MAX-16W

Computerized Wireless Alarm System

Visonic Ltd

Installation Instructions

1. INTRODUCTION

The MAX-16W is a multi-function 16-zone wireless control panel for residential and commercial applications. Its main advantage lies in utilizing a plug-in multi-channel receiver to detect alarm signals transmitted by wireless motion detectors, smoke detectors, magnetic switches etc. Since there is no need to hard wire these sensors, installation becomes quicker and easier than ever.

13 wireless zones are available, divided as follows:

- **Zone 2:** 24-hour zone for fire/panic alerts.
- **Zone 3:** delayed zone (fixed delays)
- **Zone 4:** follower (conditional delayed) zone
- **Zones 5 thru 14:** instant zones.

In addition, 3 hard-wired zones are available, divided as follows:

- **Zone 1:** 24-hour zone for tamper protection.
- **Zone 15:** delayed zone (fixed delays)
- **Zone 16:** instant zone.

The control panel responds to two digital codes – a SYSTEM code and a CHANNEL code, which perform the following functions:

- The SYSTEM code serves as a password – the control panel ignores RF signals other than the correctly coded ones. This is necessary to prevent mutual interference between MAX-16W systems installed in close proximity. Code matching between the control panel and the transmitter is obtained by selecting identical system code settings on an 8-position DIP switch in both units. This switch permits selection of 256 different system codes (see Section 8).

- The CHANNEL code, as set in each transmitter, determines which one of the control panel zones will be activated by that transmitter. This code is selected by setting the transmitter's 4-position "CHAN" DIP switch, or by pressing a corresponding button (or a combination of buttons) on hand-held transmitters. Each code will activate a corresponding zone of the MAX-16W (for details, see Section 8).

16 red LEDs on the front panel, one for each zone, provide zone status and alarm memory indications.

An alarm relay, mounted on the main control module, is capable of directly energizing a siren or another external device such as strobe light. In addition, open-collector silent-alarm outputs are available, one dedicated to the 24 hour zones and another to all zones.
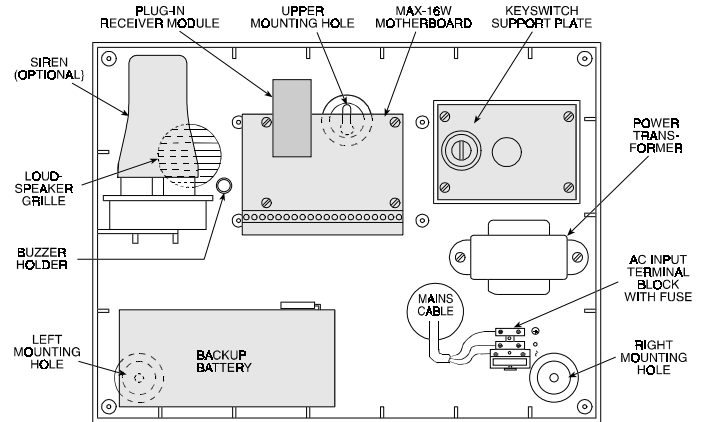

Figure 1. *MAX-16W with Front Cover Removed - Internal Construction*

The control panel may be armed/disarmed by a momentary action spring-return keyswitch, or by wireless transmission of a suitable command code. Zones 3 - 16 may be deliberately bypassed by manual programming, prior to arming the control panel. If so desired, the last bypassing plan may be recalled from the memory to be used again.

The control panel may be programmed to make the siren yelp once upon arming, and yelp twice upon disarming (siren test).

Operating power is supplied from the AC mains through a built-in power supply/charger. A rechargeable, 12V sealed lead-acid battery must be connected to the system to provide operating voltage during power failure. The power supply / charger has an auxiliary 12 VDC output at 300 mA maximum, for motion detectors and various auxiliary devices.

The control panel is packaged in a plastic housing, suitable for mounting on an upright surface. The front panel may be taken off to gain access to the internal modules (Fig. 1). Provisions have been made to accommodate the backup battery and an optional siren with its driver circuit within the housing. The rear wall has a loudspeaker grille and a small recess for a miniature buzzer.

2. FEATURES

- 13 wireless and 3 hard-wired zones
- Fixed entry and exit delays
- One wireless follower zone
- Zone status/memory indicators
- Built-in power supply/charger
- Auxiliary 12 VDC power output
- 3-minute alarm timer for the siren and the ALM OUT output.
- Front panel and remote "System Armed" indications
- AC power indicator
- Manual zone bypassing
- Arming/Disarming by Momentary key-switch or wireless transmission.

- Programmable Arm/Disarm alerting yelps (siren test)
- On-board alarm relay
- Trouble output activated when the radio-frequency (RF) channel is jammed.
- Detection of low battery signals transmitted by remote wireless sensors.
- One wireless and one hard-wired 24 hour zone
- Selectable silent/audible alarm from the 24-hour zones
- Special output for controlling external devices by a remote wireless transmitter.
- Tamper-protected

3. SPECIFICATIONS

Wireless Zone Types:
10 instant, 1 delayed, 1 follower and 1 24-hours

Hard Wired Zone Types:
1 instant, 1 delayed, and 1 tamper (24 hours)

Hard-Wired Zone Circuit: N.C.

Receiver Type: Super-regenerative

Operating Frequencies: 315, 404, 418 and 433 MHz, depending on country of operation.

System ID Code: 8 bit digital word, 256 combinations, pulse width modulation.

Channel Code: 4 bit digital word, 16 combinations, pulse width modulation.

Entry and Exit Delays: Fixed, 60 seconds

Alarm Timer: shutoff after about 3 minutes**.**

24 Hour Silent-Alarm Timer: circuit unlatches approximately 10 seconds after end of alarm trigger.

Alarm Relay Contact Ratings: 5 A (SPDT)

LED Indicators

        Zone status - a row of 16 red LEDs
        Power status - green LED
        ARM/DISARM indicator: yellow LED

Mains Input: 230 VAC, 50 Hz

Fuse Rating: 0.3 A in 230 VAC input circuit

Power Transformer Output: ≥14 VAC at 1A load, ≤16.5 VAC at no load (open-circuit voltage).

Note: *For MAX-16W units ordered without the power pack kit, see para. 9.4.*

Safety Standards: EN60950 and EN60742
Auxiliary DC Output: 12 VDC, 300 mA max.

Open Collector Outputs Current Sinking Capability: 100 mA each, protected by an 18-ohm series resistor.

Standby Battery: Lead-acid type,12V, up to 6Ah

Dimensions (H X W X D): 235 X 317 X 90 mm
                            (9-1/4 X 12-1/2 X 3-1/2 in.)

Weight: 1.7 kg (3-3/4 lb)

Standards Compliance: This device complies with Part 15 of the FCC Rules and RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

This device complies with the European Council Directive 89/336/EEC & 92/31/EEC and bears the CE mark and certification

4. INPUTS

4.1 Instant Zones

The MAX-16W includes ten wireless instant alarm zones – zones 5 through 14, and one N.C. hard-wired instant zone – zone 16. Each instant zone is represented by a suitably numbered red LED which indicates zone status (secured/unsecured) and also provides alarm memory indication. Any violation of an instant zone when the control panel is in the armed state will activate the alarm relay and the ALM OUT output for approximately 3 minutes.

4.2 Delayed Zone

Zone 3 (wireless) and zone 15 (hard-wired, N.C.) are delayed zones which allows users to arm the control panel and leave the protected area within 60 seconds without causing an alarm. They also allow users to enter the protected area while the system is armed and disarm the control panel within the 60 second entry delay time limit.

Both zones are represented by suitably numbered red LEDs for zone status and alarm memory indications. Violation of these zones during the exit and entry delays causes the LEDs to flash, but the alarm is not activated until the relevant delay expires.

4.3 Follower Zone

Zone 4 (wireless) is a follower zone – a conditional delayed zone which has a 60-second exit delay just like zone 3 (the original wireless delayed zone), **but whose entry delay is applied only after prior violation of the delayed zones: 3 or 15.** This function is useful when an additional zone must be violated along the exit/entry route. The entry delay starts when zone 3 or 15 (delayed) is entered and expires 60 seconds later. Entry through a zone other than zone 3 or 15 will cause an immediate alarm. Zone 4 is also represented by a suitably numbered red LED on the front panel.

4.4 24 Hour Zone

Zone 2 (wireless) and zone 1 (hard-wired, N.C.) are active in the armed and the disarmed states. Wireless PANIC buttons, perimeter detectors, magnetic switches and smoke detectors can all activate zone 2, provided that they transmit its corresponding channel code. Zone 1 is activated by any tamper switch wired in its circuit loop. Both 24-hour zones activate a silent alarm output (**ALM 24H**) with or without an audible alarm (through the alarm relay), depending on the setting selected by the **24H SIR** jumper. The audible alarm (siren) triggered by the 24-hour zone may be stopped by arming and immediately disarming the control panel. The ALM 24H "silent alarm" output goes off by itself 10 seconds after having been activated.

Both 24 hour zones are represented by suitably numbered red LEDs on the front panel.

4.5 Standby Battery

A rechargeable, 12-volt lead-acid battery must be connected to the BAT terminals on the terminal block and placed within the MAX-16W housing. The battery input circuitry is protected against reverse polarity connections. A built-in charger provides charging current for the battery.

4.6 AC Power

The AC power pack kit mounted within the cabinet includes a double insulation step-down power transformer and an AC input terminal block with a built-in 0.3 A fuse. The transformer's secondary winding is connected to the 14 VAC input terminals on the MAX-16W motherboard. If the MAX-16W is ordered without this kit, specific power supply requirements must be met (para. 9.4).

4.7 Keyswitch

This input (between the KEY and the [G] terminals) is provided for arming/disarming the control panel by means of a keyswitch located on the front panel or on a remote plate. The keyswitch must be of the momentary spring-return type. The control panel is armed or disarmed by turning the key clockwise to make contact and letting it return to its original position.

5. OUTPUTS

5.1 Alarms

An on-board SPDT alarm relay is provided for enabling, upon alarm, external devices such as a self-activating siren or a lighting device. The relay is latched for 3 minutes by alarms in every zone, including the 24-hour zone (provided that the 24HR SIR jumper is mounted to enable the audible alarm - section 7.4). The relay provides N.C. (normally closed) and N.O. (normally open) contacts and is therefore suitable for connection to any external circuit configuration.

In addition, the ALM OUT open-collector 100 mA output is pulled to ground concurrently with the alarm relay. An alarm in the 24-hour zone pulls to ground the ALM 24H terminal, which is also a 100 mA open-collector output. The ALM 24H output remains activated for the duration of the transmission of zone 2 code, plus 10 seconds.

5.2 "System Armed"

This is an open-collector 100 mA output which may be used to provide remote indication of the **armed** state by lighting an LED installed on a remote plate, near a remote keyswitch. The remote LED, with 1k ohm resistor in series, should be connected between the ARM and the 12VDC [+] terminals.

5.3 Trouble

This is an open-collector 100 mA output used to trigger an audible (buzzer) or visual (LED) alert whenever the RF operating channel is jammed continuously for more than 30 seconds. After the first 30 seconds of jamming, this N.O. output is grounded for as long as the jamming persists, and remains so for 6 seconds after the jamming stops.

5.4 12 VDC Auxiliary Supply

This output provides 300 mA maximum current via the 12VDC [–] & [+] terminals, for powering various detectors and auxiliary devices. Overload protection is provided by a PTC self-recovering fuse. If the current is limited and the output voltage drops as a result of an overload, disconnect the load and wait up to 20 seconds to allow the circuit to recover.

5.5 Low Battery

The LB terminal is a open-collector 100 mA output, activated by the low-battery signals which are automatically transmitted by Visonic Ltd. transmitters and wireless PIR detectors, when their battery voltage drops below 7.0 volts. This signal, whose duration is 2-3 sec., is transmitted at 60-second intervals. Upon its reception, pulsating negative potential (–) is imposed on the control panel's LB output terminal. An alert buzzer (12VDC / 25 mA type) connected between the LB terminal and the 12VDC(+) will therefore sound on and off. The transmitting unit must be identified and the battery replaced, and then the buzzer must be reset by arming and immediately disarming the control panel.

5.6 C-15 OUT

The C-15 OUT terminal is a 100 mA open-collector output, activated by reception of **Channel 15** code from a remote transmitter (all CHAN switches set to ON). The output is pulled to ground for as long as this code is transmitted, plus 10 seconds. C-15 OUT can be used to control external devices such as a garage door or floodlights. If the load requires more than 100 mA, C-15 OUT may be wired to activate a relay which controls the load.

6. LED INDICATORS

6.1 Zone Status/Memory Indicators

16 red LEDs representing the 16 zones are mounted in a row on the MAX-16W front panel.

Night Time Operation (System armed)

LED Indication	Zone Status
Extinguished	The zone is secured.
Flashes (zone 15 only)	The LED flashes during the entry delay, and stops flashing when the control panel is disarmed.
Lights steadily	The corresponding zone is alarmed or has alarmed during the current armed period (memory indication).

Daytime Operation (System disarmed)

LED Indication	Zone Status
Extinguished	The zone is secured.
Flashes	The corresponding zone is violated (flashing stops after 6 seconds if the LED relates to a wireless zone). As soon as the zone is re-secured, the LEDs extinguish (see note below table).

LED Indication	Zone Status
Lights steadily	Memory indication – this zone alarmed during the last armed period. The indication is cleared by rearming and disarming the control panel.

Note: *LEDs associated with the tamper zone (zone 1) and the 24-hour zone (zone 2) will light steadily upon alarm, and will be extinguished only by momentary arming and then disarming the system.*

6.2 System ARMED Indicator

A yellow LED mounted on the front panel lights when the control panel is turned ON (armed) either by the keyswitch or by wireless transmission.

6.3 POWER Indicator

The green LED mounted on the front panel indicates, when illuminated, that AC power is supplied to the system, and will go out if the AC power fails.

7. SPECIAL FUNCTIONS

7.1 Arm/Disarm Audible Signals

- **Arming signal:** Upon arming the control panel, the siren will emit one short pulse.
- **Disarming signal:** Upon disarming the control panel, the siren will emit 2 short pulses.

These signals can be cancelled by placing a jumper across the **SIR** pins.

7.2 Zone Bypassing

A toggle BYPASS/SELECT switch located on the front panel can be used to bypass zones 3 to 16 (zones 1 and 2 cannot be bypassed). The switch, which has two spring-return momentary positions, may only be operated during **disarm**. Any attempt to operate it during **arm** will have no effect whatsoever. To bypass a zone, proceed as follows:

A. Press the switch lever down for 2 seconds (SELECT position). The LED related to zone 3 will flash, indicating that the zone is selected.

B. If you wish to bypass this zone, press the switch lever up briefly (BYPASS position). The flashing will be replaced by steady lighting, indicating that this zone has joined the "bypassing list".

C. Press the switch lever briefly down. The LED of the next zone in ascending order (zone 4) will flash. If you wish to bypass zone 4, press the switch up; if not – press it down to select zone 5.

D. Repeat the process for all other zones one by one, until you finish with the last zone (zone 16). At this stage, pressing the switch down once more will conclude the bypassing process, and the entire "bypassing list" will be registered.

E. Upon exit from the bypassing mode, the LEDs of all bypassed zones will extinguish for 2 seconds, and will then revert to their respective indications before entry into the bypassing mode.

Note: The bypassing mode is aborted automatically if you pause for 30 seconds. When this happens, the entire "bypassing list" is abandoned.

Remember that programmed bypassing is valid for one armed period only and will clear off as soon as the system is disarmed again. Nevertheless, it is possible to recall the last bypass plan by pressing the lever up for 2 seconds (BYPASS position) in the disarmed state. The LEDs of the zones which were bypassed in the last arming period will illuminate steadily for as long as the switch is pressed, and 2 seconds thereafter.

If the displayed bypassing plan still meets your approval, you may arm the system, knowing that the previous bypassing plan has been recalled.

If the displayed bypassing plan does not suit your purpose, press the switch down for 2 seconds and start selecting a new bypassing plan, or abort the bypassing mode by releasing the switch and waiting 30 seconds.

7.3 Manual Resetting of Alarms

When the system is armed and an alarm is triggered by any zone, the siren (activated by the relay) will sound for about 3 minutes and will then automatically shut off, regardless of whether the violated zone is restored to normal or not. A violated zone will arm itself automatically after restoral. To stop the siren before the 3 minutes are up – simply disarm the system.

When the system is **disarmed** and an alarm is triggered by zone 1 (tamper) or zone 2 (24-hour), the siren will also sound for 3 minutes - at the end of which it will shut off. To stop the siren before the 3 minutes are up, arm the control panel and immediately disarm it.

7.4 Jumper - Selected Functions

A. W. ARM - When these two pins are shorted together (jumper installed), the control panel may be armed/disarmed with a momentary keyswitch, but not by wireless signalling. With the jumper removed, wireless arming/disarming is enabled.

B. 24H SIR - When these two pins are shorted together (jumper installed), the siren will be activated by alarms in the wireless 24-hour zone (zone 2) and the hard-wired tamper zone (zone 1). With the jumper removed, the siren will not be activated by alarms in these zones.

C. SIR TEST - When these two pins are shorted together (jumper installed), there will be no arm/disarm signals. With the jumper removed, a single yelp will sound upon arming and two yelps will sound upon disarming.

7.5 System Code Selection

The SYSTEM CODE selector on the MAX-16 motherboard (and in each compatible transmitter) consists of an 8-position DIP switch block marked from 1 to 8 (Fig. 2). Each lever is set to either ON or OFF to create a unique digital code combination (256 possibilities).

Select the desired digital system code by shifting the switches as desired. All wireless transmitters used in the system must be programmed with the same digital code.

Figure 2. System Code DIP Switch

Caution: The code combination 2,4,5,6,7 ON / 1,3,8 OFF is a factory test code which must not be used. Also avoid codes which are often used: all keys ON, all keys OFF or alternating ON/OFF settings.

8. COMPATIBLE TRANSMITTERS

Various Visonic Ltd. low-power wireless transmitters, wireless detectors and wireless magnetic switches are compatible with the MAX-16W system. They may be divided into two main groups:

- **Transmitters with channel selector.** This group of wireless transmitters includes:
  – PIR detector SRN-2000W/PC
  – smoke detector WST-400
  – magnetic contact transmitter WT-301
  – universal transmitters - WT-100 series
  – wireless keypad CL-4WB
  – pendant transmitter WT-201A.

  All these units incorporate an on-board 4-lever DIP switch for CHANNEL code selection. Once a CHANNEL code has been preset (and provided that the correct SYSTEM code is used), a transmission will alarm the corresponding control panel zone (see Figure 3).

- **Transmitters with fixed channel pushbuttons.** This group includes hand-held transmitters, such as WT-101, WT-102, WT-201, and WT-104 which include 1 to 4 pushbuttons. Each button is set to transmit a fixed channel code – one of the 4 standard channels (1, 2, 3, and 4) as explained in the installation manual of each transmitter.

The chart in Figure 3 is a quick guide to transmitter CHANNEL coding and buttons to be pressed. The first column shows the CHAN. switch settings for transmitters which incorporate a CHAN selector DIP switch. The second column specifies which button(s) should be pressed to transmit the same code from multi-button hand-held transmitters. The third column specifies which MAX-16W zone will be triggered by each particular code.

Transmitter Type		Circuit Triggered by Code		Transmitter Type		Circuit Triggered by Code
With Channel Selector (2 switch types)	With Channel Buttons			With Channel Selector (2 switch types)	With Channel Buttons	
	Channel 1 Button	Arm/Disarm Circuit			Channel 1+4 Buttons	Zone 9
	Channel 2 Button	Zone 2			Channel 2+4 Buttons	Zone 10
	Channel 1+2 Buttons	Zone 3			Channel 1+2+4 Buttons	Zone 11
	Channel 3 Button	Zone 4			Channel 3+4 Buttons	Zone 12
	Channel 1+3 Buttons	Zone 5			Channel 1+3+4 Buttons	Zone 13
	Channel 2+3 Buttons	Zone 6			Channel 2+3+4 Buttons	Zone 14
	Channel 1+2+3 Buttons	Zone 7			Channel 1+2+3+4 Buttons	C-15 OUT
	Channel 4 Button	Zone 8				

IMPORTANT NOTE: When setting the narrow type of DIP switch (the one at the extreme left), disregard the arrow on the switch block. This arrow does not indicate the ON position!

Figure 3. Transmitter Channel Codes

9. INSTALLATION

9.1 Mounting

Install the control panel in a protected, easily accessible location, invisible from outside and preferably near an unswitched AC power source. Remove the front panel as explained below:

A. Unscrew the four screws at the four corners and pull the cover carefully off the cabinet.

B. As you take the cover off, you will see a flat cable which connects the motherboard within the case to the display module mounted on the inner side of the front panel.

C. Carefully pull off the 10-pin flat cable connector from receptacle near left edge of display module. Refer to Figure 4.

> **Be careful:** The 10-pin connector has a very delicate guide pin at one end, which fits into a guide hole in the printed circuit board. When reassembling the system, remember to align the guide pin with the guide hole. Failure to do so will lead to pin breakage and reverse connection, resulting in damage to the electronic circuitry.

D. Put the front panel aside in a safe location, until you finish all mounting and wiring operations.

Mounting and wiring holes are provided on the rear panel of the cabinet. If necessary, punch out the wiring knockouts at the sides, to suit your particular installation needs. Mount the cabinet using the 3 mounting holes at the rear (see Figure 1).

> **Attention!** before wiring, be sure to follow the instructions given at the end of this section.

Once all wiring is completed (see Section 11), reconnect the flat cable connector removed in step 3 above and remount the front panel on the cabinet.
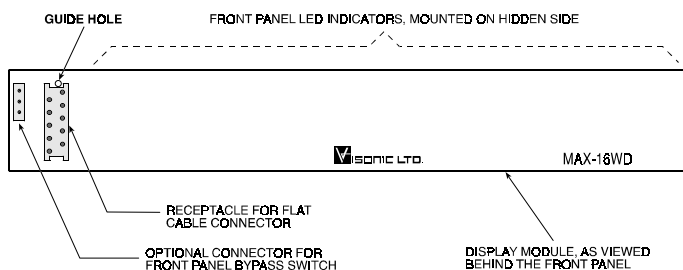
Figure 4. The MAX-16W Display Module

Attention! To reduce the risk of electrical shock and fire, the following safety precautions must be strictly observed.

1. Installation must be carried out by qualified electrician only.

2. All electrical wiring must comply with the local standards and regulations that are valid at the time of installation.

3. Do not perform service or repair operations unless the mains supply is cut off with a circuit breaker.

9.2 Wiring

Refer to the wiring diagram in Figure 5.
Terminals

G	A negative [–3] common terminal. Each hard-wired zone loop is connected between this terminal and the specific zone terminal.
Z1 24H	Zone 1 – Tamper (hard-wired). Connect anti-tamper switches or PANIC push-button N.C. contacts between this terminal and the G terminal.
Z15 DLY	Zone 15 – delayed (hard wired). Connect N.C. sensor contacts between this terminal and the G terminal.
Z16 INS	Zone 16 – instant (hard wired). Connect sensor contacts between this terminal and the G terminal.
KEY	Keyswitch terminal. Connect an external momentary action keyswitch between this terminal and the G [–] terminal for arming/disarming the control panel.
TRO-UBLE	Open-collector 100 mA output terminal that provides RF jamming channel alert. Connect a buzzer between this terminal (negative on alert) and the 12VDC [+].
C-15	Open-collector 100 mA output terminal for activating an

|	
OUT	external device when Code 15 is transmitted from a remote transmitter. Connect the external device or its relay coil between this terminal (switched [–]) and the 12VDC [+] terminal.
ALM 24H	Open-collector output for activating an external digital communicator (silent alarm) when the 24 hour zones (zones 1 and 2) are violated.
ALM OUT	Open-collector 100 mA output terminal for activating an external digital communicator (silent alarm) when any zone is violated.
ARM	Open collector output to indicate the armed state on a remote plate. Connect LED with 1 kΩ resistor in series between this terminal (switched [–]) and the 12VDC [+] terminal.
LB OUT	Open collector output which supplies pulsating (–) upon reception of Low Battery signal (Code 0) from a remote wireless detector or transmitter. Connect a buzzer between this terminal and the 12VDC (+) terminal (an LED with a 1kΩ series resistor may also be used).
12VDC	12 VDC supply. Provides 300 mA maximum current for external devices between the [+] and [–] terminals.
BAT	Battery input terminals. Use a 12 VDC, lead-acid rechargeable battery only. Connect its leads between the [–] and [+] terminals. Observe polarity.
SIR RELAY	These are the internal SPDT relay terminals (N.C., C and N.O.), used to activate a siren by switching on its [+] or [–] supply upon alarm.
14 VAC	AC power Input. The control panel is powered by 14 VAC output from a 20 VA power transformer, whose secondary winding is connected across these terminals.
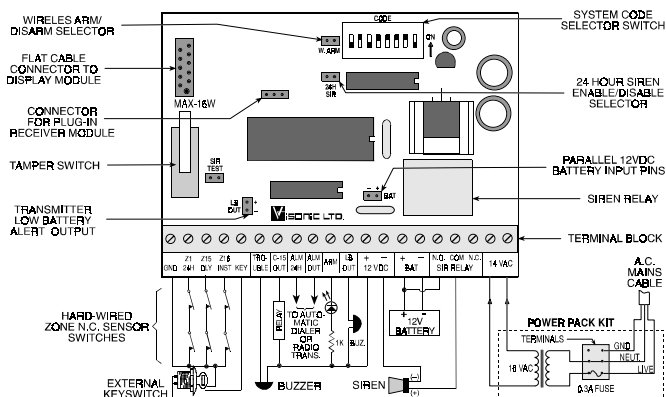
Figure 5. MAX-16W Terminal Block Wiring Diagram

9.3 PCB-Mounted Dual-Pin Headers

Terminals

LB OUT	The LB OUT (+) pin is parallel to the LB OUT terminal. The LB OUT (–) pin is grounded.
BAT	The BAT (+) and (–) pins are connected in parallel with the BAT (+) and (–) terminals. These pins may be used for connecting an optional low-battery alert circuit.

9.4 AC Power Connections

Terminals

~	Live AC mains wire (phase)
0	Neutral AC mains wire
⏚	Grounding terminal - not used, since the MAX-16W cabinet is made of plastic.

> ⚠ **IMPORTANT! For MAX-16W units ordered without the power pack kit, the following power transformer requirements must be met:**

Safety Standards: EN60950 and EN60742

Secondary Voltage: ≤14 VAC at 1A load, ≤16.5 VAC at no load (open-circuit voltage).

Breakdown Voltage: 3.75 Kv @ 50 Hz for one minute.

Protection: Thermal cutoff at 115°C (250 VAC / 1A).

10. TESTING AND CHECKOUT

1. Verify that all wiring and jumper settings have been completed per user's requirements.

2. Select a SYSTEM code in the MAX-16W and associated transmitters as outlined in Section 8.

3. Set the CHANNEL code of every transmitter used in the system in accordance with the circuits you wish to activate (see table in Fig. 3).

4. Connect a 12 V, lead-acid rechargeable battery to the 12V [+] & [–] terminals. Observe polarity.

5. Supply AC power to system; the green AC LED should illuminate.

   Note: It is recommended that AC power be obtained from an uninterruptible power source.

6. Bridge any unused hard-wired zone with a short jumper wire to the ground (G) terminal.

7. Turn the keyswitch clockwise until it makes contact and release it. The yellow LED marked ARM will illuminate and the siren will emit one short yelp (provided that the SIR TEST jumper is not installed). The zone status LEDs will not illuminate (provided that all 3 hard-wired zones are secured).

8. Turn the keyswitch clockwise until it makes contact and release it. The yellow LED marked ARM will extinguish and the siren will emit two short yelps (provided that the SIR TEST jumper is not installed).

9. Make sure a jumper is installed across the 24H SIR pins on the printed circuit board.

10. Check the operation of the hard-wired zones (1, 15 and 16). Try every switch and sensor in each of these zones. Do this both in the **disarm** and **arm** states. Verify proper operation of the alarm relay, the ALM OUT and ALM 24H open-collector outputs and the red status/memory LED indicators associated with these zones.

Note: When zone 1 is tested, the ALM 24H output will be triggered in addition to alarm relay and the ALM OUT output.

11. Check the operation of all wireless zones, by using their respective CHANNEL codes. Try the switches and sensors in each zone. Do this both in the **disarm** and the **arm** states. Verify proper operation of the alarm relay, the ALM OUT and ALM 24H open collector outputs, and the red status/memory LED indicators associated with these zones.

Note: When zone 2 is tested, the ALM 24H output will be triggered in addition to the alarm relay and the ALM OUT output.

12. Set a hand-held transmitter WT-201A to transmit Code 1. Verify that the W.ARM jumper is not installed. make sure the control panel is alternately armed and disarmed by successive transmissions from this transmitter.

13. Set a hand-held transmitter WT-201A to transmit Code 15 (see Figure 3). Make sure the C-15 OUT open-collector output triggers and latches for 10 seconds each time this transmitter is activated.

14. Set a hand-held transmitter WT-201A to transmit a low battery signal (Code 0 - all 4 CHAN switch levers at OFF). Make sure the LB OUT open-collector output is triggered to produce a pulsating signal each time the code is transmitted. Reset the LB OUT output by arming/disarming the control panel.

15. Disconnect the AC mains power. Repeat testing and checkout on backup battery power. The green LED will extinguish, thus indicating a power failure. However, the control panel should function properly on battery power.

16. Reconnect the AC mains power.

17. Disconnect the battery [+] terminal and check for approximately 13.8 Volts DC across the BAT [+] and [–] terminals.

18. Reconnect the battery [+] terminal.