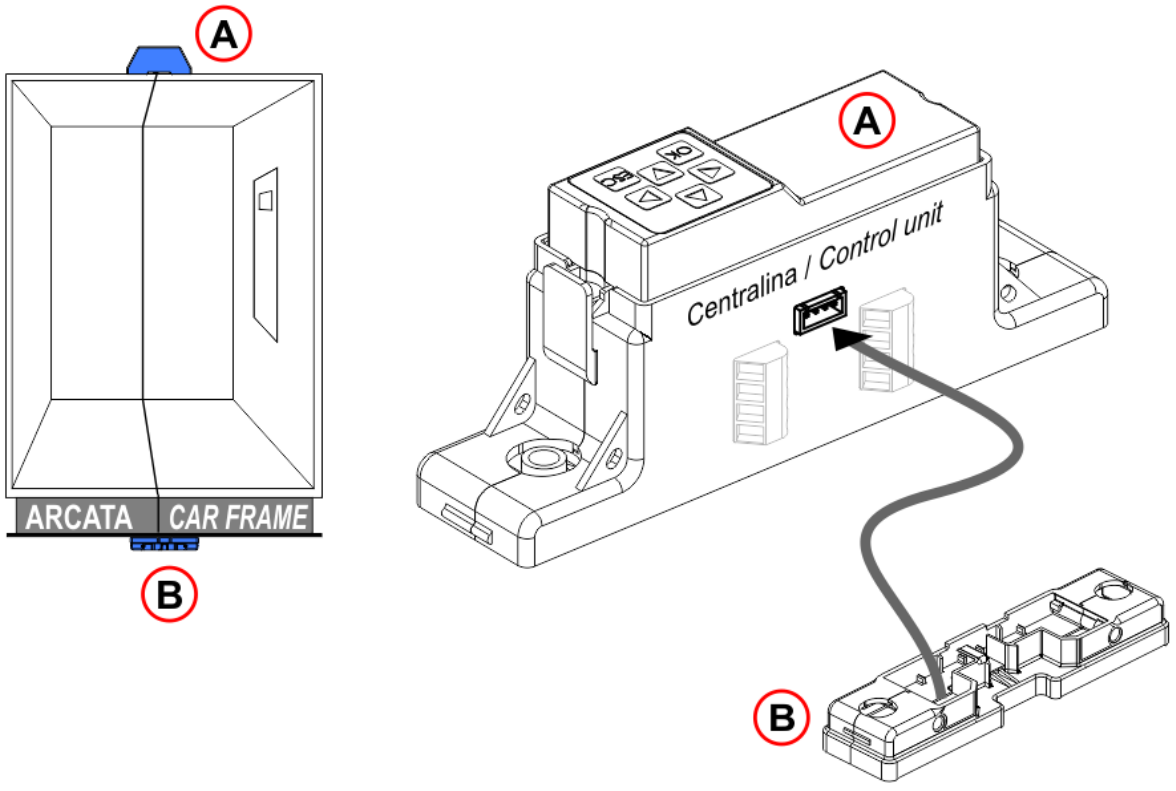
A) – Control unit
B) – Elevator car bottom sensors (P= Pression / T= Traction)

To avoid all malfunctioning of the device, even after possible overload events (i.e. parachute test) we advice to insert a fix block to protect the load sensors.



B) – Sensor
C) – Bolt M12

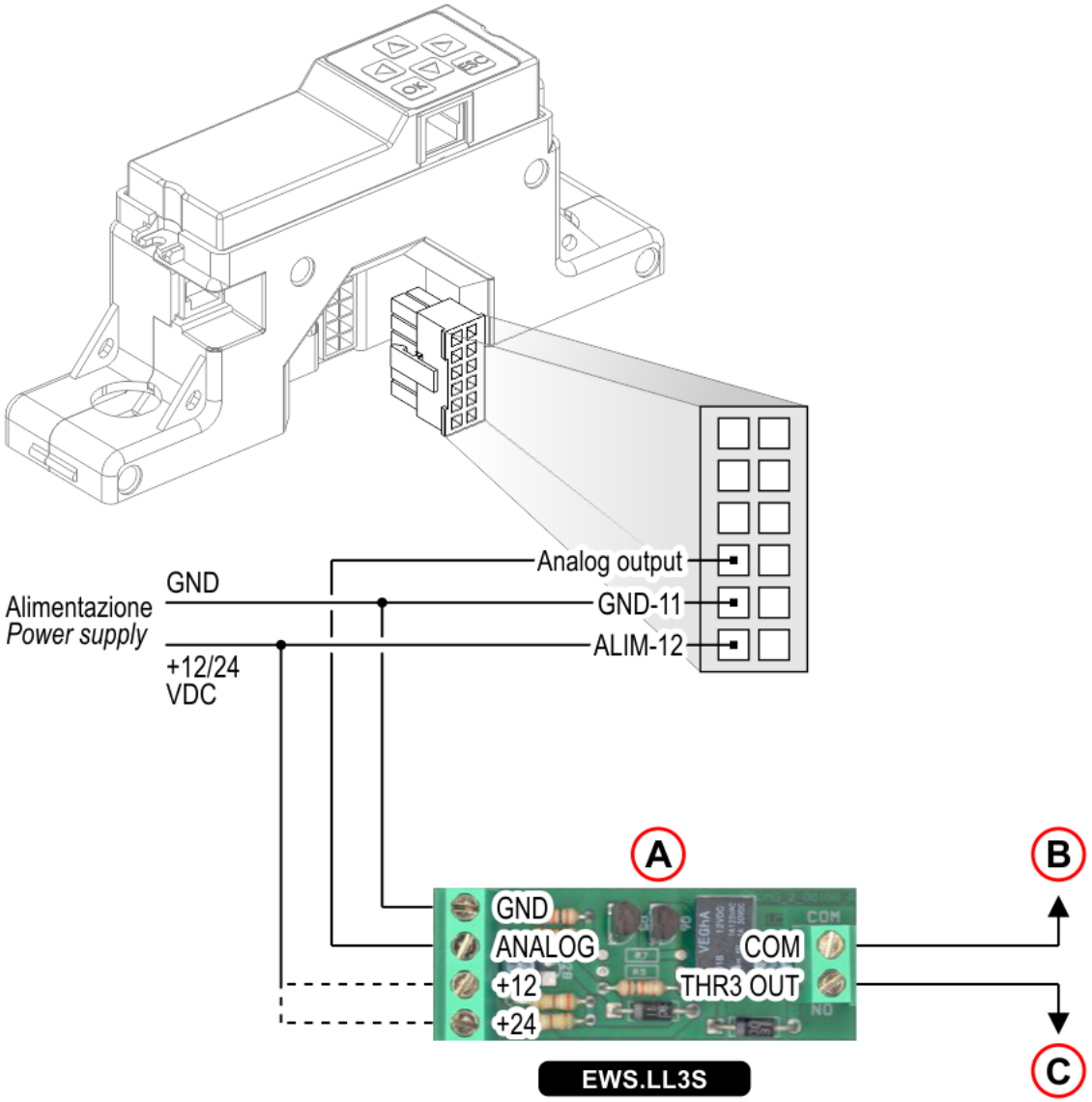
Connection of the car frame sensor



A) – Control unit
B) – Car frame sensor

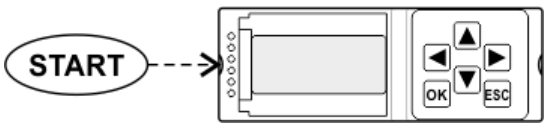
Third threshold connection

Third threshold connection



A) – Third threshold
B) – Common
C) – Third threshold output

Calibration



1	--->	[▼]	--->	< Setting >	
2	--->	[OK]	--->	< Warm-up, please wait >	
					Sensor warm up
				< Calibration >	
3	--->	[OK]	--->	[▲] [▼] [◄] [►]	Enter the capacity of cabin (Kg)
4	--->	[OK]	--->	< Empty cabin, are you sure ? >	

					 
5	--->	[OK]	--->	 	10 sec. to exit the cabin
				< Reference weight >	 
6	--------->			[▲] [▼] [◄] [►]	Enter the weight to be loaded in the cabin for calibration (at least 30% of capacity)
7	--->	[OK]	--->	 	10 sec. to exit the cabin

Thresholds values are automatically set (editable from < Thresholds > menu):
Threshold 1 = 100% Capacity; contact N/O – Threshold 2 = 115% Capacity; contact N/O

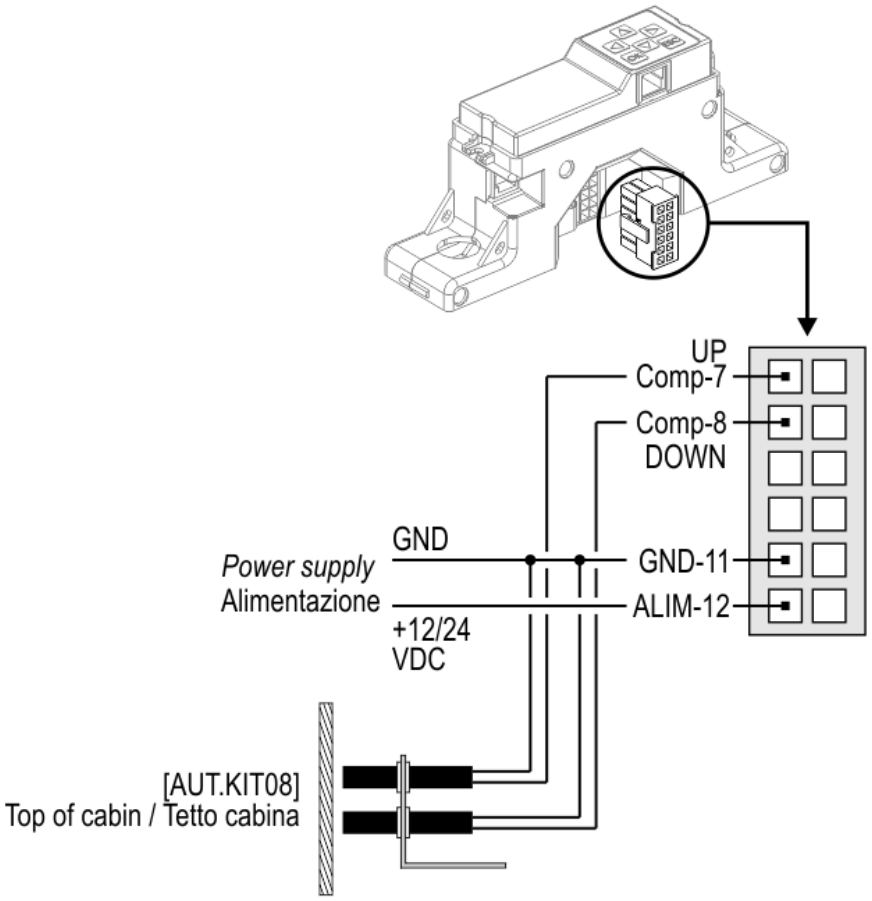
Travelling cables compensation

[AUT.KIT08]

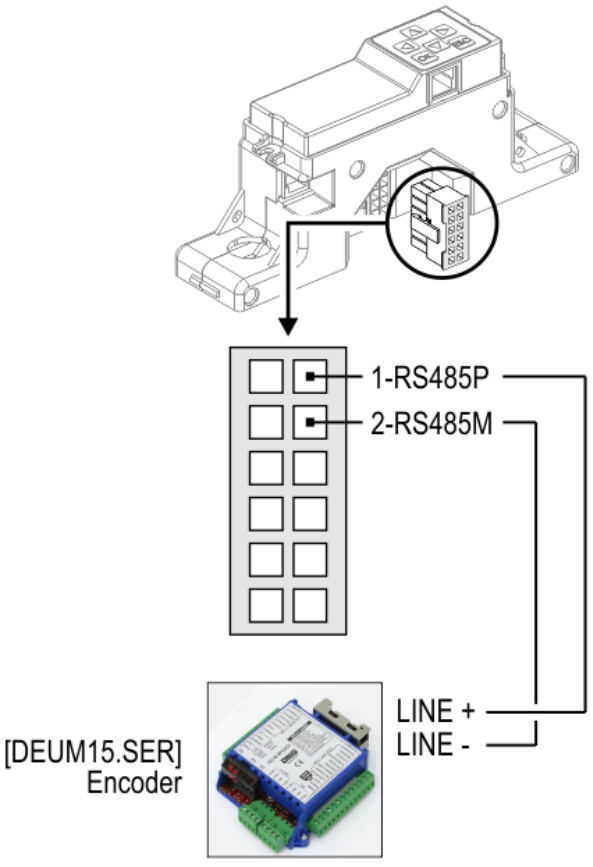
In lifts with significant cables' overall weight, the compensation of travelling cables' weight is an important step. One has to account for: 1) Lift max load, 2) travelling cables' weight per meter, 3) Shaft total length.

Before performing this procedure, in addition to the main connections, [AUT.KIT08] external position sensor must be connected. If you already have DEUM15 encoder you need only connect LLEC6 control unit without using the external sensor, using the serial line for cables'compensation.

Position sensor wiring



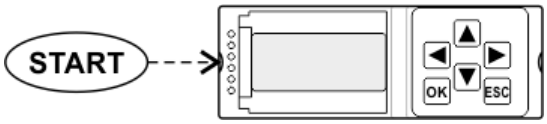
DEUM encoder wiring

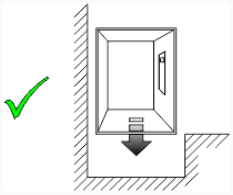
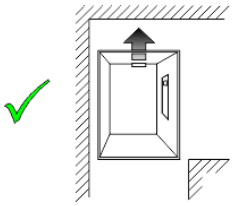


DEUM15 encoder programming requires a serial position indicator.

Compensation procedure

First, perform the system calibration

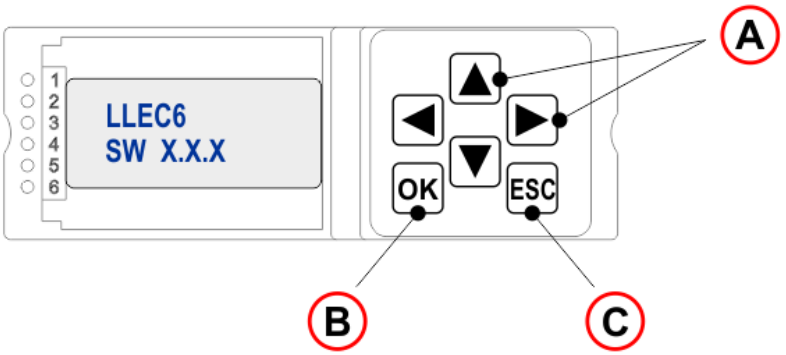


1	--->	[▼]	--->	< Setting >
2	--->	[OK]	--->	< Calibration >
3	--->	[▼]	--->	< Compensation >
4	--->	[OK]	--->	< Bottom floor, are you sure ? >
5	--------->			 Cabin at the lowest floor
6	--->	[OK]	--->	Wait until countdown stops
7	--->	[OK]	--->	< Top floor, are you sure ? >
8	--------->			 Cabin at the highest floor
9	--->	[OK]	--->	Wait until countdown stops

Cables weight is automatically set (editable from < Configuration > / < Compensation > menu). Set the value to 0 kg to disable the function.

Advanced programming

Programming tool



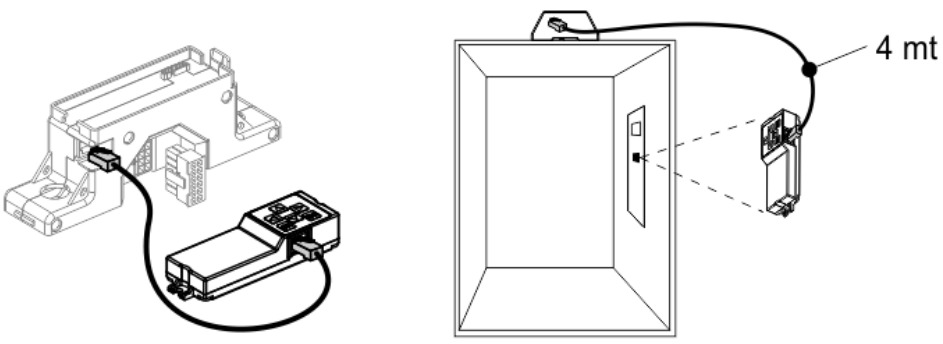
A) – Browse options at current level.

B) – Access to menu and confirm selection.

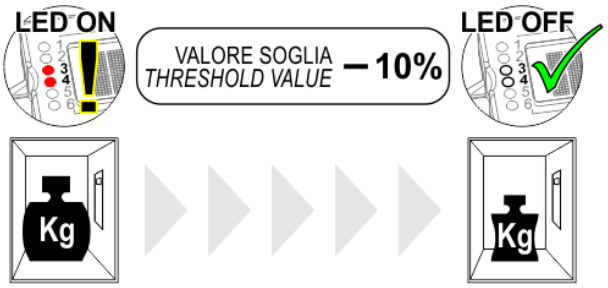
C) – Exit from current level and return to previous level.

Menu		Options	Note
Menu language Italiano / English / Française / Deutsch / Español / Portugués / Russkiy			
[▼]			
Setting	[OK]	Calibration	System calibration
		Compensation	Travelling cables compensation
[▼]			
Threshold	[OK]	Threshold 1 Threshold 2 Threshold 3 (optional)	Threshold 3 0 = Off • Min. 15 Kg. • NO/NC
[▼]			
Configuration	[OK]	Compensation	You can manually change the parameters measured in the calibration and compensation procedure (included threshold NO or NC contact)

The programming tool can also be separated from the control unit and connected by telephone cable. (ex.: back of the pushbutton panel)

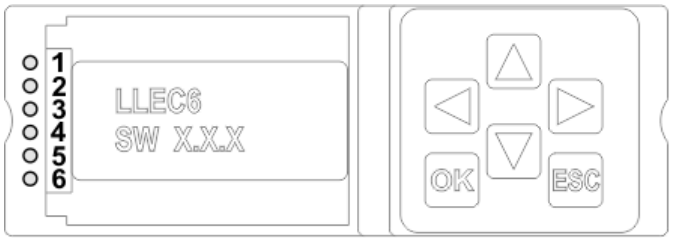


Troubleshooting

Problem	Solution
The device is switched off (LED 1 OFF).	Power up the device.
The device doesn't work (LED 2 does NOT flashing).	Power cycle the device.
Thresholds exceeded and active (LED 3/4 ON).	Reduce the car load to reset thresholds. 

While replacing a LLEC2/3, the existing 120 Ω sensors can be maintained only by powering the LLEC6's 12V control unit via the EWS.AL212 external power supply.

Diagnostic

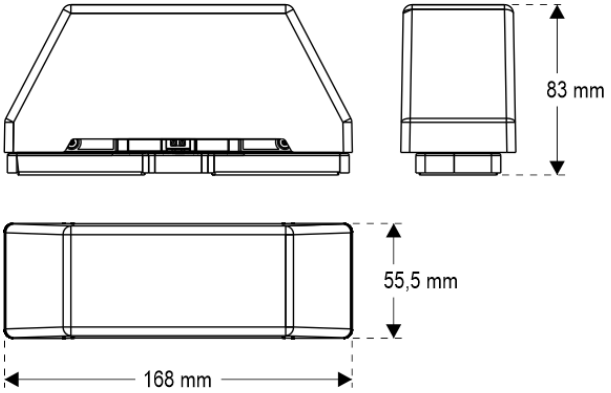


○	Led OFF	●	Led ON (NOT Flashing)	✹	Led ON (Flashing)

	Led	Status	Led	Status
Led 1 = Power supply	●	✓	○	See "Troubleshooting"
Led 2 = Watchdog (Normal operating)	✹	✓	●	See "Troubleshooting"
Led 3/4 = Thresholds 1/2	○	✓	●	See "Troubleshooting"
Led 5 = Load locking	●	Measuring NOT in progress	○	Measuring in progress
Led 6 = Cable weight compensation	●	Enabled	○	Disabled

Datasheet

Dimensions	

	
Voltage	12/24V DC
Max absorption	200 mA
Relays output 1/2	1A, 30V DC (Resistive load)
Load locking input	Dry contact
Operating temperature	-10°c ÷ +50°c

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Updated on 10 Settembre 2021