

SPECIFICATIONS

Sensing elements	4 ultrasonic in TPA* configuration
Operating range	1ft. - 5ft.
Response time	2.0 seconds
Relay output configuration	2 SPDT (form C)
Relay contact rating	1A @ 24VDC
Power indicator/no vehicle	Green LED
Object in range	Flashing Green LED on each input, continuous LED on DETECT
Supply Voltage	12...24 VDC/VAC
Operating current	60mA
Dimensions	5.7"(145mm) x 3.6"(90mm) x 2.3"(57mm)
Weight	0.6 lbs. (275g)
Operating temperature	-40°C...+85°C (-40°F...+182°F)
Housing	ABS
Connection	10 position terminal block
Mechanical protection	NEMA 4X

CAUTIONS AND WARNINGS

This product is an accessory or part of a system. Always read and follow the manufacturer's instructions for the equipment before connecting this product. Comply with all applicable codes and safety regulations. Failure to do so may result in damage, injury or death



CE REQUIREMENT: Use CE rated power supply for CE compliance providing suppression as specified by EN61000-4-5.

EMX
INDUSTRIES, INC.

USVD-4X

ULTRASONIC VEHICLE DETECTOR



CE

OPERATING INSTRUCTIONS

MATERIALS SUPPLIED

- Operating Instructions
- USVD-4X
- Cable grip (cable not included)

GENERAL DESCRIPTION

This device uses Triangular Planar Array (TPA) technology to reliably detect the presence of a vehicle in a wide variety of drive-thru applications including parking, access control, car wash, banking and fast food. Unlike a vehicle loop detector configuration that requires the installation of a loop in the pavement, the USVD may be simply mounted on a post or order box and aimed at the location of the vehicle when in position to perform a transaction or place an order. Also, unlike other technologies, the USVD does not require any set up or functional adjustments, other than simply installing and aiming. The USVD greatly reduces the cost associated with installation of vehicle detection capabilities compared to loop detectors for these types of applications.

The USVD requires 12-24VDC/VAC and provides a form "C" set of relay contacts indicating vehicle presence.

Utilizing TPA technology, the detection head consists of 4 ultrasonic transducers that connect to the control board. The detection head "scans" the expected location for a vehicle and activates its output upon detection of a vehicle. The USVD provides a 2.0 second response.

A green indicator on the USVD control board flashes indicating power and no vehicle detection and continuous on indicating vehicle detection. Individual green indicators located near each transducer connection flash when an echo from a surface 1-5ft. in front of the transducers is present.

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The solid-state FAIL output is activated when a solid object, such as ice, is present preventing 1 or more transducers from vibrating.

WIRING

TERMINAL	CONNECTION
1	+V (12 to 24VAC/VDC)
2	-V (power supply common or VAC)
3	Presence -Relay 1 NC contact
4	Presence- Relay 1 common contact
5	Presence - Relay 1 NO contact
6	Relay 2 NC contact
7	Relay 2 common contact
8	Relay 2 NO contact
9	Fail - solid state output (open drain)
10	Spare

FUNCTION SETTINGS

The four switch settings control the operation of the relays as indicated in the following tables.

RELAY 2 (auxiliary output)		
FUNCTION	1	2
CONSTANT	OFF	OFF
PULSE ON ENTRY	ON	OFF
PULSE ON EXIT	OFF	ON
PULSE ON BOTH	ON	ON

RELAY DELAY OPTIONS (R1 and R2)		
FUNCTION	3	4
NO DELAY	OFF	OFF
1 SECOND	ON	OFF
2 SECONDS	OFF	ON
4 SECONDS	ON	ON

SENSITIVITY ADJUSTMENT

The sensitivity adjustment may be used to change the strength of the ultrasonic signal to increase or decrease the response of the detection system. The factory setting is fully clock-wise for maximum sensitivity. In most applications it is not necessary to reduce the sensitivity.

It is useful in applications where multiple USVD are installed, such as multi-lane installations where lowering the sensitivity can reduce or eliminate false detection caused by echo from adjacent lanes.

To change the sensitivity, rotate the SENS adjustment clock-wise to increase and counter clock-wise to decrease the sensitivity. Two test points to the right of the SENS adjustment labeled GND and SENS may be measured with a DVM to determine the position of the adjustment pot. 5V is maximum sensitivity.

APPLICATION INFORMATION

Single lane:

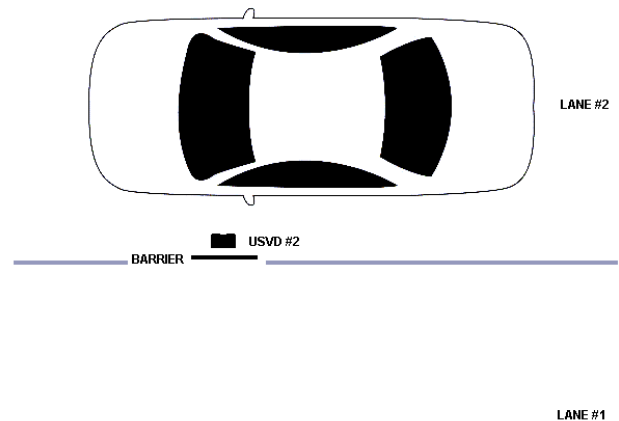
Install the USVD at 22-24" above the height of the pavement surface where the vehicle is located. Align the USVD perpendicular to the side of the vehicle. Connect power and outputs as required by the control system.

Rotate the detector assembly front panel if necessary to allow vehicle direction as shown.



Multiple lanes:

For installations with multiple lanes, it may be necessary to place a barrier up to 24" x 24" behind the USVD to prevent echo from other units from being reflected into the detector. Also, see SENSITIVITY ADJUSTMENT if necessary to decrease sensitivity.



INSTALLATION

Turn off power before connecting the USVD. See wiring information for connections.

The USVD should be mounted at 22-24" above the height of the pavement surface where the vehicle is located. . Align the USVD perpendicular to the side of the vehicle. Connect power and outputs as required by the control system.

The relay contacts are listed in the non-presence condition, i.e. no vehicle is detected.