Installation and operating instructions

Electric chock control box

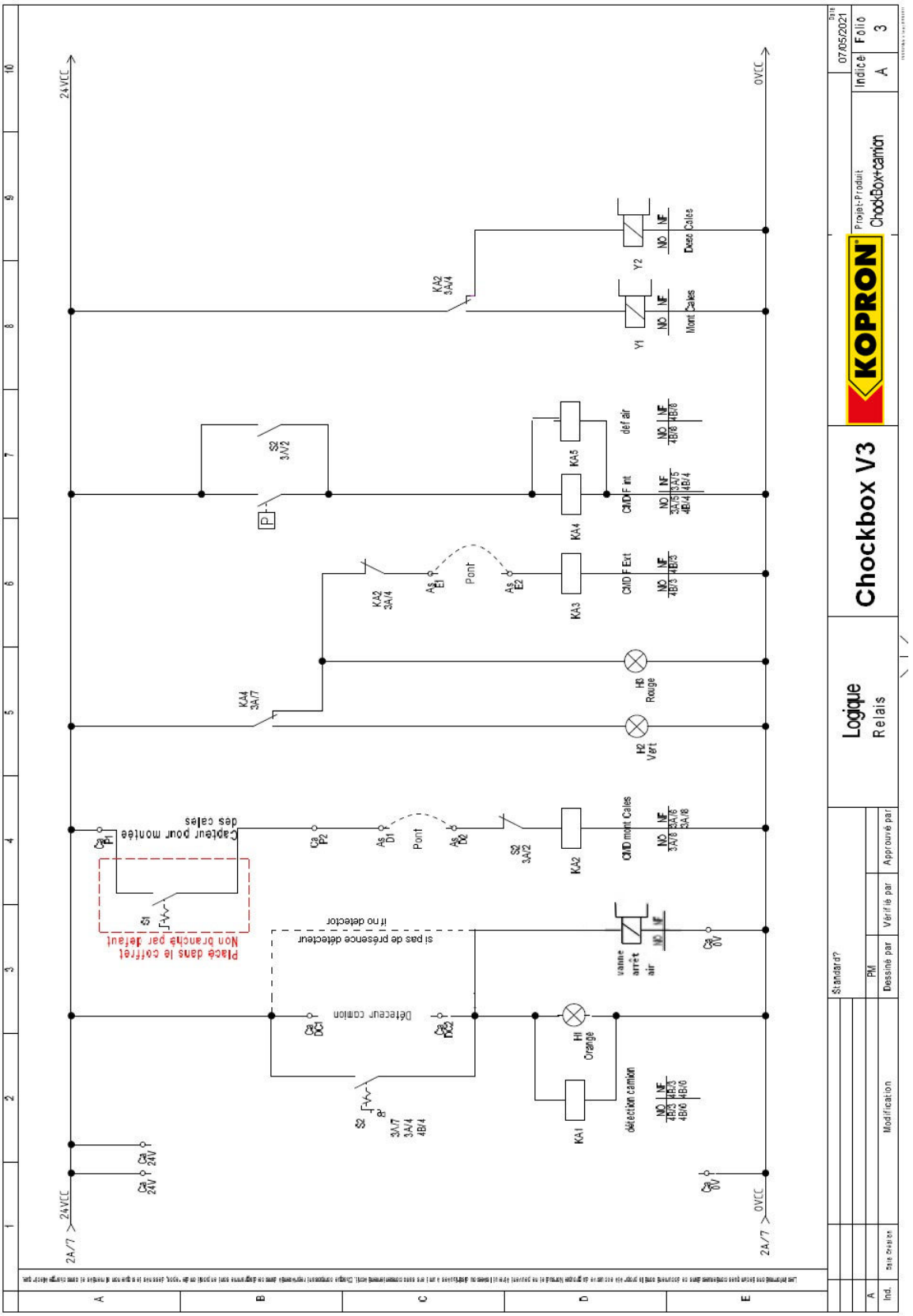
ChockBox V3 - 870353

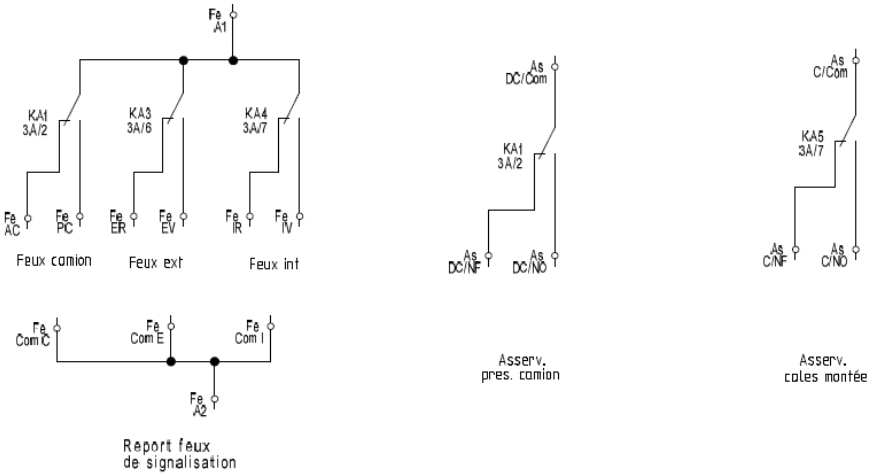
Contents

Contents 2

1. Circuit diagram 3
2. Normal operation 5
3. Operation in maintenance mode 6
4. Default scenario 7
5. Connection 8
   - 5.1. Compressed air 8
   - 5.2 Electricity 9
6. Special case of use of the lights and sensors of the NORSUD Group 10
   - 6.1. Door detection cell 10
   - 6.2. 2-tone LED lights 11
   - 6.3. Truck detector 11
   - 6.4. Exit leveller or open door for controlling chocks 12
7. Technical characteristics – dimensions 12
8. Disposal of the system 12
9. CE declaration of conformity 13

1. Circuit diagram

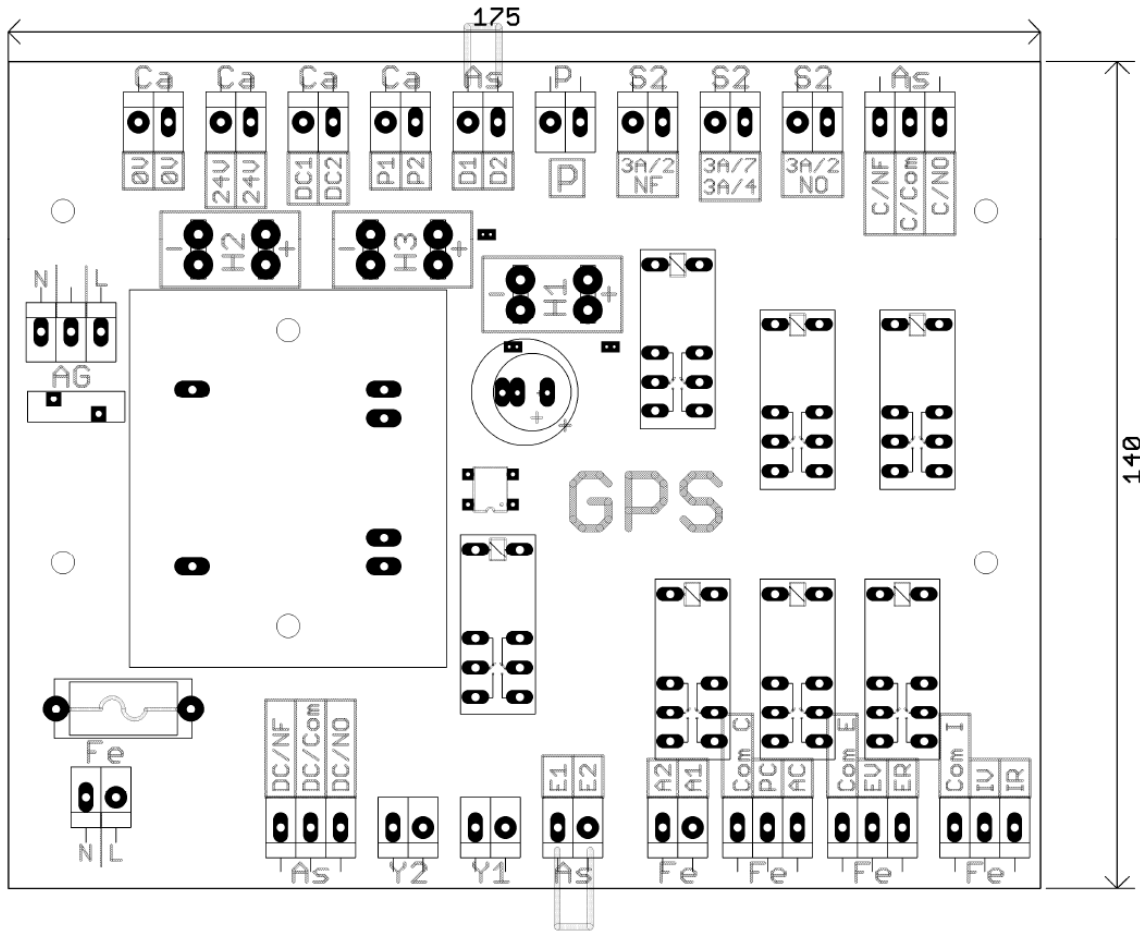




Fe-A1 est relié par défaut à Ca-24V
Fe-A2 est relié par défaut à Ca-0V
Le cable doit permettre de brancher ces fils sur Fe-N et Fe-L

Presse étoupe:
- M16 : Alimentation
- M16 : disponible
- M12 : détecteur camion
- M12 : feux intérieur
- M12 : feux extérieur
- M12 : Report feu camion
- M12 : Asservissement aux cales
- M12 : Asservissement au détecteur de camion

Electronic card diagram



Terminal number	Function
Approx. 24V	24V – 24V dc supply for the sensors
Approx. 0V	0V – 24V dc supply for the sensors
Approx. DC1	Connection of the dry contact for the truck detector
Approx. DC2	
Approx.P1	Connection of the dry contact for the door opening information
Approx. P2	
Fe Com C	Common truck detection delay
Fe AC	Truck absence lights
Fe PC	Truck presence lights
Fe Com E	Common exterior light delay
Fe ER	Red exterior lights
Fe EV	Green exterior lights
Fe Com I	Common interior light delay
Fe IR	Red interior lights
Fe IV	Green interior lights
AS DC/Com	Common dry contact / Truck detector coupling
AS DC/NF	Normally closed / Truck detector coupling r
AS DC/NO	Normally open / Truck detector coupling
AS C/Com	Common dry contact / Chock coupling
AS C/NF	Normally closed / Mounted chock coupling r
AS C/NO	Normally open / Mounted chock coupling

2. Normal operation

The purpose of this box is to control:

- the Calematics via an electrical distributor coupled to the door or to a rotary knob
- the interior and exterior traffic lights of the bay
- to allow operation of the leveller, or other device, if the chock is active
- to manage the detection of a truck and couple equipment to it

The lights on the front of the box are a repetition of the interior light.

- Basic operation of the lights with pre-wiring:

	Door raised or knob rotated	Door lowered or knob not rotated
Chock raised	Interior light / Exterior light Leveller authorised	Interior light / Exterior light Leveller authorised
Chock lowered	Interior light / Exterior light Leveller prohibited	Interior light / Exterior light Leveller prohibited

As long as the pressure in the chocks is not reduced the exterior light will remain red.

Truck detected	Truck not detected
Orange delay light on	Delay light off
Authorised coupling	Prohibited coupling

3. Operation in maintenance mode

O switch the box to maintenance mode the key must be turned clockwise. In maintenance mode the key cannot be removed from the lock.

When the maintenance key is inserted and turned clockwise:

- The truck presence light lights up orange;
- The interior light turns green;
- The exterior light turns red;
- The chocks are lowered;
- The leveller is authorised;
- The coupled truck presence switch turns to authorised.

When the bay is under maintenance, the personnel carrying out this maintenance must be trained and authorised. The bay must be closed off because the chock is inefficient and the lights are inconsistent.

This mode is not an operating mode. It enables the maintenance personnel to release the equipment used to conduct maintenance of the bay.

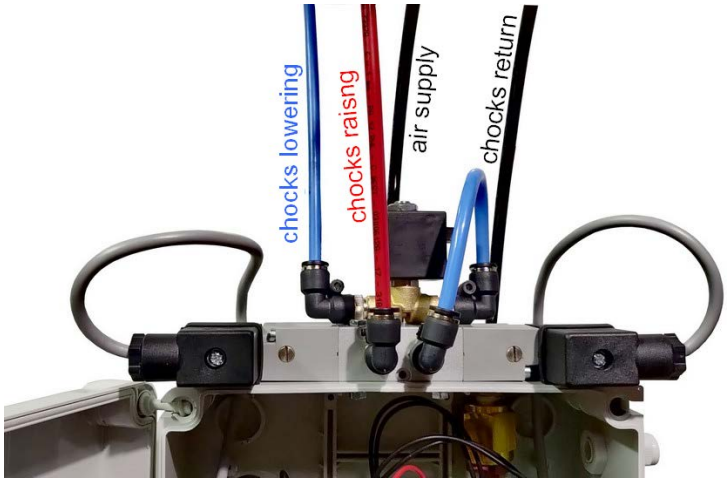
4. Default scenario

Exterior light	Interior light	Truck light (optional)	Stage	Leveller	Coupling to truck presence
V	R	Off	Awaiting truck Leveller at rest – door closed – chocks lowered	Prohibited	Prohibited
V	R	On	Arrival of truck Leveller at rest – door closed – chocks lowered	Prohibited	Authorised
R	R	On	Opening of the bay door – activation of raising of chocks Leveller at rest – door closed – chocks lowered	Prohibited	Authorised
R	V	On	End of raising of chocks (approx. 10 s) Leveller at rest – door open – chocks raised	Authorised	Authorised
R	V	On	Positioning of the leveller and transshipment operations Leveller floating – door open – chocks raised	Authorised	Authorised
R	V	On	End of transshipment operation – return of leveller to rest Leveller floating – door open – chocks raised	Authorised	Authorised
R	V	On	Closing of the door – activation of lowering of chocks Leveller at rest – door closed – chocks raised	Prohibited	Authorised
V	R	On	End of lowering of chocks (approx. 10 s) Leveller at rest – door closed – chocks raised	Prohibited	Authorised
V	R	Off	Departure of truck Leveller at rest – door closed – chocks lowered	Prohibited	Prohibited

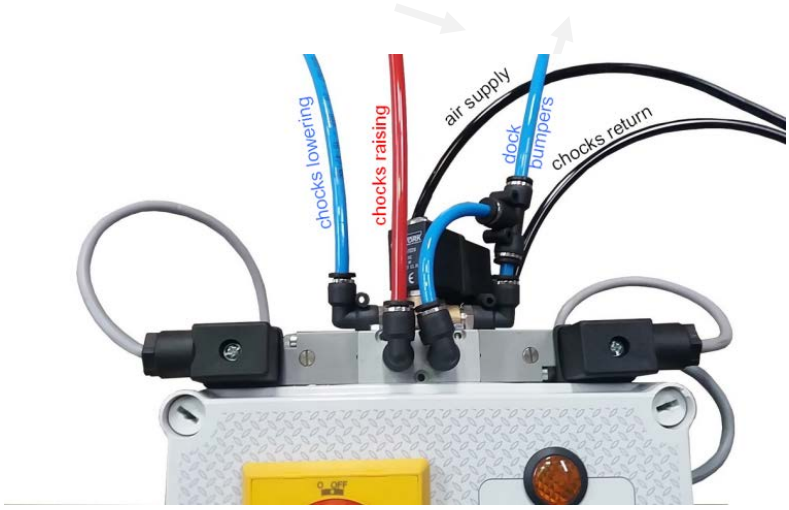
5. Connection

5.1. Compressed air

Connection of the standard distributor:



Connection of the Dockmatic distributor:



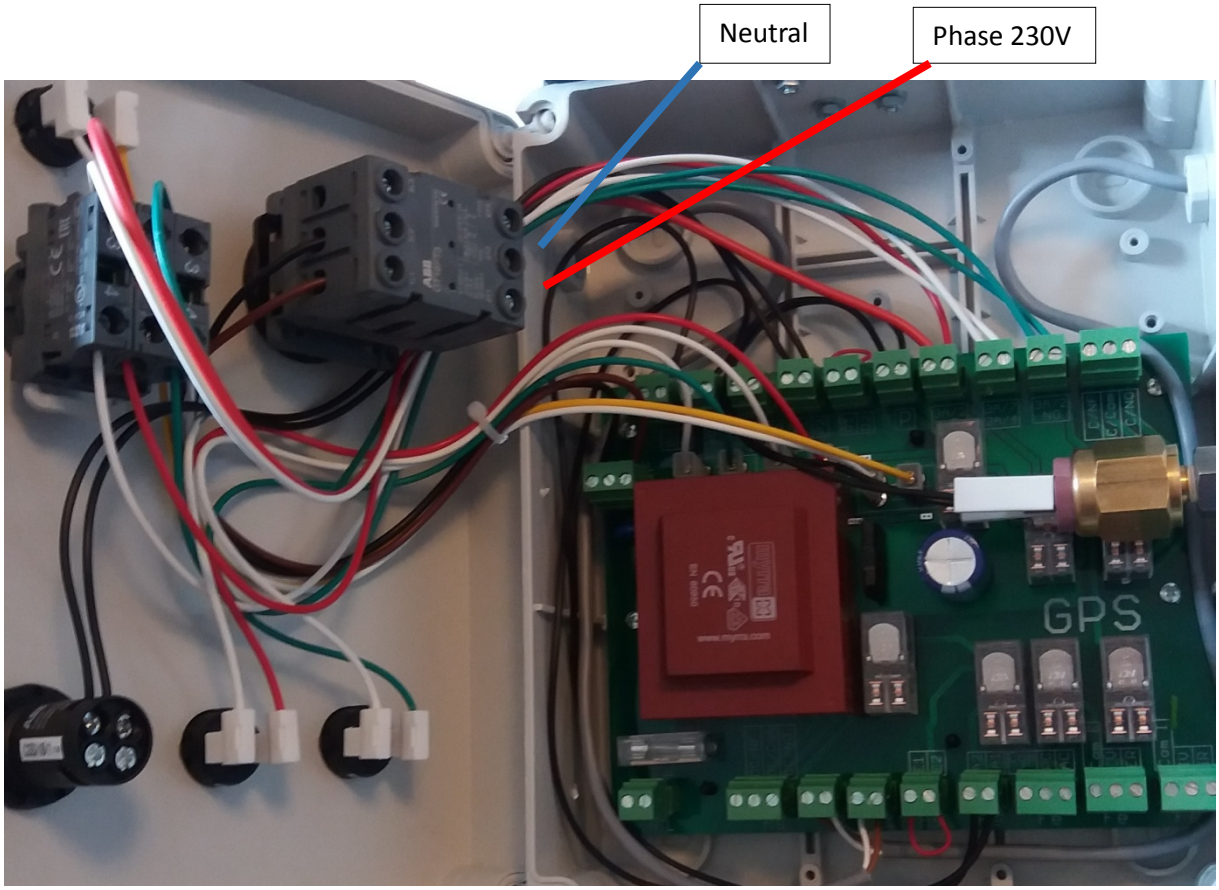
The pressure switch (on the right of the box) is already connected electrically. It is a NO (normally open) contact which closes when the pressure of the chock jacks exceeds 4 bars, i.e. when the chocks are raised.

The black pipe running from the chocks must be connected to the pressure switch (cf. chock installation guide). When using for the first time check the setting of the flow limiter for correct light operation. If there is a change of status there must be no flashing between red and green.

5.2 Electricity

5.2.1. Supply to the box

The box is supplied by connecting a voltage of 230VAC directly to the isolator.



5.2.2 Operation

The box is supplied with bridges between terminals As-D1 and As-D2 as well as between As-E1 and As-E2.

Terminals As-D1 and As-D2 enable one condition to be added to the raising of the chocks.

Terminals As-E1 and As-E2 enable one condition to be added to the change of colour of the exterior light.

Contacts As C/Com, C/NF and C/NO enable another installation to be used when the chocks are raised, a bay leveller for example.

Contacts As DC/Com, DC/NF and DC/NO enable another installation to be used for detecting a truck in front of the bay door (OPTIONAL), for example to authorise raising of the electrical bay door if there is a truck in front of the latter.

5.2.3 Supply to the signalling lights

The box is wired in the factory so that the signalling lights are supplied with 24VDC. For this reason terminal Fe-A1 is connected to the 24VDC and terminal Fe-A2 is connected to the 0VDC.

However, it is possible to configure the box for supplying the signalling lights with 230VAC, for which purpose FE-A1 must be connected to Fe-L and Fe-A2 to Fe-N.

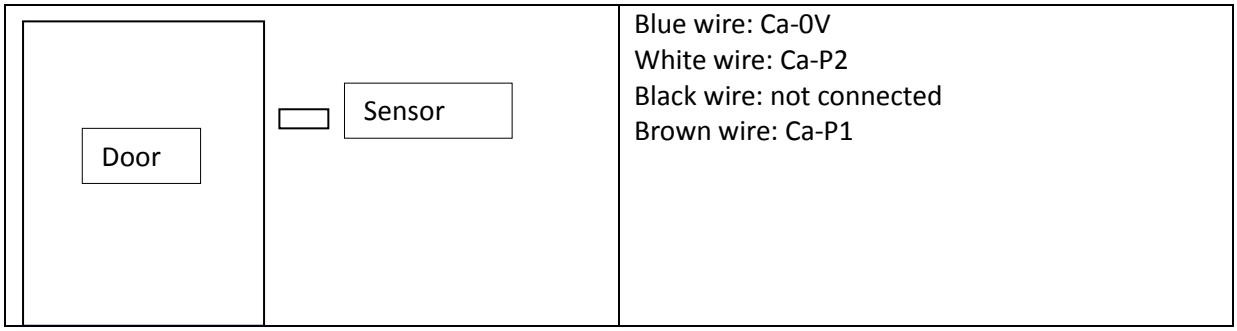
The purpose of this pre-wiring is to prevent the lights from being destroyed in the event of incorrect connection.

6. Special case of use of the lights and sensors of the NORSUD Group

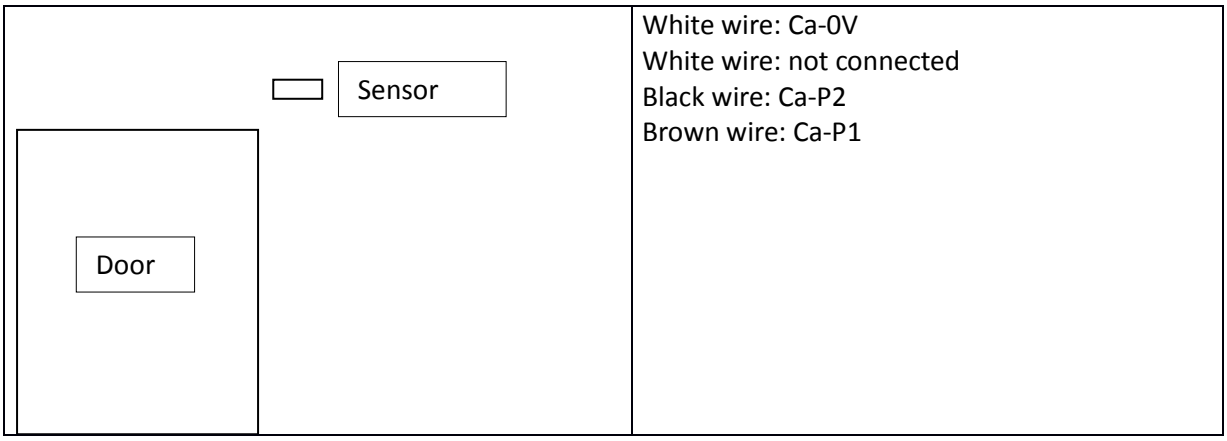
6.1. Door detection cell

Si door sensor PA18CAD04PAWS is used. It is installed in the door rail at a height of approx. 2.5 m to ensure the longest possible service life.

Case 1: the sensor is installed along the bulkhead



Case 2: the sensor is installed above the bulkhead



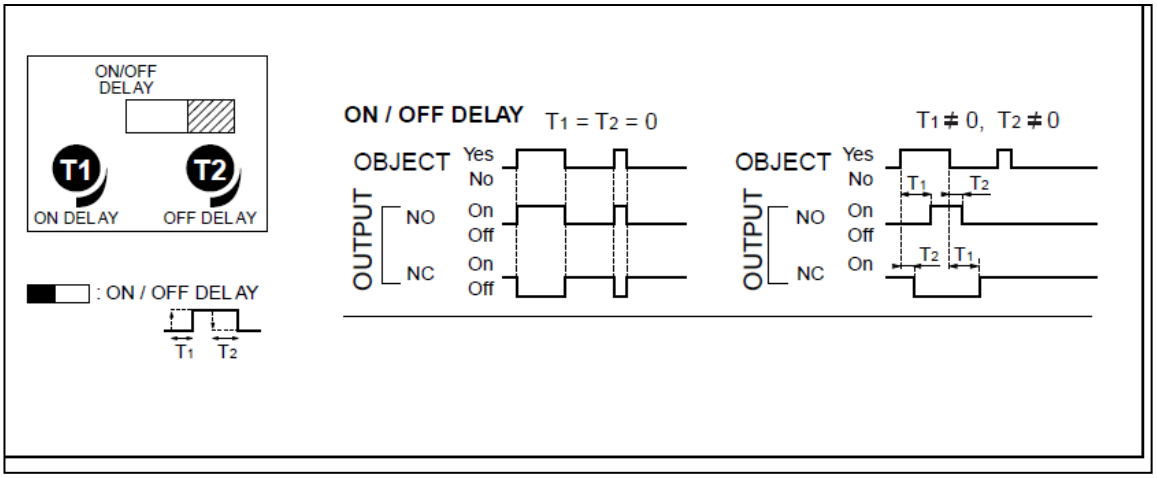
6.2. 2-tone LED lights

	Interior	Exterior
0V lights	Fe ComI	Fe ComE
+24 v lights	Fe IV	Fe EV
+ 24V lights	Fe IR	Fe ER

6.3. Truck detector

If the option has been selected the DATALOGIC detector is connected as below:

Sensor	Box
Exit 1	Ca – 24V
Exit 2	Ca – 0V
Exit 3	Ca – DC1
Exit 4	Ca – DC2
Exit 5	No



6.4. Exit leveller or open door for controlling chocks

In the particular case where this is required, the leveller must be at rest to enable the chocks to be lowered. For this purpose:

- A dry contact must be open when the leveller is at rest;
- The two contacts of the leveller must be connected to terminals Ca-P1 and Ca-P2 of the ChockBox;
- The door detection cell or the dry contact of the door must also be connected to terminals Ca-P1 and Ca-P2.

The operation will be as follows:

The chocks are raised as soon as the door opens and they can only be lowered when the leveller has returned to its position of rest and when the door is closed.

7. Technical characteristics – dimensions

The box is supplied with 230VAC connected to the isolator according to Section 3.2.1.1.

- Electrical protection: by fuse
- Rated voltage: 250 VAC
- Rated current: 0.16A
- Breaking capacity: 35 A
- Characteristic: Time-lag T
- Permissible ambient air temperature: -55 ° C to 125 ° C
- Climatic category: 55/125/21 according to IEC 60068-1
- Materials: glass tube, nickel-plated copper alloy connectors
- Unit weight: 1 g
- Storage conditions: 0 ° C to 60 ° C, max. 70% relative humidity
- Marking of product: rated current, rated voltage, characteristic, breaking capacity, approvals
- Dimensions: height 290 mm, width 240 mm, depth 130 mm
- Protection rating: IP 54 according to DIN EN 60529
- Material: box and cover in ABS (anti UV protection)
- Colour: grey, RAL 7035
- Installation temperature: -5°C to +60°C according to DIN EN 60670
- Temperature resistance: up to 70°C max. according to DIN EN 60695-10-2
- Flame retardancy: 650°C according to DIN EN 60695-2-11.

8. Disposal of the system

The electrical box must be delivered to a waste site with the electrical appliances.

9. CE declaration of conformity

According to Machine Directive 2006/42/CE, the manufacturer:

NORSUD

PA La Ronze – CS 50108

69440 TALUYERS

Tel : 04 78 48 39 39

Fax : 04 78 48 24 40

declares that t**he "V2 ChockBox"** according to the European regulations and Directives:

Directive 2006/95/CE	Low Voltage.
Directive 2014/30/EU	Electromagnetic Compatibility (EMC).
NF EN 60204-1	Safety of the machines – Electrical equipment on machines.