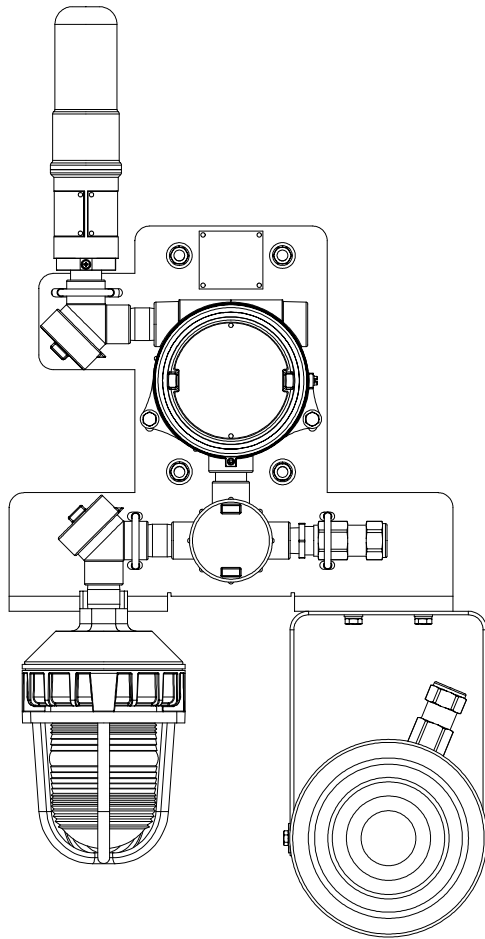




DETCON MODEL SW-AV1-DV2

Hazardous Duty Class I. Div 2, Multi-tone Alarm Station



Operator's Installation and Instruction Manual
Also covers the V2-DV2 dual strobe and A1-DV2 Horn units

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1.0 Description

The Detcon AV1-DV2, V2-DV2, and A1-DV2 Alarm Stations are wireless, battery powered alarm stations with a 5 Joule Strobe and an 115Db @ 1mtr Horn. The AV1-DV2 uses a Horn and a Strobe, the V2-DV2 uses 2 Strobes, and the A1-DV2 uses a single Horn. The unit is designed for installation and use in Hazardous duty, corrosive work environments rated at Class 1, Division 2, Groups E, F, and G.

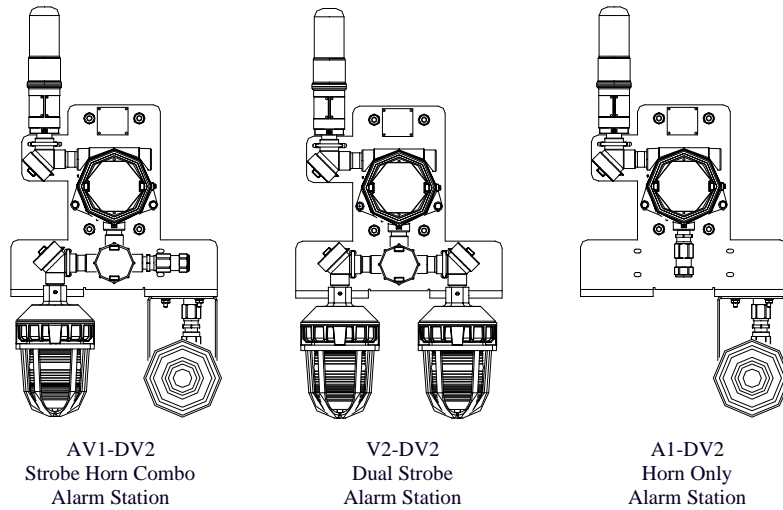


Figure 1 Basic C1D2 Wireless Alarm Stations

The alarm station can be positioned almost anywhere, since the wireless ability of the unit means that there is no need for running conduit or outside connections. The alarm station is powered by its internal 12V battery pack. Communication is performed via the Detcon RXT-300 or RXT-320 series of transceivers. Access to the unit is only necessary for battery maintenance or exchange. With the addition of a solar panel, access can be kept to periodic functional tests and checks.

Internal wiring between components runs through the Wireless Alarm Interconnect PCA. This PCA controls the state of the alarms via communication with the Wireless Transceiver. When an alarm is triggered, the wireless transceiver will provide the interconnect PCA with the signal(s) necessary to activate the proper alarm(s).

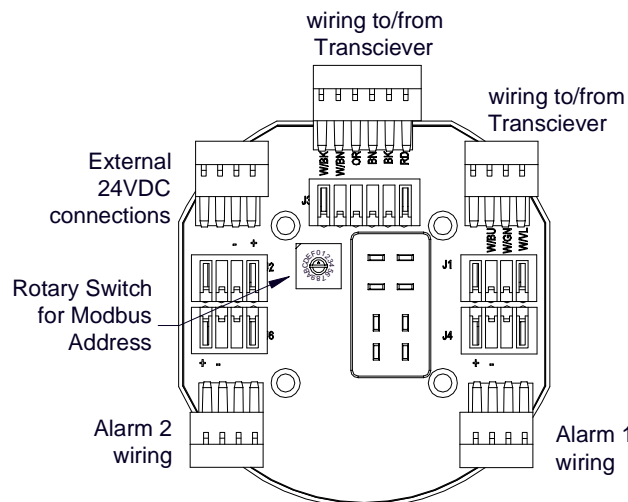


Figure 2 Wireless Interconnect PCA

If the unit uses the RXT-320 Transceiver, the rotary switch on the Wireless Alarm Interconnect PCA is used to set the Modbus Address of the alarm unit. If more than one alarm station used in the system, each alarm station must have a unique address for the alarm station to be recognized on the network properly. This switch is not used with the RXT-300 Transceivers.

1.1 Strobe

The alarm station warning light is configured with choice of dome colors such as amber, blue, clear, green, magenta, or red. Dome guard is included. The rugged warning light is specifically designed for hazardous locations or corrosive environments where a very bright visual signal is required.



Figure 3 Strobe

1.2 Horn

The alarm station vibrating horn produces a noise level of a 115dB of sound by the electromechanical vibration of a stainless steel diaphragm. The horn mechanism has an effective broadcast range of 200 feet. The flamepath(s), flare and the body, are manufactured completely from UV stable glass reinforced polyester. Stainless steel screws and sinter are incorporated thus ensuring a corrosion free product.

The horn is capable of producing coded blasts or sustained tones, and is excellent for general alarm, start/dismissal, coded paging, and process control signaling in areas where their sound output exceeds ambient noise levels. The horn in the Strobe/Horn alarm stations has 16 possible combinations of sounds that are selectable by switch settings inside the alarm.



Figure 4 Horn

1.3 Smart Battery Pack



Figure 5 Smart Battery Pack

The Wireless Alarm Station assembly also comes with a battery pack that allows the assembly to be remotely mounted without the need for any cables because of its wireless operation. Detcon has several options for battery packs. The battery packs provided are Detcon's plug-in Smart Battery Packs which provides an output of 12VDC (See Figure 5). The battery packs consist of rechargeable Lithium-Ion batteries and are equipped with integrated safety electronics that include fuel gauge, voltage, current and temperature monitoring circuits. This "smart" circuitry continuously monitors the battery's condition and reports critical status information to the wireless transceiver. The battery packs are designed to plug onto an 8-pin Beau connector on the terminal board and should not be exposed to outside elements without being housed and protected. Only Detcon products specifically designed to utilize these battery packs should be used. Operating periods before recharge for the Wireless DM-100 assembly can be as long as 2-3 months and battery life can be up to 5 years before battery pack replacement is required. Improper use of the battery pack may be hazardous to personnel or the environment and will void the warranty.

NOTE: The Wireless Alarm Station can also be powered by a customer provided external DC power source. Refer to Section 2 for more details.

1.4 Quad Battery Charger (Optional)

Detcon's Smart Battery Pack can be charged as needed using Detcon's optional Quad Battery Charger which can charge up to four battery packs at one time. The Quad Battery Charger comes with a plug-in AC/DC adapter that plugs into a standard 120VAC outlet for power. The DC end of the adapter plugs into the DC power jack of the charger providing 24VDC. The Quad Battery Charger has four charging ports, each with 8-pin Beau connectors for battery pack connection. The ports and connectors are keyed to prevent incorrect positioning and connection. Each port has its own "FAULT" LED indicator and "CHARGE" LED indicator and will display either a red light or green light depending on the status of each battery being charged. Charging times will vary depending on the charge state of each battery pack, but a full charge of a depleted battery pack can take up to 24 hours.



Figure 6 Quad Battery Charger

When first powered on and with no battery packs connected to the charger, all the LED indicators on the Quad Charger should be green. When a battery pack is seated into a charging port, the “CHARGE” LED will go from green to red indicating the battery pack is not sufficiently charged. Once fully charged, the LED will go from red to green and the battery pack is ready to be used.

The “Fault” LED should remain green indicating that there are no problems with the battery pack or charging port. If the “Fault” LED turns red with the battery pack connected, then there is a problem or issue with the battery pack and it should not be used and be removed immediately. If the “Fault” LED turns red without a battery pack connected to the charge port, then there is a problem or issue with the port and that port should no longer be used.

Battery packs can remain connected to the charger even after a full charge indication (Green “Charge” LED) is shown due to the protection circuitry of the batter pack which prevents any overcharging issues.

1.5 RXT Series Wireless Transceivers

The wireless function of the alarm station is made possible by Detcon’s RXT series wireless transceivers. These transceivers transmit signal data such as analog 4-20mA DC or serial Modbus™ and can support up to 32 devices. They operate at 2.4GHz and conform to non-licensed radio frequency appliance usage around the world. Wireless network integrity and security is accomplished using direct sequence spread spectrum wireless mesh technology. Wireless applications can be as simple as a single field device communicating with a host controller or any number of field devices forming a network of subscribers. Every device in the network is capable of functioning as a router and repeater for all other devices in the network. This means that subscribers can “hop” through neighboring devices to communicate with each other thereby widening network access points. This unique and innovative technology is designed to create a robust network that automatically routes around congestion and line-of-sight obstacles while improving throughput as subscriber device density increases.

Detcon offers two models of the wireless transceiver, Model RXT-300 and Model RXT-320. Both models are functionally similar with one major difference: the RXT-300 provides a network wide control processing capability, whereas the RXT-320 does not. Refer to each models instruction manual for more detailed information.

2.0 Installation

NOTE: The wireless alarm station is a precision instrument and care should be taken when handling it.

The Wireless AV1-DV2 Alarm Station is made to be mounted on a 2" or 3" diameter pipe. Two 3" U-bolts with hardware are provided for mounting. The location for mounting the wireless alarm station should be carefully selected. Occasional access to the unit will be necessary for battery replacement and maintenance.

No wiring is necessary for these units, once the unit has been mounted, install the battery pack and the unit will begin normal operation.

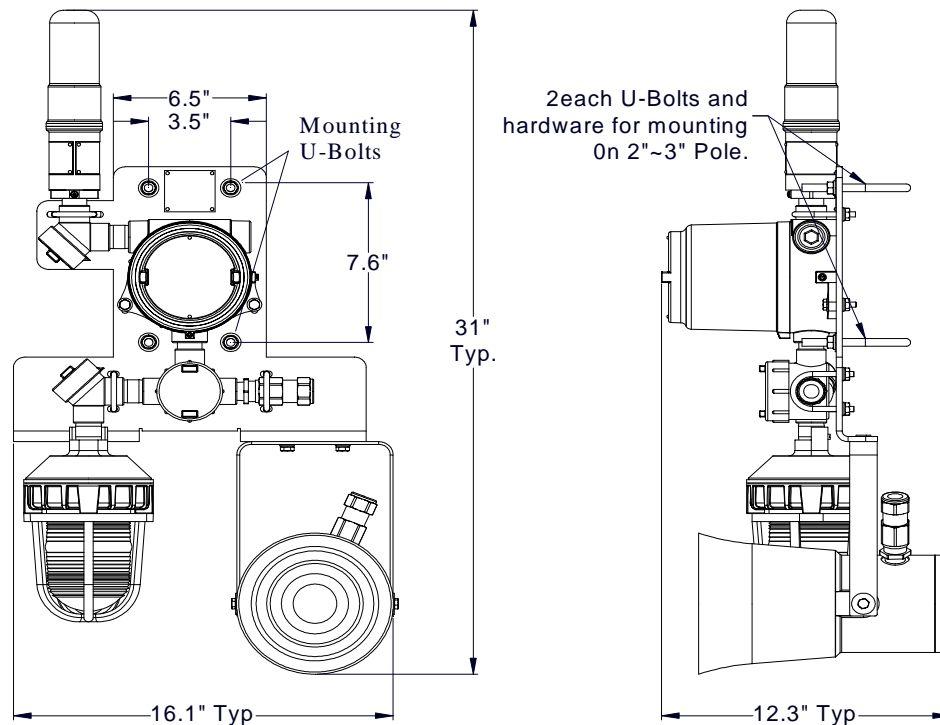


Figure 7 Dimensional

If the unit is equipped with the RXT-320 Transceiver, the Address Switch on the Wireless Interconnect PCA should be set to the correct address for the alarm station. This switch is normally set at the factory. If there is more than one alarm station, each station should have a unique address for proper operation. For more information refer to the RXT-320 manual. Units equipped with RXT-300 Transceiver do not use this switch.

To install the battery pack, insure that the area is de-classified. Remove the cover from the junction box. Remove the Battery Cap, and install the battery. The battery can only be installed one way, and orientation is mandated by the battery supports and the connector. Insure that the battery is completely seated, and close the retaining lever over the battery until it latches. The unit will power up, and begin normal operation. Replace the cover on the junction Box, and insure that the cover is completely screwed down and secured by the cap-head screw.

Battery operation can be supplemented by the addition of an external 24VDC power source. The unit should not need the addition of an external 24VDC power source, but if an external 24VDC is to be added, J6 is provided for connection to the 24Volt input (refer to Figure 8 Typical Unit **Wiring**). This voltage will be used to charge the battery pack as well as aid in operation of the alarm station.

Table 1 Sound Signals

	TONE FREQ/DESCRIPTION	SWITCH	TONE
1	Alt Tones 800/970 Hz at 1/4 sec	11111	
2	Sweeping 800/970 Hz at 7Hz	11110	Fast Sweep(LF)
3	Sweeping 800/1000 Hz at 1 Hz	11101	Med Sweep(LF)
4	Continuous at 2850 Hz	11100	
5	Sweeping 2400-2850 Hz at 7 Hz	11011	Fast Sweep
6	Sweeping 2400-2850 Hz at 1 Hz	11010	
7	Slow Whoop	11001	Slow Whoop
8	Sweep 1200-500 Hz at 1 Hz	11000	Din Tone
9	Alt. Tones 2400/2850 Hz at 2 Hz	10111	
10	Int. Tone of 970 Hz at 1 Hz	10110	Back-Up Alarm(LF)
11	Alt. Tones 800/970 Hz at 7/8 Hz	10101	
12	Int. Tone at 2850 Hz at 1Hz	10100	Back Up Alarm(HF)
13	970Hz at 1/4 sec on 1 sec off	10011	
14	Continuous at 970 Hz	10010	
15	554Hz for 100ms / 440 Hz for 400ms	10001	French Fire Sound
16	Int. 660 Hz 150 ms on 150 ms off	10000	Swedish Fire Alarm
17	Int. 660 Hz 1.8 sec on 1.8 sec off	01111	Swedish Fire Alarm
18	Int. 660 Hz 6.5 sec on 13 sec off	01110	Swedish Fire Alarm
19	Continuous 660 Hz	01101	Swedish Fire Alarm
20	Alt 554/440 Hz at 1 Hz	01100	Swedish Fire Alarm
21	Int. 660 Hz at 7/8 Hz	01011	Swedish Fire Alarm
22	Int. 2850 Hz 150 ms on 100 ms off	01010	Pelican Crossing
23	Sweep 800-970 Hz at 50 Hz	01001	Low Freq. Buzz
24	Sweep 2400-2850 Hz at 50 Hz	01000	High Freq. Buzz
25	3 970Hz pulses 0.5on/0.5off, 1.5 off	00111	
26	3 2850Hz pulses 0.5on/0.5off, 1.5 off	00110	
27	Int. 3100 Hz 0.32s on / 0.68s off	00101	
28	Spare/Customer Tone	00100	
29	Spare/Customer Tone	00011	
30	Spare/Customer Tone	00010	
31	Spare/Customer Tone	00001	
32	Spare/Customer Tone	00000	

4.0 Parts List

Detcon Part #	Description
354-1916x6-024	24VDC Strobe, Ext Ground (x represents color of lamp) Strobe colors: Red (2), Amber (4), Green (5), Blue (6), Magenta (7), and Clear (9)
356-DB3007-024	Model DB3 Horn
500-005146-100	24V Wireless Alarm Interconnect PCA
976-000300-316	RXT-300 Wireless Transceiver
976-000320-316	RXT-320 Wireless Transceiver
976-0BP303-012	12VDC, 2200mAh Battery Pack
976-0BP303-290	12VDC, 2900mAh Battery Pack

5.0 Specifications

Strobe	
Dome Colors	Amber / Blue / Clear / Green / Magenta / Red
Flash Rate/Minute	60
Lamp Source	LED
Horn	
Db Output	115db @ 1meter (tone dependent)
Duty Cycle	Not rated for continuous duty (5 minute duty cycle)
Alarm Unit	
Operating Current	2.8A Max (both Horn and Strobe operational)
Operating Temperature	-20°C to 60°C
Voltage	12VDC
Dimensions	29.5”H X 14.75”W X 13”D AV1 – Strobe / Horn Units 29.5”H X 15”W X 13”D V2 – Dual Strobe Units 28.5”H X 14.65”W X 13”D A1 – Horn Only Units

6.0 Warranty

Detcon Inc., as manufacturer, warrants under intended normal use each new SW-AV1-DV2, SW-A1-DV2, and SW-V1-DV2 Alarm station to be free from defects in material and workmanship for a period of one year. The warranty period begins from the date of shipment to the original purchaser and ends one year thereafter. All warranties and service policies are FOB the Detcon Inc. facility located in The Woodlands, Texas.

7.0 Revision Log

Revision	Date	Changes made	Approval
0.0	02/10/11	Initial Release	LU
0.1	04/27/11	Combined Specifications Table, Updated Spare Parts List	LU
0.2	11/30/11	Updated Mounting Plate	LU
0.3	08/08/13	Update for new battery pack, new unit build, new PCA	LU
0.4	12/30/13	Corrections to Horn and other information	LU

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