

C-VIGIL Ltd : marine (CVM)

Marine Safety & Security Systems

GUARDIAN SYSTEMS

GuardianELEV8TOR
Elevator Car Presence Indication



GUARDIAN ELEV8TOR

Operations Guide



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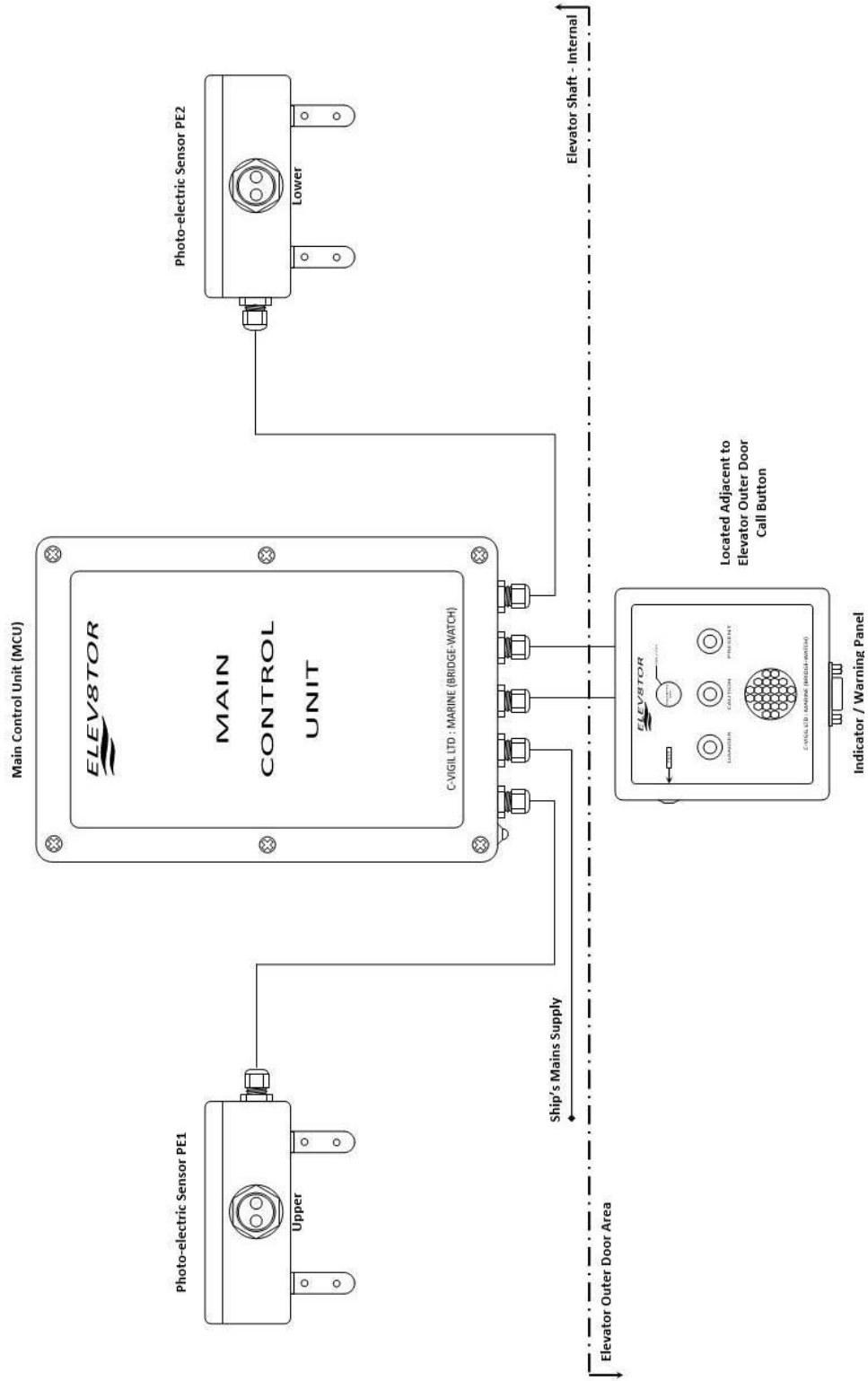


Contents

OVERVIEW	4
TYPICAL INSTALLATION.....	5
1.1 Introduction	6
2. SYSTEM COMPONENTS.....	7
2.1 Main Control Unit	7
2.2 Indicator & Warning Panel.....	7
2.3 Photo-electric Position Sensors PE1 & 2.....	8
3. OPERATION	9
3.1 Positioning	9
3.1.1 Main Control Unit (MCU).....	9
3.1.2 Indicator & Warning Panel (IWP).....	9
3.1.3 Photo-electric Position Sensors PE1 & PE2.....	9
3.1.4 Cabling.....	9
.....	9
3.2 Functionality	10
3.2.1 Elevator / Lift Car - Present.....	10
3.2.2 Elevator / Lift Car - Missing.....	10
3.2.3 Elevator / Lift Car – Miss-Positioned.....	10
3.2.4 Operation	10
3.2.5 Function On / Off.....	10
3.2.6 Power On / Off.....	11
3.2.7 Audible Alarm	11
3.2.8 Personnel Approach Detection.....	11
4. INSTALLATION.....	12
4.1 Main Control Unit (MCU).....	12
4.2 Indicator & Warning Panel (IPW).....	12
4.3 Photo-electric Positioning Sensors (PE1 & PE2).....	12
4.3 Cabling	13
4.3 Connections.....	13
4.4 Test Facility.....	13

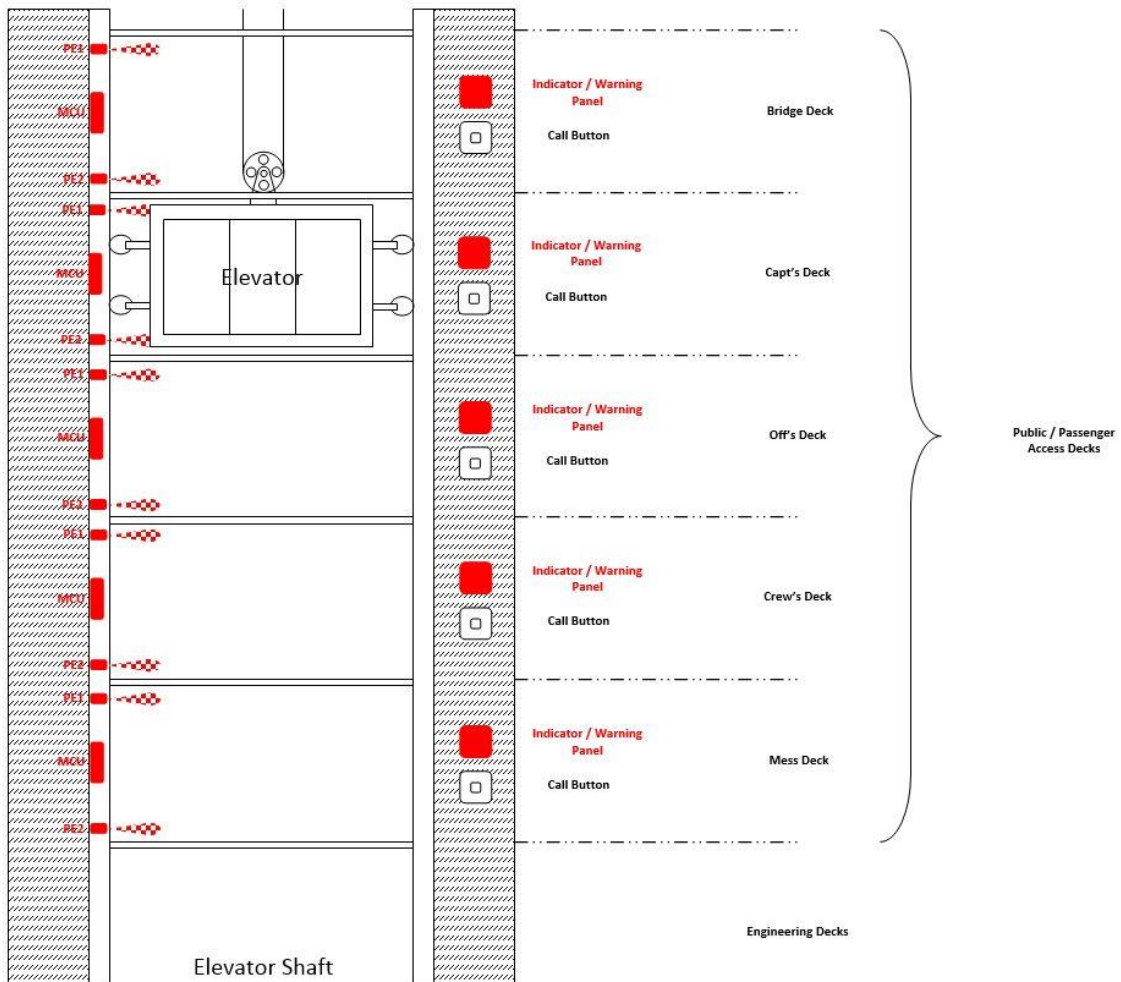


Overview





Typical Installation





1. General Description

1.1 Introduction

ELEV8TOR . . .

Helps protect: -

- Ship's Personnel
- Passengers
- Shore-side Personnel
 - Agents
 - Agents Runners
 - Immigration Officers
 - Customs Officials
 - Stevedores
 - ...etc

Fatal accidents have occurred where people have stepped into empty lift shafts when they expected the car to be in position. Ship's lifts/elevators are, in general, un-sophisticated - such that a simple lever switch malfunction may allow the outer door to open when the car is not in place. Should this happen as a person (who may be distracted) approaches a dangerous situation may occur.

Elev8tor has been designed to help draw the user's attention to the lift's position status. A PIR motion sensor detects the user's approach and briefly (3 secs) sounds an alarm to alert the user. The warning panel will also show a flashing red light to indicate the lift is not present.

As the lift approaches the red flashing light is extinguished and the amber light is lit, should it remain lit this means the lift's car is not in its usual position; should the doors open then caution should be exercised.

Only when the lift is in its usual position will the green light be lit, indicating it is safe to proceed.

Having this warning indicator will hopefully keep the user's attention focused and prevent them stepping into an empty lift shaft.

Upper & lower photo-electric position sensors are located within the lift shaft and positioned to detect the lift's normal position.

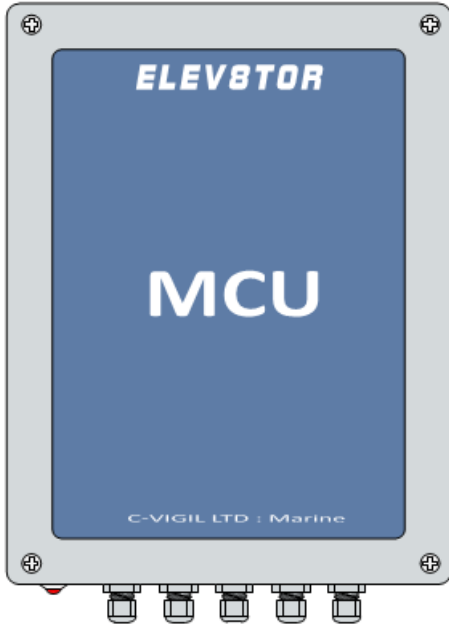
The Main Control Unit (MCU) will also be installed in the lift shaft.

The Indicator & Warning Panel would be installed adjacent to the lift's call button – at eye level.

Power is taken from the ship's mains supply – 100-240V AC 50/60Hz

2. System Components

2.1 Main Control Unit



MCU – fitted within the elevator / lift shaft.

Contains: -

PLC Logic Module

PSU – 100-240V AC 50/60Hz / 12V DC 1000mA

Connection Terminals – TB1

IP65 ABS Enclosure

2.2 Indicator & Warning Panel



IWP – installed near the elevator / lift call button at eye level.

Contains: -

Red 'Danger' LED

Amber 'Caution' LED

Green 'Present' LED

Personnel PIR Detection

Audible Warning Buzzer

Magnetic Key Switch – On / Off

Function Test Push Button



2.3 Photo-electric Position Sensors PE1 & 2



PE1 & 2 installed in the elevator / lift shat.

Contains: -

12V DC Photo-electric Sensor

TTL NPN Output

Light – No Object Present

Dark – Object Present



3. Operation

3.1 Positioning

3.1.1 Main Control Unit (MCU)

The Main Control Unit (MCU) should be installed in a convenient position within the elevator / lift shaft, in a position that doesn't interfere with the operation of the elevator / lift. There is normally room between the elevator / lift car and the outer supporting frame of the elevator / lift shaft.

3.1.2 Indicator & Warning Panel (IWP)

The Indicator & Warning Panel (IWP) should be installed in the approaches to the external (outer) elevator / lift doors – adjacent to the elevator / lift call button and situated at eye level.

3.1.3 Photo-electric Position Sensors PE1 & PE2

The Photo-electric Sensors (PE1 & PE2) should be installed in the elevator / lift shaft, in a position that doesn't interfere with the operation of the elevator / lift. There are upper and lower sensors which should be installed on the support framework in positions to detect the elevator / lift car in its normal position.

3.1.4 Cabling

Interconnection cable should be well secured along its route and installed in such a manner so as not to be damaged by the moving elevator / lift car.



3.2 Functionality

ELEV8TOR has been designed as an elevator / lift position warning system.

3.2.1 Elevator / Lift Car - Present

When the elevator / lift's car is in its correct position, both upper and lower photo-electric sensors will be active, this results in the Green 'Present' LED being lit and it's safe to board when the doors open.

3.2.2 Elevator / Lift Car - Missing

When the elevator / lift's car is away from the deck / floor it is being called from, both photo-electric sensors will be idle, this results in the Red 'Danger' LED being lit therefore you should **NOT** proceed under any circumstances should the outer doors open.

3.2.3 Elevator / Lift Car – Miss-Positioned

Should the elevator / lift stop between decks / floors or it's not in its usual position, then only one photo-electric sensor will be active (either the upper or the lower), this results in the Amber 'Caution' LED being lit. You should only proceed with extreme caution once the position of the lift has been ascertained.

3.2.4 Operation

Under normal circumstance as you call for the elevator / lift, the red 'danger' LED will be flashing (assuming the elevator / lift is on another deck / floor) if the car is in position then the green 'present' LED will be lit.

As the elevator / lift car approaches your floor (passing the photo-electric sensors) the amber 'caution' Led will light briefly till the green 'present' LED lights.

Should this sequence be out of order in any way, **DO NOT** use the elevator / lift and report it to one of the ship's staff.

3.2.5 Function On / Off

There may be times when the warning system is not required. The Indicator & Warning Unit (IWP) & the photo-electric sensors can be disable by placing the magnetic key in the position marked on the IPW.



3.2.6 Power On / Off

To be switched off at the ship's mains supply breaker.

3.2.7 Audible Alarm

To draw the user's attention to the status of the elevator / lift, the system sounds a buzzer for 3 secs when the red or amber LEDs are lit.

3.2.8 Personnel Approach Detection

As a person approaches the lift they may be a little distracted (for whatever reason), the PIR motion detector will sense their approach and sound the buzzer for 3 secs, hopefully this will draw the user's attention to the IWP and therefore make conscious of the elevator / lift's status.



4. Installation

Hints and tips when carrying out installation

Please refer to manufacturer's data sheets for guidance.

Also refer to Technical Drawings & Schematics for connection diagrams

Prior to starting installation ensure elevator / lift is isolated and warning signs posted on each level. Also ensure that ship's staff are informed of your proposed actions

4.1 Main Control Unit (MCU)

- Locate a suitable position in the elevator / lift shaft – in the space between the elevator / lift's car and the supporting structure
- Remove the top cover (4 screws)
- Attach the body to the support structure by drill holes and using self-tapping screws, if this is not possible then apply a strong adhesive to the body's base and glue to the support structure. Make sure the MCU is supported till the adhesive cures
- Leave the top cover off till after final wiring

4.2 Indicator & Warning Panel (IPW)

- Locate a suitable position in the elevator / lift approach area
- Secure the IWP to the bulkhead adjacent to the elevator / lift call button – at eye level
- Drill a hole through the bulkhead into the elevator / lift shaft
- Attach the pre-wired cable / connector to the base of the IPW
- Run the cable through the bulkhead to the MCU

4.3 Photo-electric Positioning Sensors (PE1 & PE2)

- Locate a suitable position in the elevator / lift shaft – in the space between the elevator / lift's car and the supporting structure
- Remove the top cover (4 screws)
- Attach the enclosure to the elevator / lift shaft support structure using the brackets provided, in the same way as for the MCU
- Leave the top cover off till after final wiring
- The sensing range is set by default to 200mm; however this can be adjusted by the screw on the rear of the sensor.



4.3 Cabling

- Run all cabling from the peripherals to the MCU.
- Ensure they are secure and not liable to be damaged by the moving elevator / lift's car
- Run mains supply cable from spare ship's breaker – do not switch on till after final connections

4.3 Connections

- Connect all wires as per the provide Technical Drawings and Schematics
- Cable ferrules should be used for all terminations
- On completion
 - Apply ship's mains
 - Ensure power on led is lit (on bottom of enclosure)
 - Ensure PLC logic module has run light lit
- On completion of installation replace all covers and ensure cable glands are tight and ALL cabling is secure
- Satisfy yourself that the elevator / lift operates correctly and that ELEV8TOR operates as expected

4.4 Test Facility

- At periodic intervals press the TEST push button – located on the side of the IWP
- This will test the 3 LEDs and the warning buzzer