

ALERT

Safety Products

Promoting Safety With Technology



With Microwave Sensors

Patent Pending

User's Manual

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ALERT Safety Products Inc.
11435A Williamson Road
Cincinnati, Ohio 45241
1-800-783-4290
ALERTSafetyProducts.com

Rev 1D

Dome Mirror ALERT

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Introduction

The Dome Mirror Alert flashes CAUTION and directional arrows to warn workers in cross aisles that a forklift is approaching the intersection.



How It Works

The Dome Mirror Alert (DMA) has microwave sensors that detect forklifts and other vehicles as they are approaching the mirror which is mounted at the intersection or blind corner. When activated the Dome Mirror Alert will flash CAUTION and a directional arrow to warn that a forklift is approaching the intersection. Once the forklift travels through the intersection the DMA will timeout and reset for the next forklift. The DMA is configured to detect only vehicles as they approach the intersection and will not activate on pedestrians or vehicles traveling away from the intersection. The DMA is available for 2,3 and 4-way intersections.

Dome Mirror Alert Components

The Dome Mirror Alert consists of the mirror assembly and an AC adapter. The mirror assembly is hung at the center of the intersection and contains the sensors and warning indicators which come pre-wired from the factory. The low voltage (16.5VAC) plug-in AC adapter needs to be installed within 100' of the mirror and is wired to a terminal on the DMA with user supplied 2 conductor 18 gauge wire.



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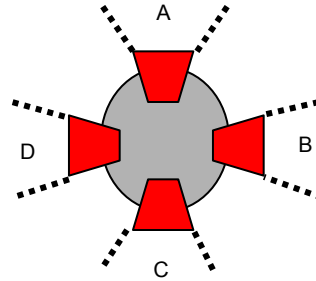
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Installation & Operation

The DMA has been designed to hang from 3 eyelets with chains like other standard dome mirrors. Just follow these steps to install the DMA.

1

Hang the DMA Mirror Assembly

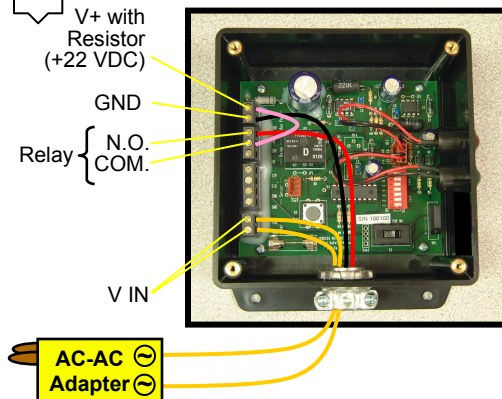


Hang the mirror so it is level and secure it so it doesn't rotate.

Hang the Mirror Assembly between 8' and 21' above the floor using 3 or 4 of the eye hooks. Position the mirror so that the microwave sensors are facing the center of the traffic aisle. For a 2-way system the sensors D & B will face the main traffic aisle and CAUTION displays A & C will face the cross aisle.

2

Connect the DMA AC Adapter



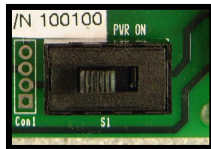
Connect the power terminals (~ and ~) on the AC adapter to the V IN power terminals on the DMA.

Power to the BDWA control units on the DMA are pre-wired from the factory. Keep these wires in place when connecting the AC Adapter.

3

Turn the DMA Control Units ON

Plug the AC adapter into a 120VAC outlet and turn the power switch in both control units to the ON position. The Green Power LED will be on when the DMA is turned on.



Internal Power Switch

Installation of the DMA is complete. Proceed with the sensor setup.



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Microwave Sensor Setup

The microwave sensors for the DMA come with a remote control so some settings can be changed from the floor. A detailed description of the sensor settings and programming is in the sensor manual that is included with the DMA system. Other than changing the setting for the sensor mounting height all other sensor presets should work for most applications.

Programming the Mounting Height

The sensor must be programmed with the correct mounting height. The default setting from the factory is from 13.1' to 16.1' measured from the floor to the sensor. If this is not the correct mounting height for the sensor follow these steps to program the correct mounting height for the sensor.

To access the sensor configuration mode:

- 1) Press the start key G, one of the keys 1-4 will light up.
- 2) Press C then 9, C and 1 light up.
- 3) Enter the four digit code 1234
- 4) Press C, C and 1 light up, the configuration mode is now activated.

To program the mounting height:

- 5) Press G then F then 4 followed by the desired setting:
 - 2 for a sensor height of 8.2' to 9.5'
 - 3 for a sensor height of 9.8' to 12.8'
 - 4 for a sensor height of 13.1 to 16.1' factory default
 - 5 for a sensor height of 16.4' to 19.4'
 - 6 for a sensor height of 19.7' to 22.6'
- 6) To read the sensor height setting press G then F then 4.
The sensor height setting of 2 thru 7 will be displayed.

Sensor Hold Time

The sensor has a hold time that is adjustable from 0.2S to 5.0S. This timeout can be changed from the floor by using the remote. There is an additional warning delay that is set by switches in the control units on the DMA. The sensor timeout period begins when the forklift exits the sensor field. The DMA control unit timeout period begins when the sensor times out.

Access the sensor configuration mode

- 1) Press the start key G, one of the keys 1-4 will light up.
- 2) Press C then 9, C and 1 light up.
- 3) Enter the four digit code 1234
- 4) Press C, C and 1 light up, the configuration mode is now activated.

Program the sensor hold interval

- 5) Press F then 1 followed by the desired setting:
 - 1 = 0.2S, 2 = 0.5S, 3 = 1.0S, 4 = 2.0S factory default, 5 = 5.0S
- 6) To read the sensor hold time press F then 1. The remote will display the programmed setting.



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Microwave Sensor Defaults

The microwave sensors come with the following default settings which should work for most applications. Refer to the included Hercules 2 sensor manual for additional sensor specifications and settings. A small green LED on the sensor will come on when vehicles are detected and a small red LED on the sensor will come on when pedestrians are detected.

Mounting Angle & Field Size

The mounting angle of the sensor is adjustable and can be changed to adjust the field size. Setting it at 60 degrees will provide a detection field that covers 25' to 45' from the sensor and is approximately 12' wide. This is with a mounting height of 14' and the field dimension set at 7. The field size can be adjusted by changing the angle and field dimension setting of the sensor. A mounting angle of 0 degrees is pointing directly at the floor.

Sensor Configuration Mode

The Sensor will time out of the configuration mode 30 minutes after it was last powered on or accessed. If the configuration mode has timed out it can be entered by powering the sensor off and back on or by using the following commands:

- 1) Press the start key G, one of the keys 1-4 will light up.
- 2) Press C then 9, C and 1 light up.
- 3) Enter the four digit code 1234
- 4) Press C, C and 1 light up, the configuration mode is now activated.
Any other remote control commands can now be accessed for 30 minutes.

Sensor Default Settings - Hercules 2

Following are the default settings and commands for the microwave sensors:

Access Code:	1234 (code saved)	C,9,(1)
Mounting Height:	4 (13.1 to 16.1')	F,4,(4)
Field Dimensions:	6 (Medium)	D,(6)
Relay Hold Interval:	4 (2.0S delay)	F,1,(4)
Direction Recognition:	1 (Forwards)	E,1,(1)
Relay Parameters:	1 (Vehicle detection)	E,2,(1)
Cross-Traffic Optimization:	4 (Medium)	F,5,(4)
Wide Field:	2 (Off)	B,(2)
Slow Motion Detection:	2 (Short, Decreasing)	F,3,(2)
Digital Filter Function:	2 (Off)	F,6,(2)

Values in () are read back when command is entered



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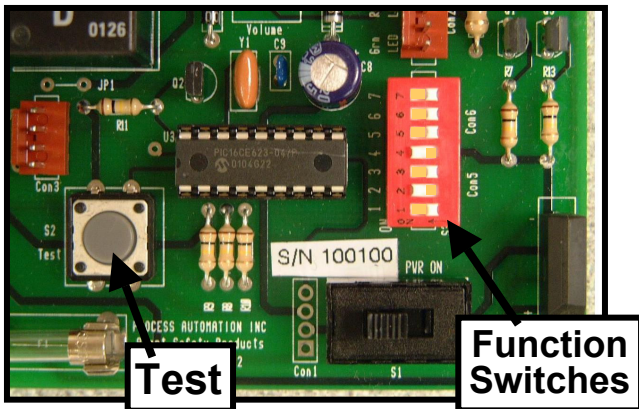
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Control Unit Settings

The DMA control units that are mounted on top of the mirror assembly have a programmable warning duration that is added to the sensor relay hold time. This delay will begin after the sensor relay hold time has timed out.

Additional Warning Duration

An additional warning duration in the DMA control unit can be adjusted from 2 seconds to 32 seconds. Use a small screwdriver to flip the switches. You can try your settings by pressing the Test switch. The default setting for this from the factory is 2S



Microwave Sensor & System Testing

The microwave sensors can be manually activated by entering the command G,A,3. The small green LED on the sensor will come on. The Worker Alert and warning devices will also turn on. Enter the command G,A,1 to turn the sensor off.

To test system with pedestrian traffic enter the command G,E,2,4. The green LED on the sensor and the Worker Alert will turn on as you walk towards the sensor when you are in the microwave field. Enter the command G,E,2,1 to return the sensor to the default setting for vehicle only detection.

Function Switches							Duration
1	2	3	4	5	6	7	Seconds
				*	**	---	2
On				*	**	---	4
	On			*	**	---	6
On	On			*	**	---	8
		On		*	**	---	10
On		On		*	**	---	12
	On	On		*	**	---	14
On	On	On		*	**	---	16
			On	*	**	---	18
On			On	*	**	---	20
	On		On	*	**	---	22
On	On		On	*	**	---	24
		On	On	*	**	---	26
On		On	On	*	**	---	28
	On	On	On	*	**	---	30
On	On	On	On	*	**	---	32

Legend:

Blank = Off
 SW 5(*):
 Not Used
 SW 6(**)
 Not Used
 SW 7 (---)
 Not Used



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Specifications

Special Message

While we cannot anticipate all of the conditions you may encounter, we hope that we have given you enough information that your inventive spirit will take over to solve those really challenging cases. On the other hand, our consulting services are always available to create custom solutions for unique problem areas.

Specifications

- **Sensor:**
 - Max Range: 65'
w/appx field width of 12' at 50'
 - Mounting angle: 30 to 90 degrees
adjustable in 15 degree increments
 - See sensor manual for other sensor specifications
- **Power Requirements**
 - 120 VAC Standard Wall Outlet
 - Plug-in Class II AC Adapter provides 16.5VAC 40W max
 - Fuse: 3.0 Amp, slow-blow, 5x20 mm
- **Mounting:**
 - 4 mounting eyehooks
- **User Adjustments:**
 - Timeout Warning Duration
 - 2S to 32S in 2 second steps.

Dome Mirror Alert is intended to enhance safety, not to relieve the user's responsibility to comply with OSHA and other safety requirements. The user is responsible for maintaining and testing all ALERT Safety components. See the "Terms and Conditions of Sale" for specific warranty and other information.

Important Notice!!!

The use of this system or any other warning device does not insure that all drivers and pedestrians can or will observe or react to a warning signal. Never take the right-of-way for granted, it is your responsibility to be sure you can proceed safely. The effectiveness of this warning system is highly dependent upon correct mounting, wiring and installation. Vehicle operators and plant personnel should insure daily that all features of the system are operating correctly.

Alert Safety Products are intended to enhance safety, not to relieve the user's responsibility to comply with OSHA or other safety requirements. The user is responsible for maintaining, testing and cleaning all Alert Safety components including photo sensors and reflectors. Alert Safety Products, Inc assumes no liability for any loss resulting from the use of this warning system. See the "Terms and Conditions of Sale" for specific warranty and other information.