Users Manual

FCC ID: SGXMPIDA-610
The manual starts after the dotted line

WIRELESS VEHICLE DETECTION SYSTEM

MODEL DA-600 RECEIVER AND MODEL DA-610 TRANSMITTER

GENERAL INFORMATION

The Model DA-610 transmitter can be used with several receiver models, depending on intended use. The transmitter contains the sensing electronics and should be placed in the area of moving vehicles that need to be detected. The sensing electronics detects any disturbance in the earth's magnetic field above a selectable threshold. The threshold is set by a sensitivity control on the transmitter circuit board. The DA-610 transmitter is completely portable, operating on TWO size AA (LR6) alkaline or rechargeable batteries. The transmitter includes circuitry to detect and transmit a low battery condition indicating a need to replace or recharge the batteries. The transmitter has four user selectable address codes that must match the receiver address codes for signal detection. The DA-610 transmitter is housed in a lockable, weather sealed steel case with mounting brackets welded to the case.

(picture)

The Model DA-600 receiver is a direct wireless replacement for Model DA-500 Drive-Alert. The receiver operates on 110 volts AC with an internal 24 volt DC power supply. A relay output is provided that can be used for control of external equipment. The relay can be used with 24 volts DC available or Form C dry contacts. An internal piezo whistle for alarm sounding is included in the receiver cabinet. The whistle may be switched off if desired. The DA-600 will operate the DA-505 Timer Control for extended light control, the DA-052 Remote Whistle, X-10 PowerFlash interfaces for the DA-058 Remote Chime, or other external bells and relays. The receiver includes a low battery lamp indicating when the DA-610 transmitter batteries need attention. An adjustable alarm time control allows 2 seconds to 12 seconds of alarm time for each vehicle detected. Four user selectable address switches must be set to match the code switches in the DA-610 transmitter to allow signal detection.

(pictures)

DA-600 DA-505 DA-052

INSTALLATION

DA-610 TRANSMITTER:

The DA-610 transmitter operates on TWO size AA (LR-6) alkaline or rechargeable batteries providing 3.0 volts DC to the sensing and transmitting electronics. When battery voltage reaches 2.7 volts a low battery signal is transmitted lighting an indicator lamp on the receiver board. The transmitter will continue to operate for a limited time at this voltage, but the batteries should be changed for continued operation. Batteries should last about one year in a typical residential installation. To install or replace batteries, open the cabinet door, turn off the power switch, install the batteries, observing correct polarity. Turn on the power switch, close and lock the cabinet door. When working on the DA-610, it is advisable to unplug the receiver to prevent excessive false alarms. The receiver should not be plugged in until the transmitter has stabilized for one minute.

The DA-610 is factory set to give an alarm for a sedan moving 5 mph at a distance of 10 feet. Large vehicles moving in excess of 50 mph will be detected at 50 feet. With factory set sensitivity, install the DA-610 at least 50 feet from any streets or roads. The DA-610 has adjustable sensitivity for other installation options. At maximum sensitivity 5 mph vehicle detection is extended to 12 feet, however large high speed vehicles will be detected at 70 - 80 feet. At minimum sensitivity, 5 mph vehicles will be detected at 6 feet and large high speed vehicles at 40 feet. The DA-610 sensitivity can be adjusted to achieve desired results for each installation, however, the factory preset adjustment should be adequate for most places.

The four switches for address codes in the DA-610 are preset to 0000. 0 = off, 1 = on. To configure a different address code, set a switch to on. For example; 1001, switch 1=on, switch 2=off, switch 3=off, switch 4=on. The corresponding receiver address codes should be set to match the DA-610 code. Different address codes would only be needed if multiple transmitters are in range of the receiver, such as a neighbors installation.

The DA-610 can be mounted in any orientation except with the antenna pointing down. IN ALL CASES, THE UNIT MUST BE MOTIONLESS. ANY MOVEMENT OF THE BOX WILL TRIGGER AN ALARM. A suitable lock should be put through the cabinet latch to prevent tampering or battery theft. For a simple driveway installation, the unit can be turned on, locked, and placed on the ground near the drive. The DA-610 is portable, so it may be taken by others if plainly visible. Some options are; to cover the unit with a fake rock or other non-metallic cover, place the box in a nearby bush, or firmly bolt the case to a stable wood, plastic, or metal post. A 4 X 4 mail box or fence post can be used. A tree could be used if it is stable in the wind. The unit can be bolted to a building wall, either inside or outside. The DA-610 will detect moving vehicles through most building materials such as brick or cement block. Any moving metal objects such as a gate should be outside the detection range.

The DA-610 placed at ground level will have a transmit range of approximately 500 feet. If mounted at least 4 feet above ground, the range is extended to 1000 feet. At 6-8 feet above ground the range will be about 1250 feet. See figure 1 for a suggested mounting method.

Figure 1.

DA-600 RECEIVER:

The DA-600 receiver can be mounted inside anywhere that 110 VAC power is available. It is recommended that the antenna should be at least one foot from any metal pipes, power conduits, breaker boxes etc. to maximize transmitter reception. The DA-600 should be mounted 4-6 feet above ground level. Under the unit cover are the address code switches for matching to the DA-610 transmitter. These switches are preset at the factory for code 0000. They should only be changed if the transmitter code is also changed. Also under the cover is an alarm time control preset at minimum or 2 seconds of alarm time. Maximum alarm time is 12 seconds. On the side of the unit is a whistle on-off switch. This switch enables or disables the built-in piezo whistle and provides or removes the 24 volt DC available at the relay output. The common contact of the relay receives 24 volts DC from this switch. In the whistle off position, the relay provides Form C dry contacts for external device control. A red power light indicates that power is on and that the internal 1 amp fuse is ok. The power supply transformer has a built-in internal fuse in the primary winding. A yellow light indicates a low battery condition at the DA-610 transmitter. This lamp will stay on until the battery voltage at the DA-610 is above 2.7 volts DC. Before changing batteries, unplug the receiver and wait at least one minute after replacing batteries before applying power. This prevents unwanted alarms and resets the low battery detector. The terminal board, TB1, provides a convenient wire connection point for external device control and various test points. See figure 2 for a description of the contacts available.

Figure 2.

SIG = RECEIVED SIGNAL STRENGTH 1 VOLT NO SIGNAL 1.5 VOLTS FULL SIGNAL
+5VDC = 5 VOLT DC LOGIC POWER
ALA = ALARM SIGNAL RECEIVED AND DECODED. 0 VOLT NO ALARM 4 VDC ALARM
GND = UNIT GROUND, EARTH GROUND
+24VDC = POWER SUPPLY UNREGULATED 24 VOLT DC AT 100 MA.
NO = NORMALLY OPEN RELAY CONTACT
NC = NORMALLY CLOSED RELAY CONTACT
C = COMMON RELAY CONTACT

DA-603 RECEIVER:

The DA-603 receiver circuit board is the same as used in the DA-600 receiver. The DA-603 does not have an internal whistle or whistle switch. The alarm signal is used to switch an X-10 Powerflash Interface module. Model PSC-01, Mier part number DA-057. This module sends a signal through the internal AC wiring in the building to trigger a remote chime. Model PHH-02, Mier part number DA-058. The unit code and house code of the Powerflash Interface must match the unit code and house code set on the DA-058 remote chime. The Powerflash Interface input switch should be on “B” and the mode set to “3”.
See figure 3.

Figure 3.

To test the Powerflash Interface to chime signal path, push the TEST button and the chime should sound. The chime will also sound when first plugged into an available AC power socket. If the test does not work, try other wall outlets in the building. Some outlets may be on the opposite phase of the 220 VAC coming from the building transformer. In this case, an X-10 Passive Coupler model XPCP should be installed in the building breaker box by a licensed electrician. See www.x10pro.com on the internet for details and local distributors of X-10 products.
The relay contacts at TB1 do not have alarm voltage available for device control. These contacts are Form C, Dry contacts. The DA-603 circuit board has a low battery lamp to indicate when DA-610 transmitter batteries need replacement or recharging. The door of the cabinet must be opened to see this lamp. If the low battery lamp is on, unplug the DA-603 and change the batteries in the transmitter. Wait one minute after energizing the transmitter before plugging the DA-603 back in. Power must be removed from the DA-603 to reset the low battery circuits.
One DA-058 remote chime is included with each unit.
A full diagram of the circuit layout and function is located inside the cabinet door.

DA-604 RECEIVER:

The model DA-604 receiver contains the same circuit board as the DA-600 and DA-603 receivers, plus a time control circuit board for light control. The DA-604 contains two X-10 Powerflash Interface modules. The right hand module signals chimes to sound when alarmed. This function is the same as the DA-603. The module on the left side is used to signal light switches or lamp modules to turn on lamps. One model PLW-01, Mier part number DA-059 wall switch and one model PHH-02, Mier part number DA-058 chime are included with each unit. The Powerflash Interface switch settings are shown in Figure 4.

Figure 4.

The DA-059 wall switch will handle up to 300 watt loads and can be manually operated to turn on lamps.
The timer circuit board located above the main control board has LED lights to indicate when the timer circuit is active. LED 1 indicates an alarm condition has been initiated and will remain on for a few seconds. LED 2 will remain on for the duration of the timed cycle set with the time adjust control. The timer board control can adjust the lamp on time for 45 seconds at minimum to 45 minutes at maximum. With the control arrow at 12:00 o'clock, the approximate lamp on time is about 5 minutes. The X-10 Powerflash Interface test button can be used to verify that the chime or light switch is receiving a control signal. The DA-058 chime should sound when the right module test button is pushed. The lamps connected to the DA-059 switch should come on briefly if the left module test button is pressed. If the units do not operate properly, a passive coupler, model XPCP from X-10 should be installed in the building breaker box for connecting the two phases of the 220 VAC from the power transformer. See www.x10pro.com on the internet for details or local distributors.
If the Low Battery lamp on the main circuit board comes on, this indicates that the batteries in the DA-610 transmitter need to be changed or recharged. Unplug the DA-604 and do not reconnect until one minute after the DA-610 is turned on after battery replacement. The DA-604 power must be removed to reset the low battery circuits.
A full diagram of circuit layout and function is located inside the cabinet door.

MODEL DA-610 TRANSMITTER SPECIFICATIONS

POWER REQUIREMENTS: TWO (2) SIZE AA (LR-6) BATTERIES 3.0 VOLTS DC
OPERATING FREQUENCY: 433.92 MHZ FIXED
ANTENNA: 1/4 WAVE MONOPOLE BOLTED INTO THE STEEL CASE. 0 DBI GAIN
TRANSMITTER OUTPUT POWER: 2 MILLIWATTS
TRANSMITTER: LINX TECHNOLOGIES MODEL KH ENCODER/TRANSMITTER
ENCODER MODULATION: AMPLITUDE ON-OFF KEYING (OOK) AT 1200 BPS.
ADDRESS CODES: FOUR POSITION DIP SWITCH SELECTED FOR THE ENCODER
DATA: ONE DATA BIT ENCODED WHEN BATTERY IS LOW.
TRANSMITTER ON TIME IS LESS THAN 5 SECONDS FOR ANY SINGLE ALARM
ENCLOSURE: 18 GAUGE GALVANEAL PAINTED STEEL WITH WEATHER SEAL AND LOCKABLE LATCH CLOSURE.
QUIESCENT CURRENT : 60 MICROAMP
ACTIVE CURRENT: 2 MILLIAMP
BATTERY LIFE: ABOUT ONE YEAR IN RESIDENTIAL USE.
OPERATING TEMPERATURE: -40 DEGREE F. TO +125 DEGREE F.
WEIGHT: FOUR POUNDS.

IMPORTANT NOTES

Any changes to equipment not authorized by Mier Products, Inc. could void the user's authority to operate these units and void the warranty.
This equipment has been tested and found to comply with the limits for a class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

>Reorient or relocate the receiving antenna.
>Increase the separation between the equipment and receiver.
>Connect the equipment into a different outlet than the receiver.
>Consult the dealer or an experienced radio/tv technician for help.

MODEL DA-600 RECEIVER SPECIFICATIONS

>INPUT POWER: 120 VOLTS AC 50-60 HZ, 3 WATTS
>OUTPUT POWER: 24 VOLTS DC AT 100 MILLIAMPERES
>FREQUENCY: 433.92 MHZ FIXED SUPERHETRODYNE
>ANTENNA: ¼ WAVE MONOPOLE FIXED BOLTED INTO THE STEEL CASE 0 DBI GAIN
>RECEIVER: LINX TECHNOLOGIES MODEL LR
>DECODER: HOLTEK MODEL 658 IC TEN ADDRESS LINES 8 DIGITAL LINES.
>LAMPS: POWER RED LED LOW BATTERY YELLOW LED.
>OUTPUT: PIEZO WHISTLE AND 24 VOLT RELAY
>ALARM TIME: ADJUSTABLE 2 TO 12 SECONDS FOR EACH ALARM.
>OPERATING TEMPERATURE: 0 DEGREE F. TO +105 DEGREE F.
>WEIGHT: 2.5 POUNDS.