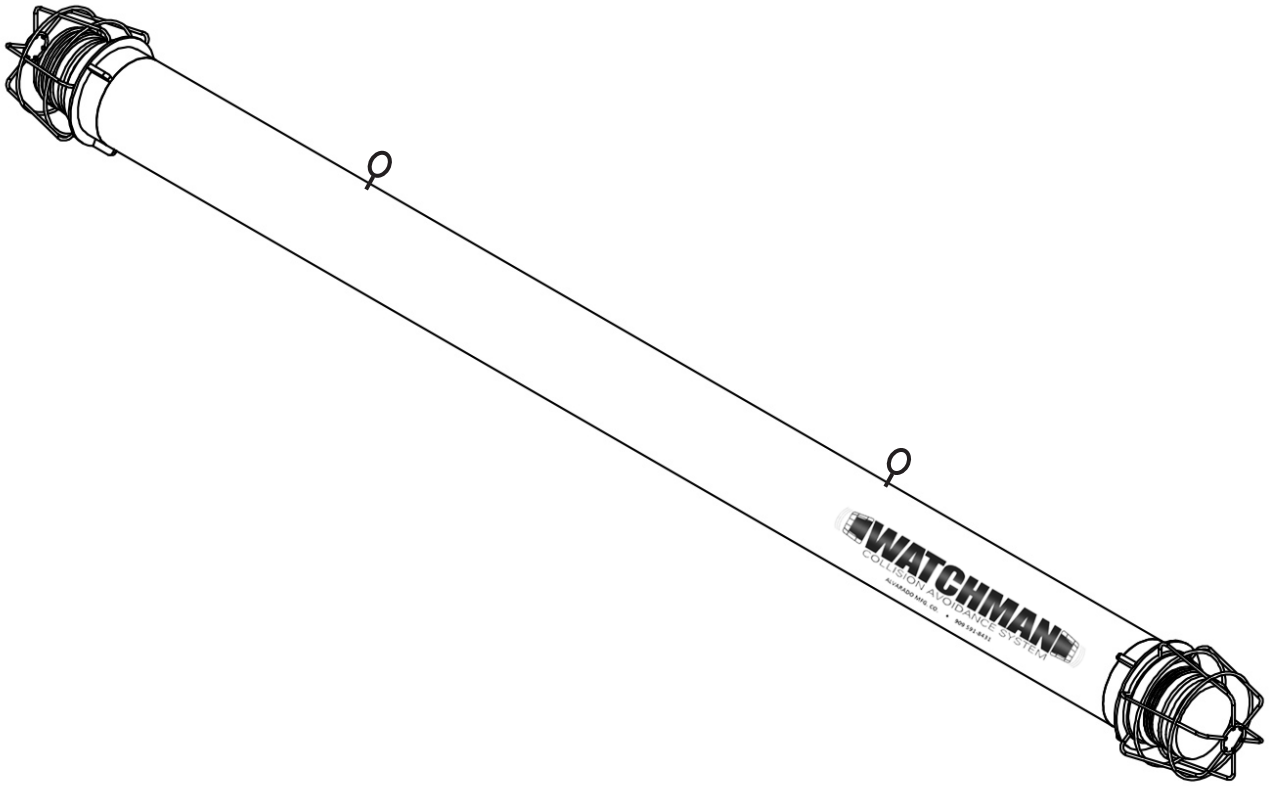
ALVARADO

protecting assets and controlling the flow of people

WATCHMAN

Collision Avoidance System



Installation Instructions

Alvarado Manufacturing Company, Inc.
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PID1244R6-3

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Safety Icons

The following symbols are used throughout the manual to highlight important information and potential risks when installing, servicing or using the Watchman.

⚠ WARNING — This symbol is used in this manual to warn installers and operators of potential harm. Please read these instructions very carefully.

⚠ CAUTION — This symbol is used in this manual to designate potential conditions that may pose a risk to pedestrians, personnel, property and equipment. Please read these instructions very carefully.

NOTE — This symbol is used in this manual to designate useful information for the installer and operator. Please read these instructions.

HIGH NOISE LEVELS — This symbol is used in this manual to warn installers and other personnel of high noise levels.

Safety Precautions

⚠ WARNING

- Use only skilled individuals to install and service the Watchman. Read these instructions carefully before beginning.
- Follow a proper maintenance schedule using skilled individuals.
- A 105dB alarm may trigger repeatedly during installation. Use hearing protection during installation.
- Do not drape, hang, or lean any objects from the Watchman.
- Do not continue to use the Watchman if it has been damaged or is functioning incorrectly.
- Do not modify or alter the Watchman.
- Only use Alvarado parts when repairing or maintaining the Watchman.

SAVE THESE INSTRUCTIONS

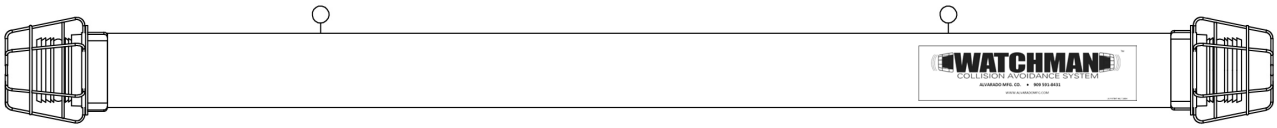
After installation, the installer is responsible for providing the owner or site manager with these instructions.

Function

The Watchman serves as a visual and audio deterrent that warns forklift drivers and management of potential collisions between forklifts and fixtures before they happen. The Watchman installs in front of overhead doors, racking or virtually any fixture in a factory or warehouse. Impact with the Watchman tube triggers a loud alarm and flashing red lights. This warns the forklift driver to stop immediately and alerts management of the incident.

Parts List

Make sure that none of these parts are missing and/or damaged before beginning installation. If there are parts missing and/or damaged, please stop the installation and contact Alvarado.



Watchman Unit (8' or 10')

[Qty 1]

AC Power Models (Only)

- 25' AC Power Cord [Qty 1]
- Power Supply [Qty 1]
- Screw Terminal Connector [Qty 1]

Additional Required Items (Not Included)

- Suspension Hardware (the following is recommended):
  - Eye Bolts [Qty 2]
  - 5/16" x 9" Turnbuckles [Qty 2]
  - 3/32" Uncoated Cable [Length dependent on installation]
  - 3/32" Aluminum Ferrules [Qty 8]
- C Cell Batteries [Qty 8] (Battery-powered models only)

Tools Required

- Level
- Tape Measure
- 5/32" Allen Wrench
- Ferrule Crimper
- Wire Cutters
- Screwdriver (Varies)
- Ladder

Installation Steps

Battery-Powered Models

1. Battery Installation
2. Placement and Mounting
3. Functions Check

AC-Powered Models

1. Placement and Mounting
2. AC Power Cord Connection
3. Dry Contact Output Connection (Optional)
4. Functions Check

For questions, please contact Alvarado at (909) 591-8431, Monday – Friday 6:30am to 4:30 PST.
Please read this manual completely before installing or operating the product.

Installation Instructions

Battery Installation

NOTE

Battery installation is only applicable to battery-powered models. For AC-powered models, skip to the *Placement and Mounting* section below.

1. Remove the packaging from both end caps.
2. Locate the master side end cap on the opposite end of the Watchman decal [Figure 3]. Using a 5/32" Allen wrench, remove the screw securing the end cap to the tube.
3. Remove the end cap. Locate the thumb screw on the plastic bar used to keep the battery packs in place [Figure 1].
4. Loosen the thumb screw and swing the plastic bar to the side to gain access to battery packs [Figure 2].
5. Disconnect the (2) battery pack connectors and slide out the battery packs from the end cap [Figure 2].
6. Insert (8) C cell batteries into the battery packs, ensuring correct battery polarity. **Make sure batteries are fully inserted into the battery packs.**
7. Return the battery packs to the end cap and reconnect the (2) battery connectors. Swing the plastic bar back into place and tighten the thumb screw.
8. Using a 5/32" Allen wrench, reinstall the end cap.

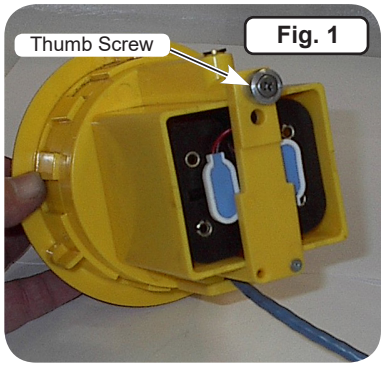


Fig. 1

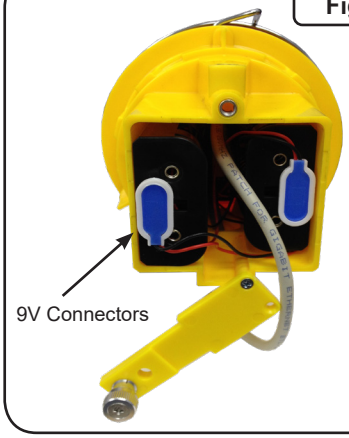


Fig. 2

Placement and Mounting

⚠ CAUTION **Adhere to the following placement guidelines**:

- Verify the structural integrity of the object(s), i.e. joists, to which the Watchman will be suspended.
- To provide enough warning time to avert a collision, the Watchman must be placed at a sufficient distance **in front of** the object being protected to allow the forklift driver sufficient time to react and stop after Watchman activation. What a sufficient distance is depends on the application where the Watchman is being used. Relevant factors include the object being protected, the traffic pattern of the facility, available hanging space, and forklift operating speeds. For applications where the Watchman will be placed in front of a roll-up door, locating the Watchman a minimum of 4' **in front of** the door is generally an appropriate distance.
- Place the bottom of Watchman's tube a minimum of 2" **below** the object or surface being protected.
- Ensure the suspension cable angles are between 90° and 135° [Figure 3].

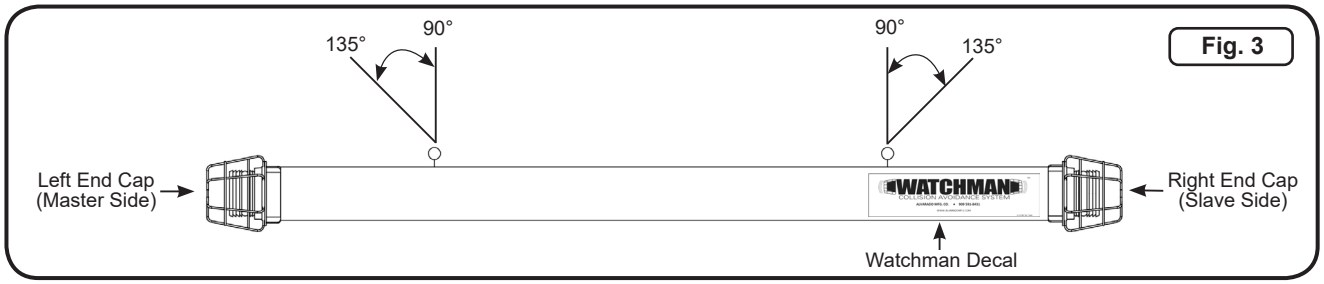


Fig. 3

Placement and Mounting (cont.)

NOTE

There are many methods of mounting the Watchman. The following instructions assume that the recommended suspension hardware is being used. Instructions on the use of other suspension hardware and methods are outside the scope of this manual.

Once the Watchman's placement has been determined:

1. Install eye bolts to the object(s) to which the Watchman will be suspended (joist, girder, etc).
2. Using ferrules and a ferrule crimper, secure suspension cables to the eye bolts [Figure 4].
3. Install (1) turnbuckle per suspension cable using ferrules and a ferrule crimper [Figure 5].
4. Attach suspension cables from the turnbuckles to the Watchman's eye bolts using ferrules and a ferrule crimper.
5. Using a level, check horizontal alignment of the Watchman. Adjust the height of the Watchman as needed using the turnbuckles.



Fig. 4

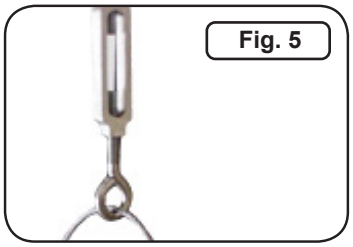


Fig. 5

AC Power Connection

NOTE

AC power connection is applicable to AC-powered models only. When connecting AC power, make sure no batteries are installed.

1. Locate the AC power cord at the master side end cap on the opposite end of the Watchman decal [Figure 3].
2. Run the AC power cord up along the suspension cable and swag it over to an adjacent wall. Make sure there is sufficient cord slack to allow the Watchman to move laterally in the case of a collision event [Figure 6].

NOTE

The AC power cord is 25' in length.

3. Obtain the included AC power supply and screw terminal connector. Locate the RED and BLACK wires of the AC power cord. Using an appropriate screwdriver, connect the RED wire to the (+) terminal, and the BLACK wire the (–) terminal on the screw terminal connector.

NOTE

The WHITE and GREEN wires bundled with the AC power wires are used for dry contact output (see next page). If you are not going to use the dry contact output, ensure wires remain insulated.

4. Plug the power supply into a 120 VAC power outlet, and to the screw terminal connector.

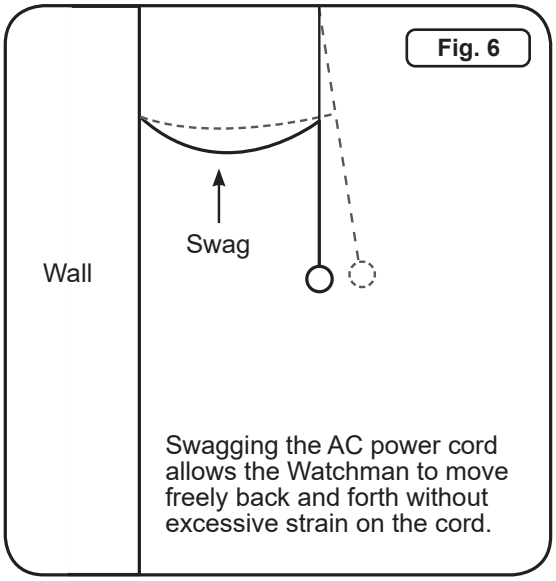


Fig. 6

Swagging the AC power cord allows the Watchman to move freely back and forth without excessive strain on the cord.

Dry Contact Output Connection (Optional)

The dry contact output enables the Watchman to activate another device such as an external light, alarm, or counter, during a collision event. The output provides a 100ms dry contact.

1. Connect the WHITE and GREEN wires to the dry contact terminals on your external device.

NOTE

The contacts have a maximum current rating of 500mA.

Functions Check

HIGH NOISE LEVELS

To perform a functions check:

1. Strike the front face of the tube with a hard object such as a broom handle. The alarm should sound and both lights should flash.
2. Repeat with the other side of the tube.

Operation

The Watchman's bidirectional shock sensors are designed to detect collisions to the front and back of the ABS tube [Figure 7]. When a collision occurs, an audible alarm will sound and both red lights will flash for approximately (4) seconds.

NOTE

The alarm duration can be set to 4 or 8 seconds. The factory default setting for alarm duration is 4 seconds. Refer to the instructions below for changing the alarm duration setting.

Fig. 7



Low-Battery Alert

Under normal usage, fresh batteries will last approximately 1.5 - 2 years. When the batteries are in need of replacement, the Watchman will begin to chirp once every (5) minutes.

Due to operational variables, it is not possible to calculate how long the Watchman will operate after the low-battery alert begins. For this reason, **batteries should be replaced promptly after the low-battery alert begins to sound.**

Alarm Duration Setting

Tools Required:

- Right-Angle #2 Phillips Screwdriver
- #10 Torx Wrench

To change the alarm duration setting:

1. Using a right-angle #2 Phillips screwdriver, remove the metal lens cap guard.
2. Using a #10 torx wrench, remove the red lens cap.
3. Locate the SW1 switch. Set the switch to 4 SEC or 8 SEC [Figure 8].
4. Replace the red lens cap.
5. Replace lens cap guard.



Fig. 8

Cleaning and Maintenance

Use and all-purpose cleaner and damp cloth to clean the Watchman unit.

Perform the following maintenance steps on a quarterly basis:

- Check all suspension hardware (including the Watchman's eye bolts). Tighten or replace if necessary.
- Inspect the ABS tube and end caps for cracks or other damage if there has been a collision.
- Replace the batteries (if applicable).
- Perform the functions check as described on page 6.

Troubleshooting

If excessive false alarms occur due to local vibration, Alvarado recommends applying pipe insulation to the suspension cables.

1. Apply a 6” length of pipe insulation as close to the Watchman as possible on each suspension cable.
2. Wrap the insulation, lengthwise, tightly around the wire, completing as many layers as possible.
3. Secure the insulation in place using zip-ties placed at the top, middle, and bottom of each strip.

If more vibration dampening is required, continue to apply 6” strips of insulation spaced 18” apart until false alarms no longer occur.

CE Declaration of Conformity

CERTIFICATE & DECLARATION OF CONFORMITY FOR CE MARKING

Company contact details:
Alvarado Mfg. Co., Inc.
12660 Colony Street, Chino, CA 91710, USA

Alvarado Mfg. Co., Inc. declares that their:
Watchman

complies with the Essential Requirements of the following EU Directives:
Low Voltage Directive 2006/95/EC
Electromagnetic Compatibility Directive 2004/108/EC

and further conforms with the following EU Harmonized Standards:
EN 60529:1992
EN 61000-6-2:2005
EN 61000-6-4:2007+A1:2011

Dated: 18 October 2013

Position of signatory: President

Name of Signatory: Bret Armatas

Signed below:
on behalf of Alvarado Mfg. Co., Inc.



CE

Revision History

Revision	Date	Author	Description
6-0	11/18/13	A. Flores	CE compliance. Imported to new layout.
6-1	04/29/15	A. Flores	Updated parts list. Low-Battery Alert operational status.
6-2	03/05/16	A. Flores	Changed AC Power Cord length to 25'.
6-3	9/28/18	C. Maynez	Added Troubleshooting.

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