

268-EN



LIGHT CURTAIN INSTALLATION GUIDE

- FOR -

LIGHT CURTAIN#1
SMALL SETBACK

4804 / 4805 SERIES



THE PEELLE COMPANY

FREIGHT DOORS | CAR GATES | CAR ENCLOSURES

TECHNICAL SUPPORT 1-800-787-5020 ext 275

Guide No. 268-EN

LIGHT CURTAIN #1
3 1/2 SETBACK

Date: MAR 01 / 2023

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IMPORTANT INFORMATION

FOLLOW THE INSTRUCTIONS GIVEN IN THIS MANUAL CAREFULLY. FAILURE TO DO SO MAY CAUSE CUSTOMER COMPLAINTS, INJURY, OR CALL BACKS. KEEP INSTRUCTION MANUAL ON SITE.

FOR THE OPERATION OF LIGHT CURTAIN IN THE MODE “AUTO BLANKING”, THE FOLLOWING POINTS MUST BE OBSERVED:

- THE DOOR CONTROLS MUST GENERATE THE TEST INPUT SIGNAL (WHERE USED) WITHOUT FAIL.
- THE LIGHT CURTAIN REMAINS INACTIVE UP UNTIL THE GATE IS COMPLETELY OPEN



DO NOT USE THIS PRODUCT IN EXPLOSIVE ATMOSPHERES, RADIOACTIVE ENVIRONMENTS OR FOR MEDICAL APPLICATIONS! USE ONLY SPECIFIC AND APPROVED DEVICES FOR SUCH APPLICATIONS OTHERWISE SERIOUS INJURY OR DAMAGE TO PROPERTY MAY OCCUR!

IT IS IN THE SOLE RESPONSIBILITY OF THE PLANNER AND/OR INSTALLER AND/OR BUYER THAT THIS PRODUCT IS USED ACCORDING TO ALL APPLICABLE CODES AND STANDARDS IN ORDER TO ENSURE SAFE OPERATION OF THE WHOLE APPLICATION.

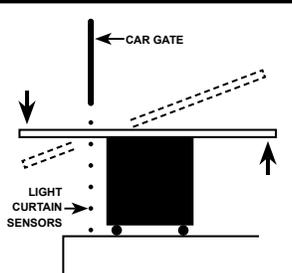
ANY CHANGE OF THE DEVICE BY THE BUYER OR USER MAY RESULT IN AN UNSAFE CONDITION.

THE MANUFACTURER DENIES EVERY LIABILITY AS WELL AS WARRANTY CLAIMS WHICH RESULT FROM SUCH MANIPULATION.

OBJECTS THAT PASS THROUGH THE PROTECTED AREA FASTER THAN THE MAXIMUM RESPONSE TIME OF THE DEVICE MAY NOT BE DETECTED.

IT IS THE RESPONSIBILITY OF THE SPECIFIER, PURCHASER AND INSTALLER TO ENSURE THAT ON COMPLETION, THE INSTALLATION COMPLIES WITH ALL RELEVANT FEDERAL, STATE AND LOCAL CODES AND REGULATIONS THAT APPLY TO YOUR APPLICATION. PARTICULAR ATTENTION SHOULD BE GIVEN TO CLAUSE 2.13.3.4 POWER CLOSING OF VERTICALLY SLIDING HOISTWAY DOORS AND VERTICALLY SLIDING CAR DOORS OR GATES OUTLINED IN ASME A17.1a-2010 / CSA B44a-10 ADDENDA TO SAFETY CODE FOR ELEVATORS AND ESCALATORS. THESE LIGHT CURTAIN SYSTEMS MUST BE INSTALLED ONLY BY AUTHORIZED AND FULLY TRAINED PERSONNEL.

CAUTION



← CAR GATE

LIGHT CURTAIN
SENSORS

AVOID IMPROPER USE

The light curtain is designed to detect passengers and freight of a specific size.

Objects smaller than the spacing between the light beams may not be detected. Transparent objects may not be detected.

PEELLE 060163

ENSURE THIS LABEL IS INSTALLED IN A VISIBLE LOCATION TO THE USER

CAUTION

Damage to eye

Although the GridScan/Mini does not emit dangerous amounts of infrared light, long exposure to intense infrared light sources can result in damage to the eyes.

Never look directly into the active infrared emitter from a close distance.

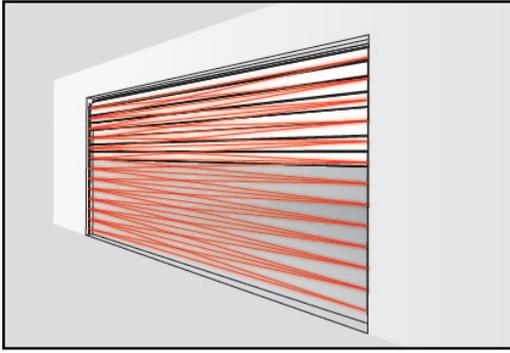
WARNING

Electrical and mechanical hazards

Electrical shock and unexpected door movement can cause serious injury or death.

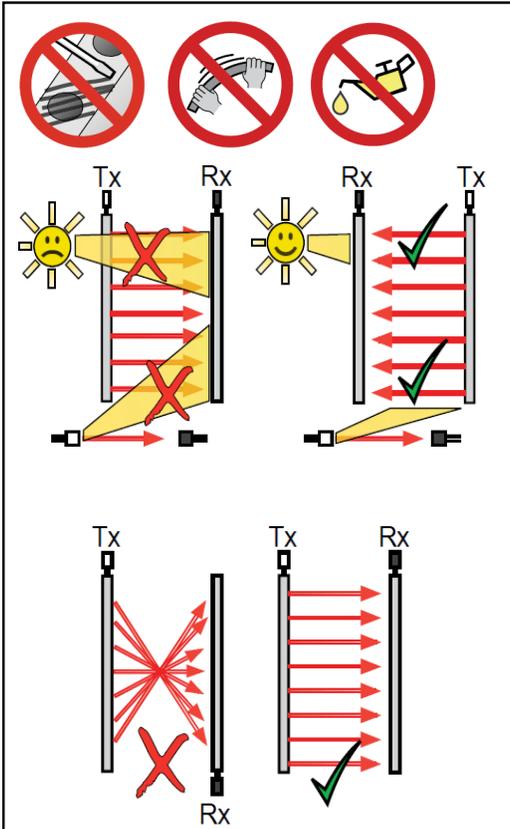
- Follow all applicable safety measures
- Use only specific and approved tools
- If the GridScan/Mini must be adjusted, the main power supply must be switched off and marked as out of service.

OVERVIEW AND PRECAUTIONS



Overview

The emitter and receiver edges create a grid of infrared beams which offer 1.8 m (6 ft) in protection height. When the infrared beams are interrupted, the output sends a signal to the connected controller. As soon as the detection area is clear again, the output switches to indicate that the area is “clear”. The blanking system (The Protector™ configuration) is designed to mount directly into the guide rails. When the door closes, the GridScan/Mini recognizes the door as such and does not switch the output.



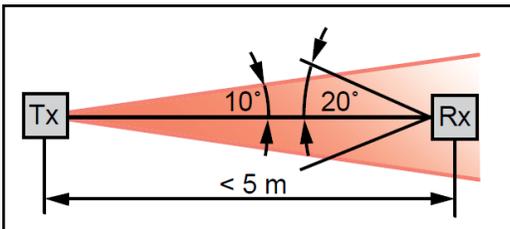
General instruction and precaution

- Never scratch or paint the optical lenses because they form the light path! Do not drill additional holes into the profile. Unpack the profiles just before installation in order to avoid damage.
- Do not bend or twist the edges!
- Oil can damage the cables. Contamination must be avoided at all times!
- Although the GridScan/Mini is insensitive to direct sunlight avoid all unnecessary exposure if possible.
- Avoid interference from blinking lights or infrared light sources such as photo cells or other light curtains.
- Do not install the GridScan/Mini in places where the emitter and receiver edges are directly exposed to light sources such as fluorescent tubes or energy saving lamps.
- Make sure to place the connection plugs for both the emitter and receiver at the same end.

NOTICE

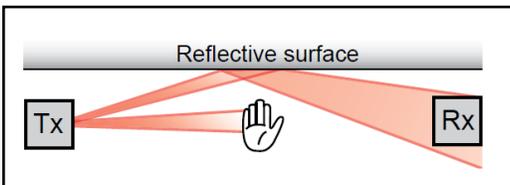
Mechanical damage to the light curtain

- Do not drill additional holes into the light curtain
- Do not overtightened the mounting screws
- Mount the edges on a flat surface



Alignment

The optical axis of the emitter (Tx) and the receiver edge (Rx) need to be aligned towards each other to ensure the light curtain functions reliably.



Reflective Surfaces

Reflective surfaces near to or parallel to the surveillance area can cause reflections and interfere with the GridScan/Mini’s functions. Keep a reasonable distance between the sensor edges and any reflective surface.

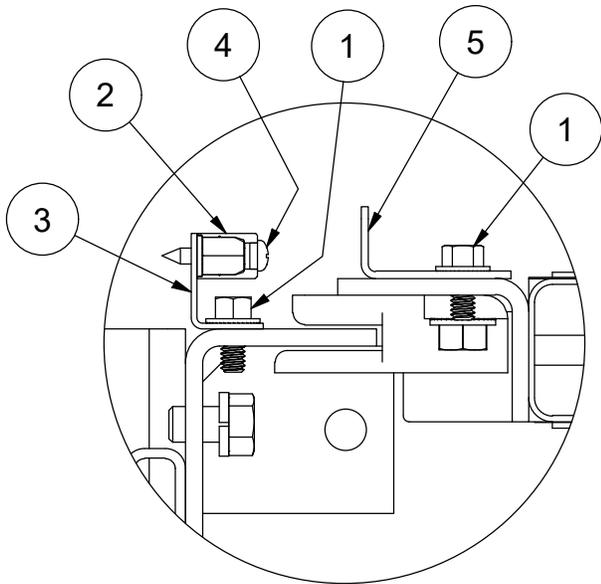


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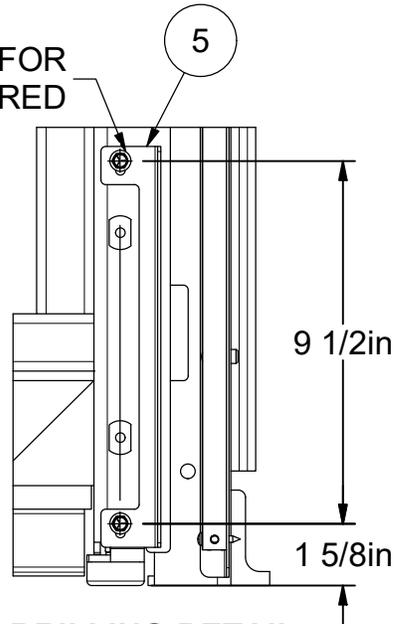
INSTALLATION - SINGLE SECTION GATE

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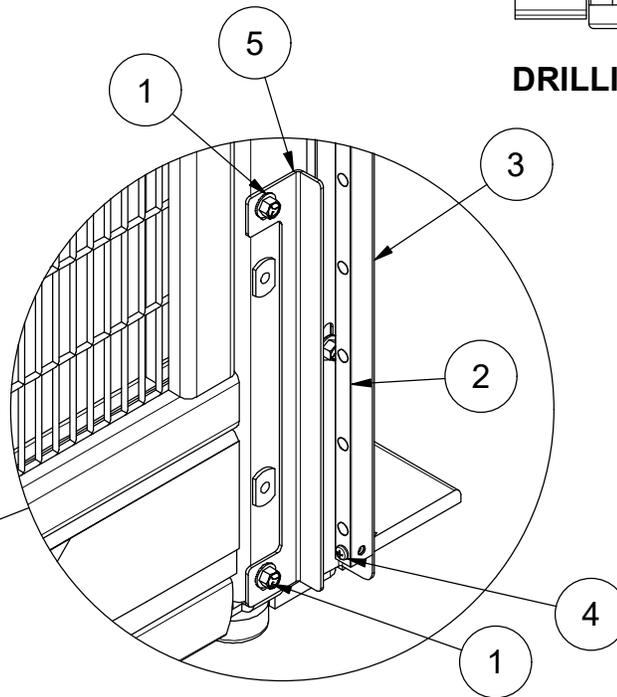
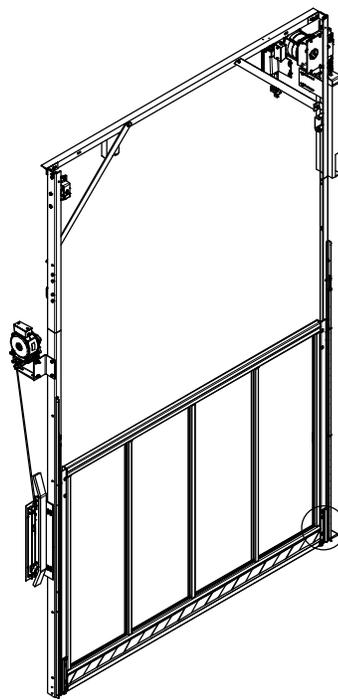


**PALN VIEW
LEFT HAND SIDE**

DRILL AND TAP FOR
1/4-20 IF REQUIRED



DRILLING DETAIL



5	2	066999	LC#1 BEAM BLOCKER - SMALL SETBACK
4	6		SELF TAPPING SCREW
3	2	480119	LC#1 MOUNTING BRACKET - SMALL SETBACK
2	1	4804/4805	LIGHT CURTAIN (GRIDSCAN MINI TX)
1	12	11104684	1/4-20 x 1/2 HEX HD FLANGE BOLT ZP
ITEM	QTY	PART NO	DESCRIPTION



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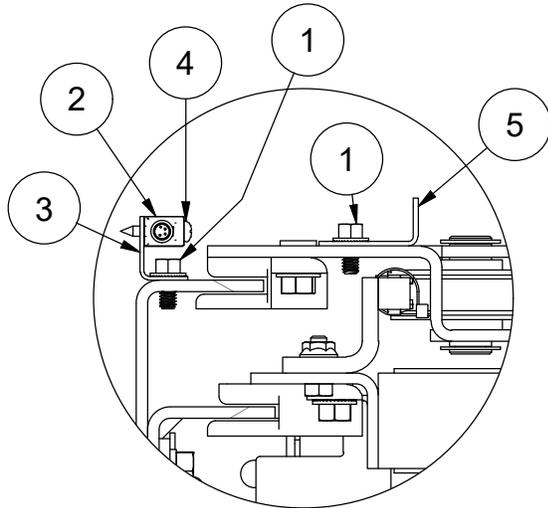
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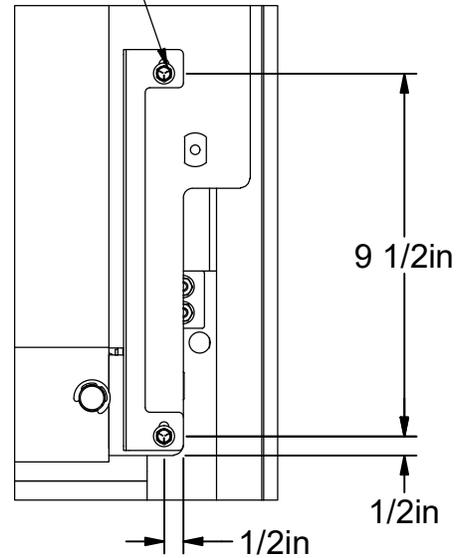
INSTALLATION - DOUBLE SECTION GATE

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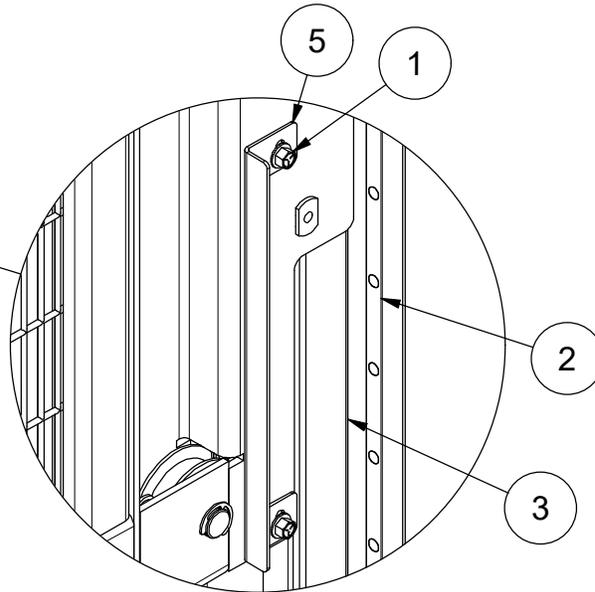
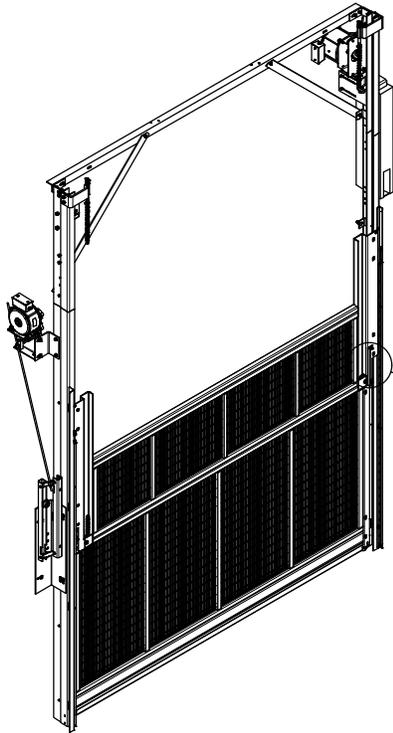


**PLAN VIEW
LEFT HAND SIDE**

DRILL AND TAP
FOR 1/4-20
IF REQUIRED



DRILLING DETAIL



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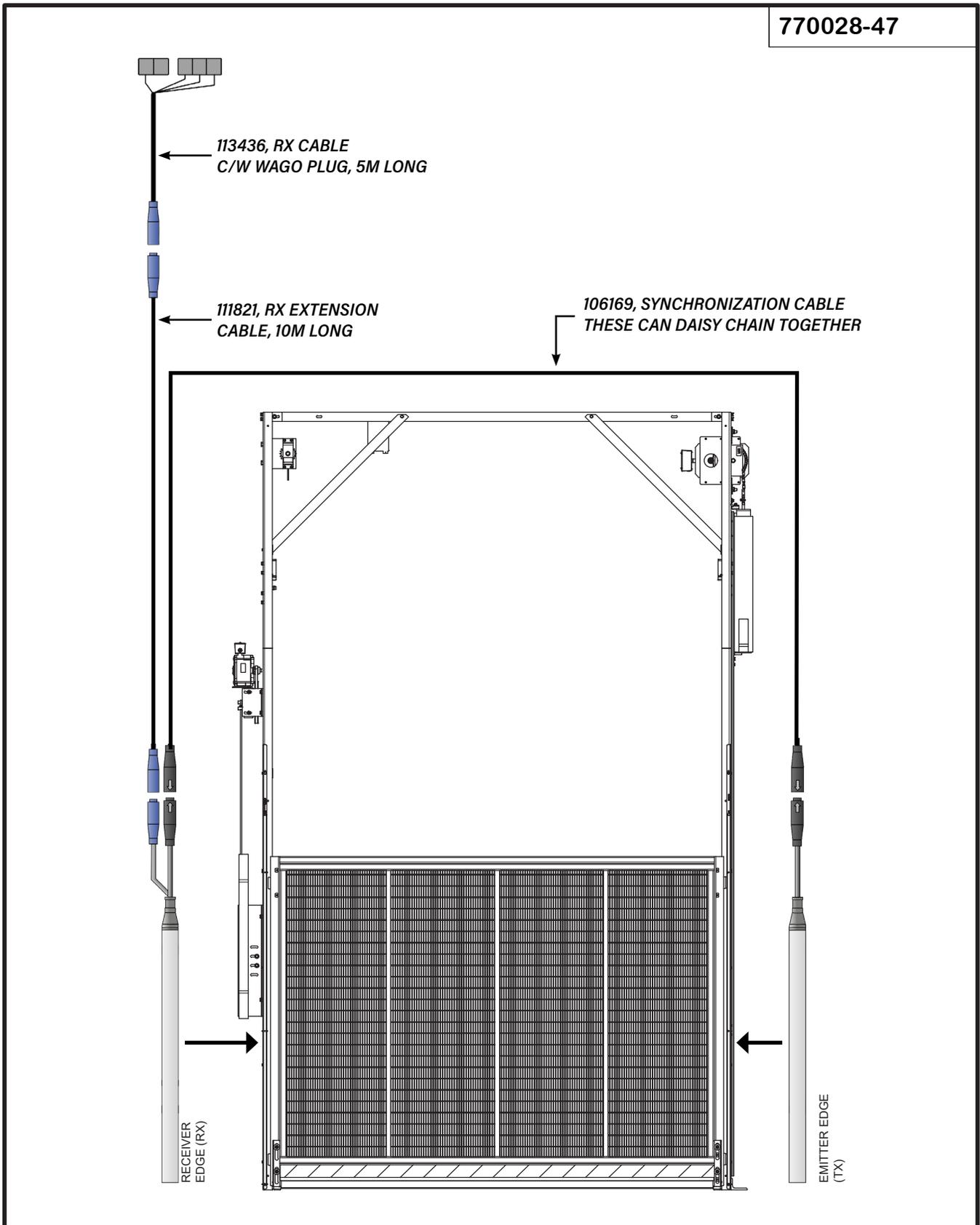
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CABLE CONNECTIONS

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WIRING AND SCHEMATICS

NEW INSTALLATION

If this is a new car gate installation, you should have job specific electrical schematics. Please refer to these for all light curtain wiring connections.

RETROFIT

If this is an after market purchase and you are installing the light curtains on an already existing car gate. Please refer to the following wiring pages for the light curtain wiring information.

You will have to determine what light curtain system and interface you will be using.

If your are unclear about which wiring diagram you need to follow please call our technical support line. 1-800-787-5020 x 275



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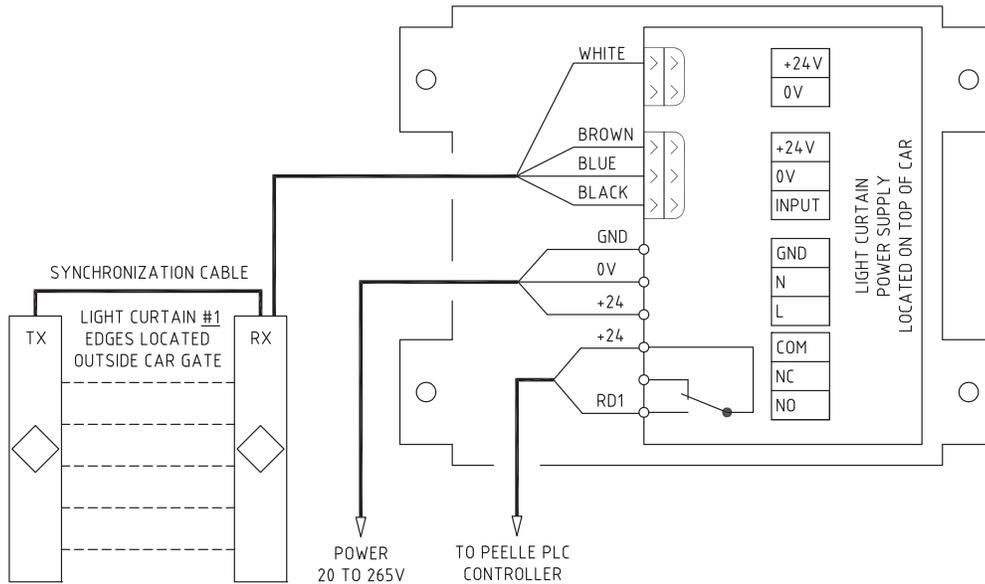
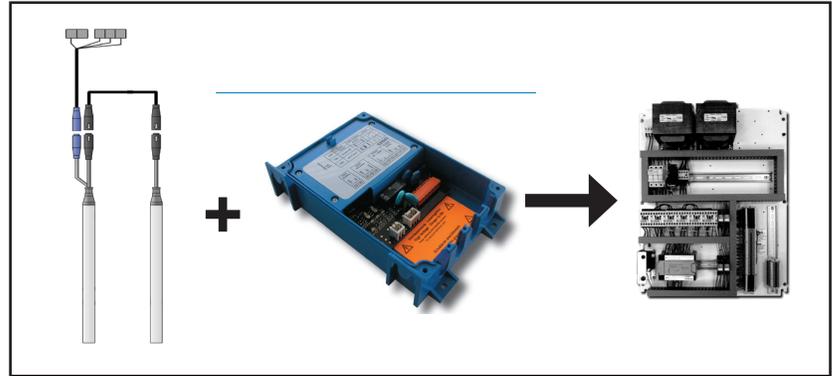
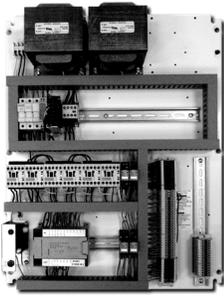
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WIRING - SINGLE LIGHT CURTAIN

Peelle PLC installation



NOTICE

Damage to the optical elements

Never use any solvents, cleaners or mechanically abrasive towels or high-pressure water to clean sensors

Avoid scratching the optical elements while cleaning



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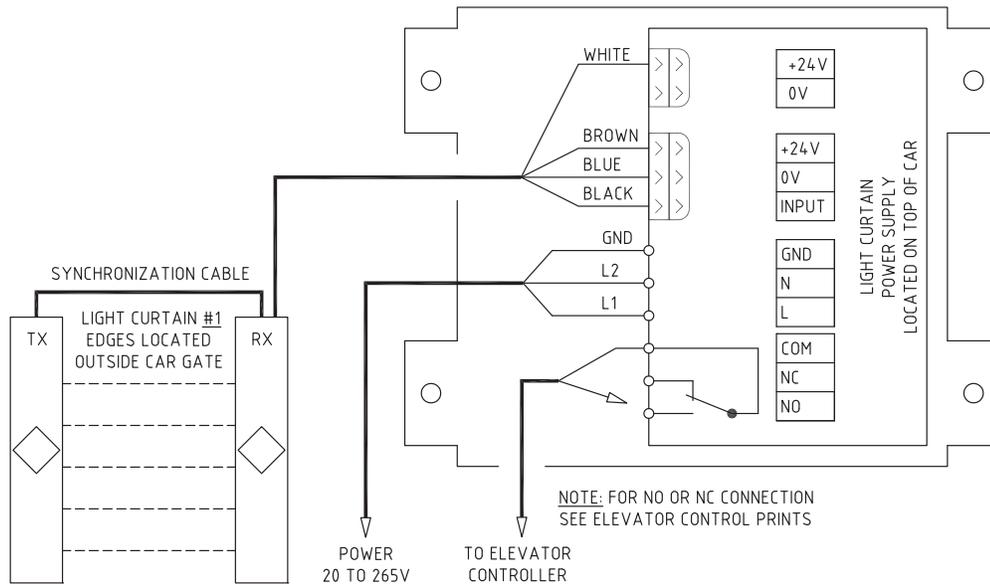
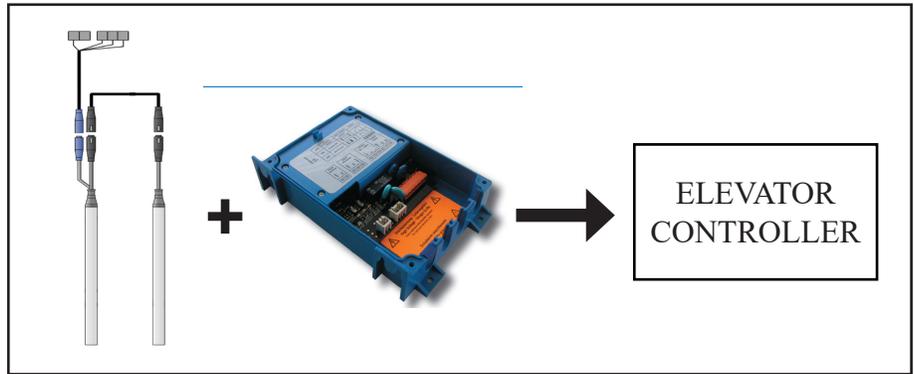
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WIRING - SINGLE LIGHT CURTAIN

Wireless installation



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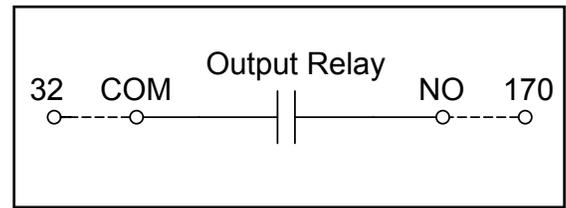
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WIRING - SINGLE LIGHT CURTAIN

Relay Logic installation

WIRING FOR EXISTING PELLE GATES WITH SENSOR BEAM

When adding a light curtain to an existing gate, compliance with A17.1-2000 is required. If the pre-existing reversal device is a Peelle Sensor Beam, simply wire the Output Relay Contact between 32 and 170 of the Peelle Controller.



WIRING FOR EXISTING PELLE GATES WITH OR WITHOUT REVERSING EDGE

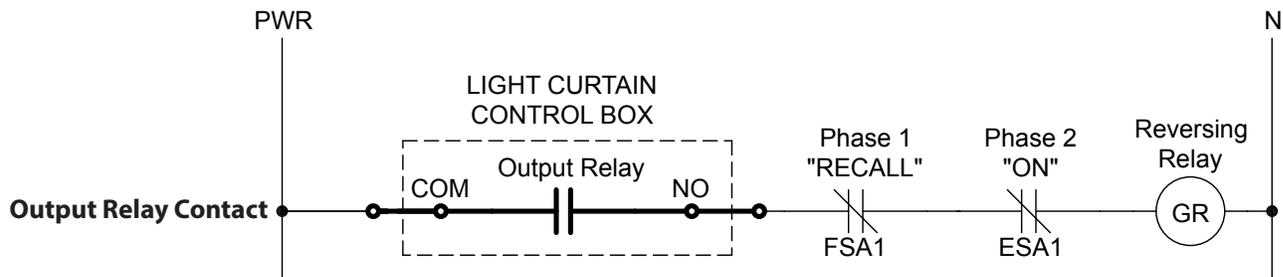
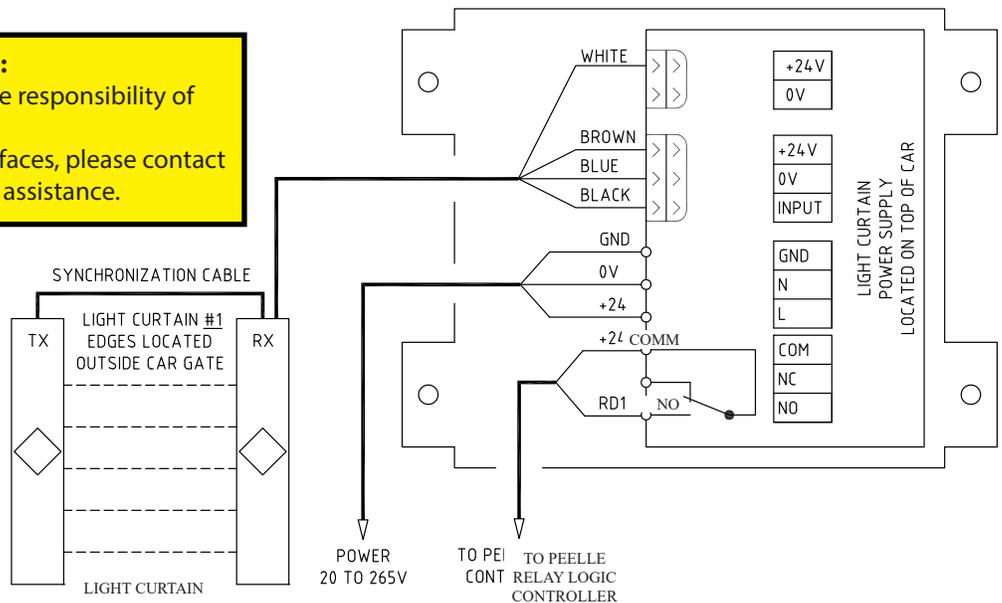
1. Wire the Output Relay Contact to the GR relay of the door control. Add Contacts from Fire Service relays (not included) to ignore detection during Fire Service.
2. Wire a gate Slow Speed Relay as shown in the diagram to ensure gate Slow Speed operation during Fire Service Phase 1 Recall.
3. Wire the gate Slow Speed Relay Contacts to the GH / GL contactor of the existing logic as shown.

NOTES AND EXCEPTIONS:

1. Code compliance is the responsibility of the installer.
2. For other control interfaces, please contact Peelle engineering for assistance.

NOTICE
Moisture environment

If equipment in elevator hoistway will be subject to low pressure or strong jets of water, please use a silicone adhesive to seal the light curtain controller cover and cable entry points.



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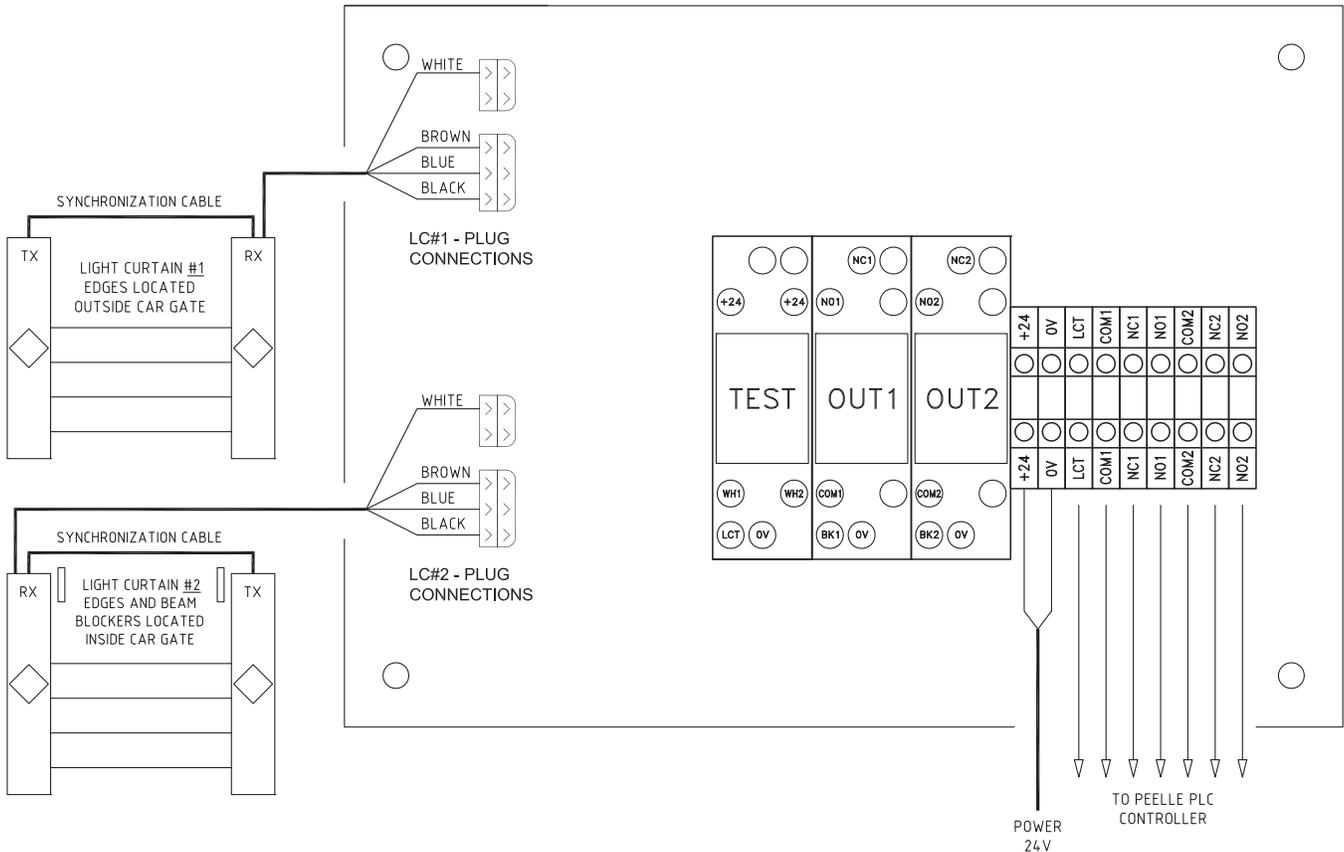
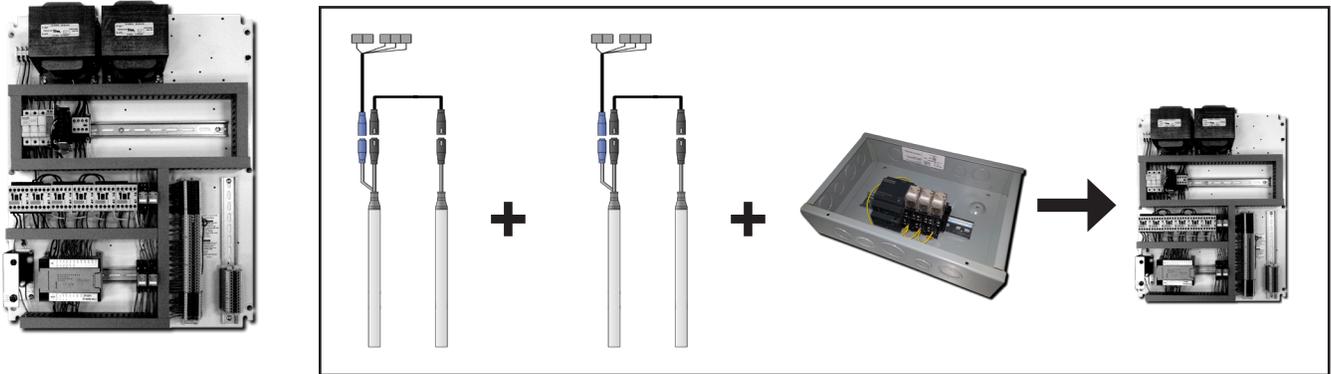
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WIRING - DUAL LIGHT CURTAIN

Peelle PLC installation



NOTICE

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Avoid scratching the optical elements while cleaning



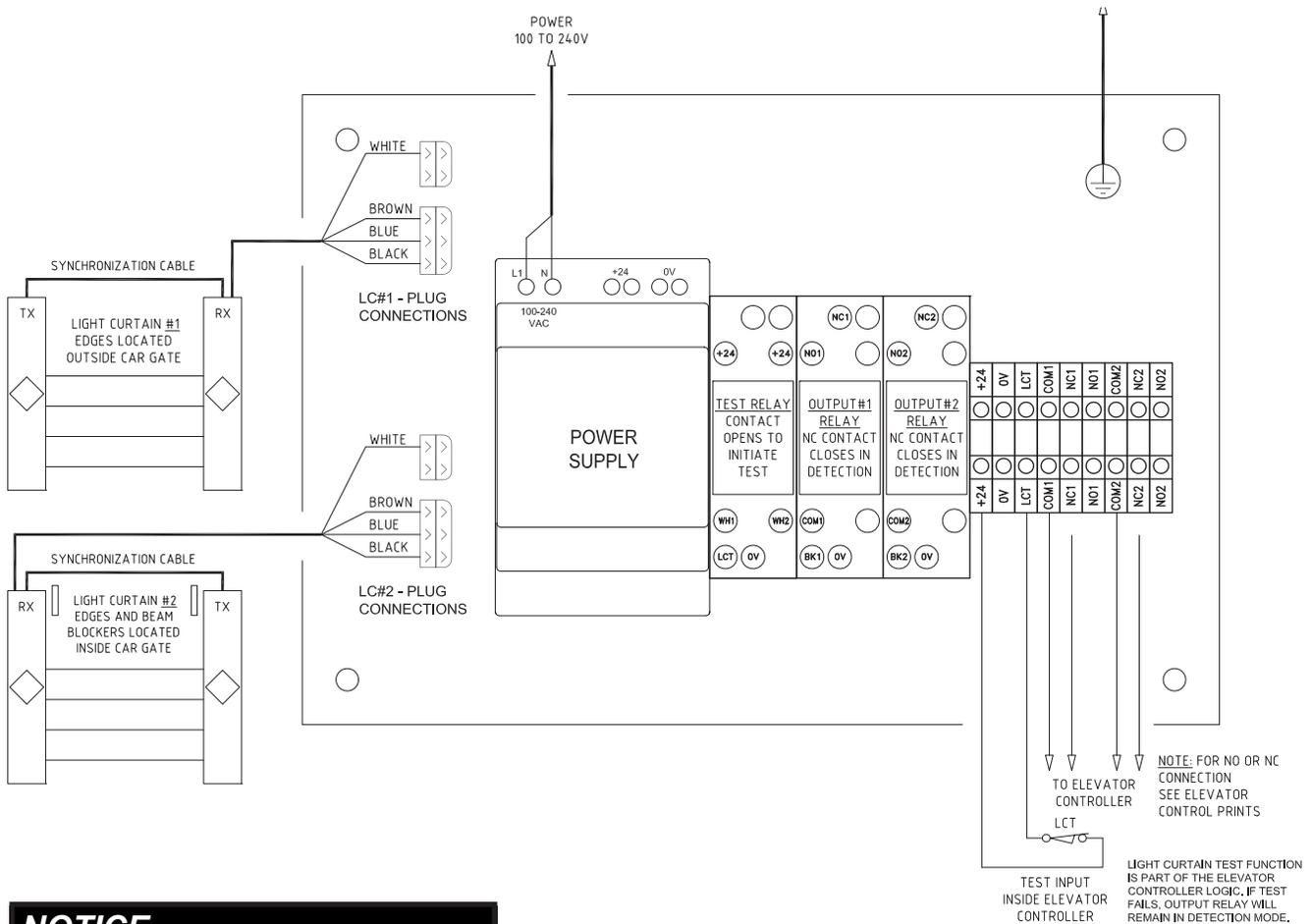
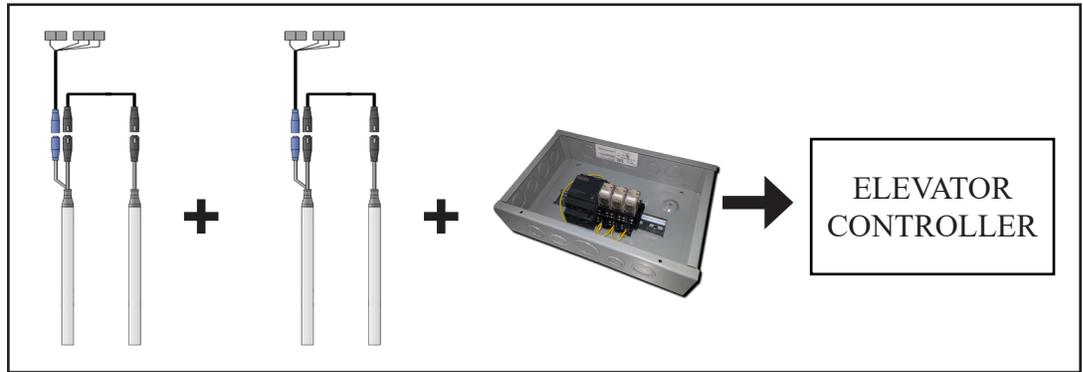
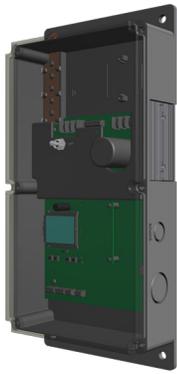
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WIRING - DUAL LIGHT CURTAIN

Wireless installation



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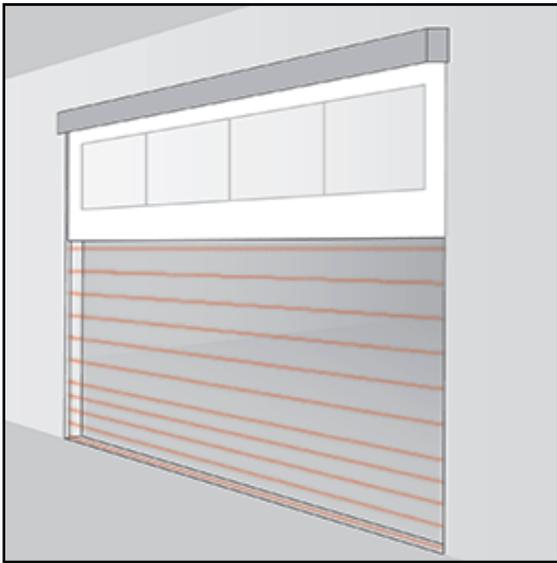
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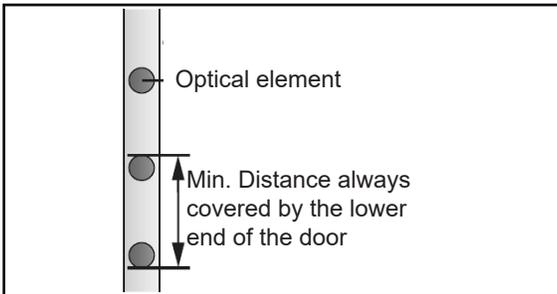
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OPERATION



Auto Blanking

The GridScan/Mini can differentiate between a light beam interruption caused by an object and a light beam interruption caused by the closing door. The GridScan/Mini does this by analyzing the different interruption patterns.



Closing door interruption pattern:

The light beam interruption of a closing door starts at the topmost beam going downwards. The lower end of the door needs to cover always at least one beam during door closure

Output

When an object enters the surveillance area (OBJECT DETECTED) the GridScan/Mini output changes after response time t_2 . When the object leaves the surveillance area (NO OBJECT) the GridScan/Mini output switches back after release time t_3

Changing the Output logic

Output logic is set using the gray wire. The default logic is LO (light-on)

Gray wire

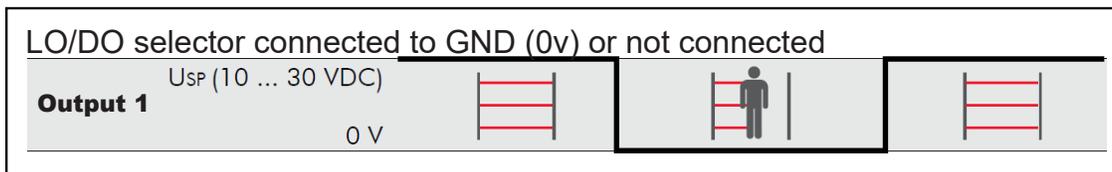
Connected to GND (0 V) / Not connected

Connected to 10 ... 30 VDC

Output 1 logic

LO

DO



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OPERATION (TEST FUNCTION)

Interface with elevator controllers

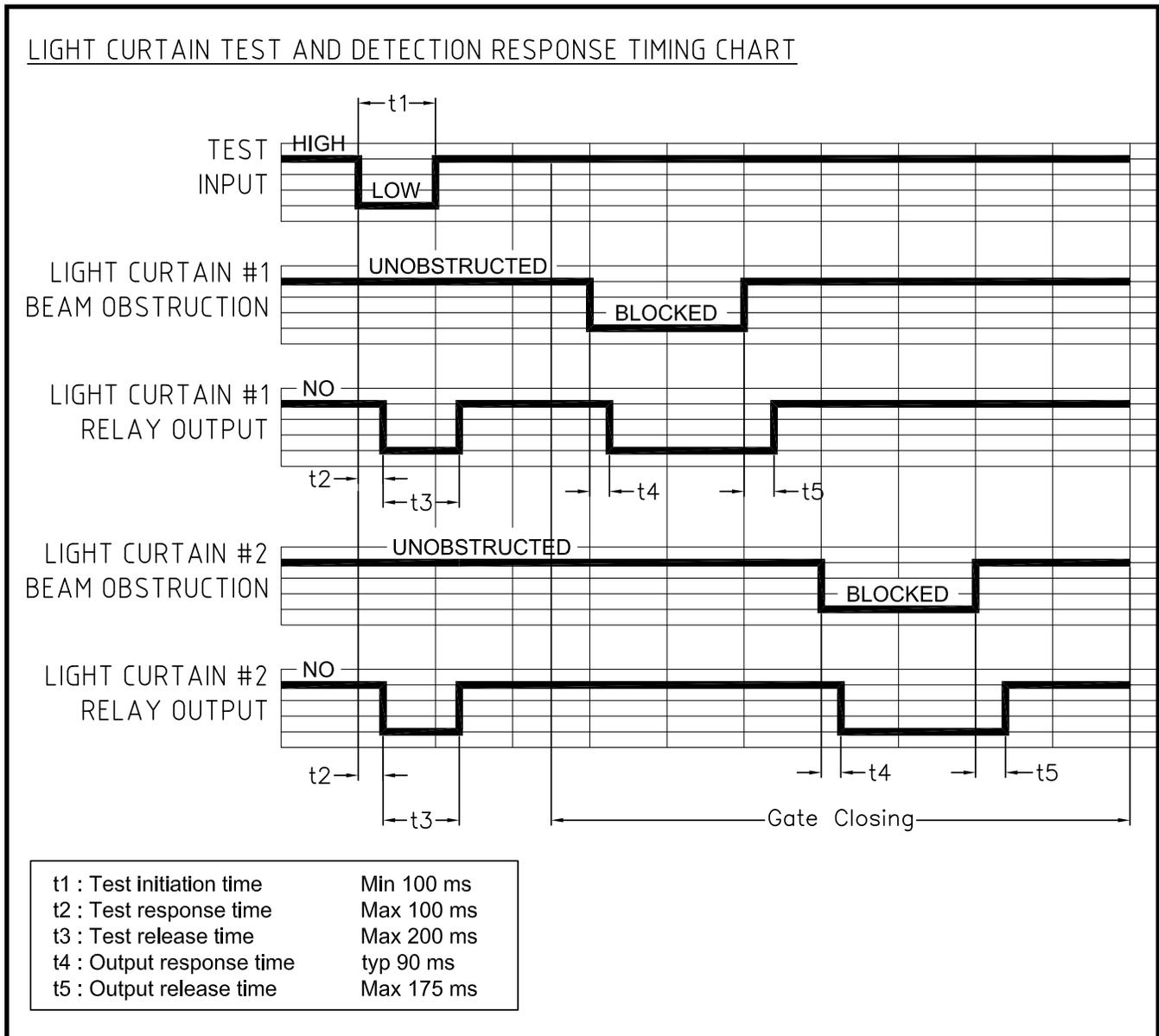
See elevator controller prints for light curtain test and output relay wiring. Signals to and from the light curtains are controlled by the elevator control.

Test function

Asme a17.1-2010/Csa b44-10 rule 2.13.3.4.9 Requires that test function of the light curtain be performed before the car gate can close.

The following sequence needs to take place:

1. Beams unobstructed and closing required
2. Test input goes from high to low
3. Relay output of light curtain #1 and #2 will change state from unobstructed to blocked (detection)
4. Relay output of light curtain #1 and #2 will change to unobstructed provided test passes and no beams are blocked
5. Car gate closes.



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TROUBLESHOOTING

Emitter edge (Tx)	Receiver edge (Rx)	Action
LED off	LED off	<ul style="list-style-type: none"> • Check electrical connections.
LED off	LED red	<ul style="list-style-type: none"> • Check the connection of the synchronization cable.
LED on	LED always red	<ul style="list-style-type: none"> • Make sure the protective field is clear of interruption. • Check the alignment of the light curtain. • Check that the test input is connected to the test output signal of the door control unit and that the signal level and logic (HIGH/LOW) are correct. • If the test input is not used, connect it permanently to +24 VDC • Check emitter and receiver edge alignment.
LED on	LED always green (also when interrupted)	<ul style="list-style-type: none"> • Make sure the sensor edges are not mounted close to any shiny or reflective surface.
LED on	LED switching between red (interrupted) and green (free) without any interruption	<ul style="list-style-type: none"> • Make sure that the cables and edges are located away from sources of electromagnetic interference. • Ensure that the emitter and receiver are correctly aligned and remain so during door closure (e.g. that vibrations do not cause edges to become misaligned).

LED STATUS DESCRIPTION

Receiver Edge

Green LED	red LED	Sensor status
●	○	Light curtain free
○	●	Light curtain interrupted
⦿	⦿	Internal Malfunction

Table 4: LED status description receiver edge

● = LED on ○ = LED off ⦿ = LED blinking

Emitter Edge

Green LED	Sensor status
●	Power OK
○	No Power or not within the limits

Table 5: LED status description emitter edge

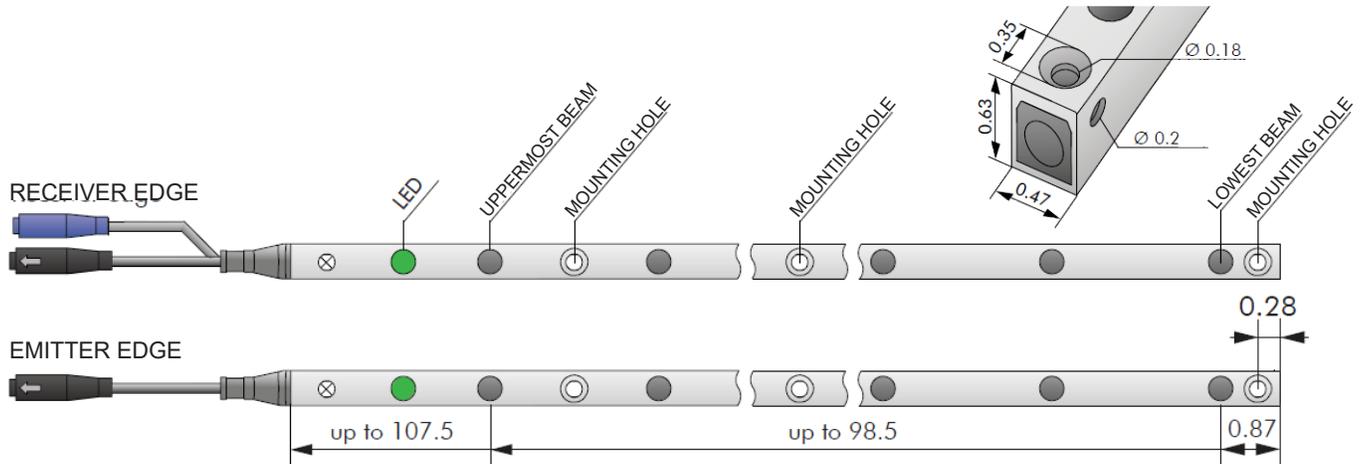


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TECHNICAL INFORMATION - CABLES & EDGES (TX/RX)



Optical

Max. operating range	4804 1 - 4.5m (3 - 14 ft)
	4805 4.5 - 10m (14 - 33ft)
Number of elements	32
Max. ambient light	100,000 Lux
Aperture angle at 3 m (10 ft)	Tx: $\pm 10^\circ$ and Rx: $\pm 20^\circ$

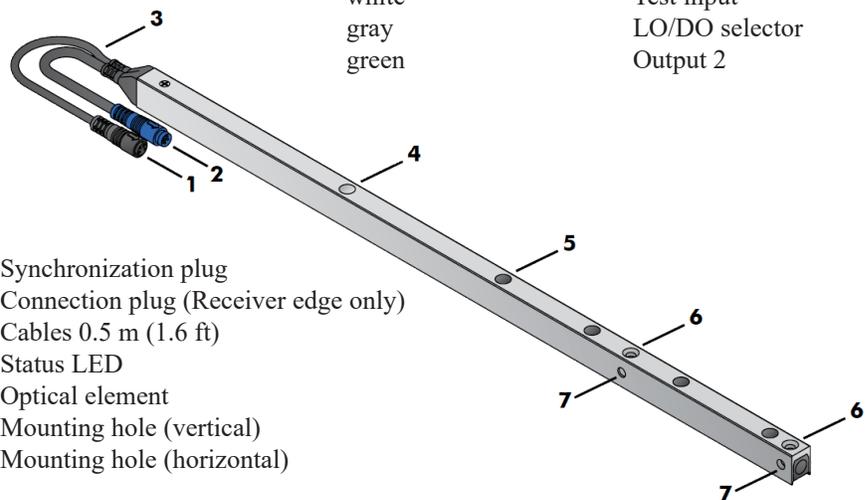
Mechanical

Cross section	12 mm \times 16 mm (0.47 in \times 0.63 in)
Max. Protection height	2,500 mm (98.5 in)
Housing material	Natural anodized aluminum
Enclosure rating	IP67
Temperature range	-40 $^\circ$ C ... +60 $^\circ$ C (-40 $^\circ$ F ... +140 $^\circ$ F)

Electrical

Supply voltage USP	10 ... 30 VDC
Current consumption at 24 VDC	100 mA
Output	PNP/NPN (push-pull)
Output load	100 mA
response time with 32 elements	90 ms
Max. door speed	3 m/s (10 ft/s)
Status LED Rx Object detected	red
Status LED Rx No object detected	green

Power LED Tx Power OK	green
Synchronization cable	
Length	10 m (33 ft)
Diameter	\varnothing 3.5 mm (\varnothing 0.14 in)
Material	PVC, black
Plug color	Black
Wires	AWG26
brown	USP (10 ... 30 VDC)
blue	GND (0 V)
black	Communication
white	Test signal
Connection cable	
Length	5 m (16.5 ft)
Diameter	\varnothing 3.5 mm (\varnothing 0.14 in)
Material	PVC, black
Plug color	Blue
Wires	AWG26
brown	USP (10 ... 30 VDC)
blue	GND (0 V)
black	Output 1
white	Test input
gray	LO/DO selector
green	Output 2



1. Synchronization plug
2. Connection plug (Receiver edge only)
3. Cables 0.5 m (1.6 ft)
4. Status LED
5. Optical element
6. Mounting hole (vertical)
7. Mounting hole (horizontal)



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MAINTENANCE AND INSPECTION

1. Doors and gates shall be maintained in accordance with Peelle Detail Installation and Maintenance Guide 215 Section 19.
2. Maintenance and inspection of the light curtains system shall be performed on a monthly basis. More frequent maintenance may be necessary where car gates are subject to demanding environments of dust, corrosion, moisture, grease, chemical or other conditions.
3. Where necessary, the elevator should be taken out of service for maintenance following proper procedures by trained maintenance personnel.
4. Refer to Guide 215 Section 19 for gate rail, panel and operating component maintenance.
5. Ensure that each light curtain edge is properly secured to the gate rail according to the installation instructions.
6. Ensure that the beam blockers are securely fastened to the gate panel.
7. Ensure there is no debris affixed to the car gate panel or rails, for example plastic bags or other rubbish.
8. Check and clean the plastic lens filters on the edges to keep the system in optimum working condition.
9. Where provided, check the gate leading edge rubber astragal for wear or damage and replace if necessary. Make sure the astragal is properly seated in the holding extrusion.
10. Where pull straps have been provided for manual operation of power operated car gates, the pull strap should be removed to avoid interfering with the light curtain. If it is desirable to retain the pull strap, the strap shall be held in position above the leading edge of the car gate. An electric contact shall be provided that will break the contact, and prevent power operation of the car gate when the strap is removed from the held position for use. The contact shall be wired according to the car gate controller manual and wiring diagram.

Note to Maintenance:

The light curtain system represents an important safety device of the elevator and relies on integrity of all components. Should any part or function of the system be observed not to be in proper order, the elevator should be taken out of service until such time as the system is repaired.

NOTES AND EXCEPTIONS:

1. Code compliance is the responsibility of the installer.
2. For other control interfaces, please contact Peelle engineering for assistance.

NOTICE

Damage to the optical elements

Never use any solvents, cleaners or mechanically abrasive towels or high-pressure water to clean sensors

Avoid scratching the optical elements while cleaning



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Guide No. 268-EN

**LIGHT CURTAIN #1
3 1/2 SETBACK**

Date: MAR 01 / 2023



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