User's Guide

OMA-GUARD IT
Owner's Manual

omega.com®
ΩOMEGA®

Servicing North America:

USA: One Omega Drive, Box 4047
ISO 9001 Certified   Stamford, CT 06907-0047
Tel: (203) 359-1660   FAX: (203) 359-7700
e-mail: info@omega.com
Canada: 976 Bergar
Laval (Quebec) H7L 5A1
Tel: (514) 856-6928   FAX: (514) 856-6886
e-mail: info@omega.ca

For immediate technical or application assistance:

USA and Canada: Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA
Customer Service: 1-800-622-2378 / 1-800-622-BEST
Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN
TELEX: 996404   EASYLINK: 62968934   CABLE: OMEGA
Mexico and
Latin America: Tel: (95) 800-826-6342   FAX: (95) 203-359-7807
                         En Espan ol: (95) 203-359-7803   e-mail: espanol@omega.com

Servicing Europe:

Benelux: Postbus 8034, 1180 LA Amstelveen, The Netherlands
Tel: (31) 20 6418405   FAX: (31) 20 6434643
                         Toll Free in Benelux: 0800 0993344
                         e-mail: nl@omega.com
Czech Republic: ul. Rude armady 1868, 733 01 Karvina-Hranice
Tel: 420 (69) 6311899   FAX: 420 (69) 6311114
                         Toll Free: 0800-1-66342   e-mail: czech@omega.com
France: 9, rue Denis Papin, 78190 Trappes
Tel: (33) 130-621-400   FAX: (33) 130-699-120
Toll Free in France: 0800-4-06342
                         e-mail: france@omega.com
Germany/Austria: Daimlerstrasse 26, D-75392 Deckenpfronn, Germany
Tel: 49 (07056) 3017   FAX: 49 (07056) 8540
Toll Free in Germany: 0130 11 21 66
                         e-mail: info@omega.de
United Kingdom: One Omega Drive, River Bend Technology Centre
ISO 9002 Certified   Northbank, Irlam, Manchester
                         M44 5EX, England
                         Tel: 44 (161) 777-6611   FAX: 44 (161) 777-6622
                         Toll Free in the United Kingdom: 0800-488-488
                         e-mail: info@omega.co.uk

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The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient-connected applications.

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1 Product Overview

1.1 Product Description

The Guard-It™ alarm autodialer is designed to monitor conditions at remote facilities and place alarm notification telephone calls to personnel, delivering specific pre-recorded messages.

Users may also call the product at any time from any telephone, to check for alarm conditions.

Four signal inputs are provided for monitoring. The signals which the user connects to these four inputs may be any combination of contact closure, digital logic level, or analog 4-20 ma current loop. In addition, the product monitors the 12 volt DC power connected to it, and if an optional rechargeable battery has been installed, it will place alarm calls to report power failures.

The product will work with any standard dial-up public telephone line, as well as with the available Cellularm™ option. Leased lines are not required.

Using a programming phone at the front panel. the user may pre-record informative, high-fidelity voice messages up to 12 seconds in length, for each of the four input channels, plus a station identification message which is played during every phone call.

The user may program up to 8 phone numbers, which may be up to 60 digits in length. The product may also be programmed to call numerical display pagers in addition to regular phone numbers.

If desired, the user may program a number of detail parameters such as alarm trip delays, ring answer delays, etc.

A special Call Progress function may be turned on, which allows the product to detect busy signals and move automatically to the next programmed phone number, delay the voice reporting until the called phone has answered, and move to the next phone number if a programmable maximum number of rings has been exceeded.

A phone line fault monitor function may also be turned on, which detects the disconnection or failure of the phone line.

Informative, multi-color front panel LED's advise local personnel at a glance of any problems.

The product may be mounted on a back surface, or flush into a larger front panel, or as a stand-alone circuit board.

The Guard-It™ autodialer is ruggedly built to a high standard of quality by the world leader in industrial alarm autodialers. It includes internal noise filters and surge protection on all signal, power and phone line inputs, and is built for many years of reliable service.

1.2   Manual Description

This manual guides you through the following procedures:

- Location and mounting
- Initial programming
- Voice message recording
- Using Your Guard-It™ autodialer
- Advanced programming

A glossary explaining the terms used in this manual is included the end of the manual, along with a troubleshooting guide, an index, a return authorization form, and FCC notice to users.

Worksheets are provided to document and clarify your programming and message recording steps.

Please take a moment to read, complete, and mail the warranty registration card at the back of this manual.

1.2.2   Conventions

Throughout this manual various icons are used to visually identify information. They are as follows:

◆   The solid diamond symbol shows a list of procedures, decisions, or single step tasks.

●   The bullet symbol shows a list of items.

💣   The bomb indicates a warning message. The information concerns process that may result in damage to equipment or harm to a person.

✋   The hand indicates a caution message. The information concerns a process that may result in equipment failure.

The pencil indicates general information.

The open diamond pattern indicates one or more exceptions or special considerations for a process.

The phone indicates that you can access the Guard-It™ autodialer through your phone.
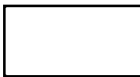
Other icons include menu indicators as seen on the Guard-It™ autodialer front panel.

"items in quotes"	Quotation marks indicate titles of sections and messages.
italic	Italic text indicates items for emphasis, message text, and sample text.
ALL CAPITALS	Capital letters reference the names of keys, lights, and LEDs.
Initial Capital Letters	Capitalization of the first letter of a set of words indicates mode and function types.

2 Installation

2.1 Mounting Location

Ideally, the Guard-It™ autodialer and the wiring connected to it should be located away from heavy duty power wiring and wiring which is likely to emit substantial electrical interference. The location must be free of condensing moisture, and must remain within a temperature range of 20 to 120 degrees F for proper operation. Allow clearance room for the plug-on connector block and phone line connectors at the bottom.

The product should be located within 5 feet of an RJ11 telephone line jack, otherwise a telephone extension cord will be needed to make the phone line connection.

If you are using the optional 12 VDC wall adaptor to power the product, you will need a 120 VAC electrical outlet to plug the adaptor into. The product should be located within five feet of this outlet; otherwise it may be necessary to splice in additional wire length for the 12 VDC line.

2.2 Mounting Onto A Back Surface

Referring to the diagram, attach the mounting brackets to the product. Prepare the back surface by drilling pilot or clearance holes for the mounting screws. The mounting centers are 3.6" high by 9" wide. #8 Wood screws, self tapping screws and machine screws (with lock washers and nuts) are provided to accommodate a variety of back panel materials. Refer to the diagram (See Appendix F).

2.3 Mounting Flush Into A Front Panel

To mount the product flush into a larger front panel (maximum panel thickness 1/8"), you will need a rectangular cutout in the panel to clear 6-3/16" high by 8-3/16" wide. Slide the product into the opening from the front, and use the 6-32 screws to attach the two mounting brackets to the product in the proper orientation so that they hold the product firmly in place against the larger front panel. Refer to the diagram (See Appendix F).

2.4 Mounting Without An Enclosure

To mount the product as a circuit board only, open the enclosure via the two screws on each side of the enclosure, lift out the front panel, and then remove the four screws which secure the circuit board to the front panel. Pass appropriate mounting screws (not provided with product) through the white nylon standoffs to mount the circuit board to a back surface. The small inner panel is printed with markings to identify the LED's and switch functions.

3 | Wiring Connections

Note:

Note that the connector block is unpluggable for convenience in making wiring connections.

3.1 Power Connections

The Guard-It™ autodialer requires 8 to 16 VDC power connected to the connector block, in order to operate.

The power source should be capable of delivering a current of 500 milliamperes.

Power must be connected observing the correct polarity. Refer to the diagram.

3.2 Connecting To Electrical Ground

Your Guard-It™ autodialer has several internal protective devices built in. However, for them to work effectively it is important that the product be well grounded. A grounding wire with a terminal lug is included on the product for this purpose.

If the Product is mounted to a grounded metal back surface, then simply connect the terminal end of the wire to the lower right hand mounting screw as shown in the diagram.

If the product is _not_ mounted to a grounded metal back surface, connect the end of the wire to the nearest available electrical grounding point. If the installation is within a grounded metal electrical panel or enclosure, connecting to the metalwork will be sufficient. If you need to extend the ground wire, use 18 gauge wire or heavier, and keep the total length as short as possible.

This grounding wire will also ground the (-) side of the incoming 12 VDC power. If you are using a pre-existing source of 12 VDC power, you will need to verify that the grounding of the (-) side of this supply will not cause a problem.

3.3 Phone Line Connection

Plug one end of the supplied telephone extension cord into the telephone line jack located to the left of the connector block (not the programming jack located on the front panel). Plug the other end of this same cable into a telephone line (RJ11) jack.

Caution:

The phone line must be such that a standard telephone set can work on it. *Certain in-house PABX phone systems have "digital" line connections which can damage the product!*

Ideally this phone line should be for the exclusive use of the Guard-It™ autodialer. However, the product will generally function if there is an extension phone on the same line, as long as that extension phone is not in use when it is time for the Guard-It™ to place or receive a phone call.

3.4 Input Signal Connections

The four signal inputs on the Product can be used with several different types of input signals, in any combination.

3.5 Connecting Unpowered ("DRY") Contact Inputs

Connect unpowered contact inputs as shown in the diagram. Each input has two input connection points. The points marked "C" are internally connected together and to common ground.

Warning:

Before making any such connections, verify that there is *no electrical power present on the signal wires,* otherwise serious damage to the product could result.

3.6 Connecting Analog or Digital Logic Signal Inputs

Refer to Appendix A regarding analog signal inputs and Appendix B regarding digital logic signal inputs.

3.7 | Optional Digital Alarm Output (DAO) Connections

The digital alarm output circuit activates whenever there is an unacknowledged alarm. It deactivates whenever such alarms are acknowledged. It may be used to power a customer supplied 12 VDC relay, or to drive a 5 volt logic circuit. See appendix C for details.

3.8 | Optional External Battery Connections

The Product may be used with a customer-supplied external 6 VDC (not 12 VDC) gel cell lead acid battery for backup during power failure. An internally mounted gel cell battery is also an available as an option from Raco. Refer to appendix D if using an external gel cell battery.

3.9 | Writing Channel Descriptions In White Bar Areas

You may want to use the white bar area to the right of each of the four input channel status LED's, to write in short descriptions of what each input channel is being used to monitor. You may use a plain lead pencil (which is erasable), or a marker pen.

Basic Wiring Connection Diagram
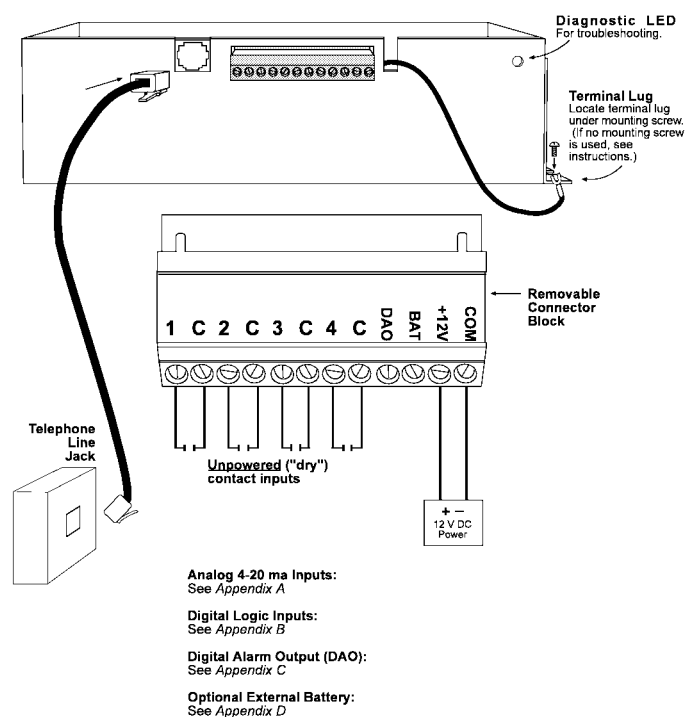
Guard-It™ Front Panel Diagram

Flashing red indicates loss of external 12 VDC power. After 5 minutes, alarm calls will be placed. Upon acknowledgement, light is on with no flashing.

Flashes red whenever unit is on but disarmed.

Flashes red if Phone Fault Detection is turned on and a phone line fault has been detected.

Indicates a phone call is in progress.

Microphone

Channel Light Indications:

Steady green - Normal

Flashing green - Fault but alarm trip delay not timed out.

Flashing red - Unacknowledged alarm.

Steady red - Acknowledged alarm.

POWER FAILURE

DISARMED

PHONE LINE FAULT

OFF HOOK

Product is not powered but optional battery is kept charged.

Product is ready to place alarm calls.

Product may be called but will not place alarm calls; any alarms are automatically acknowledged.

Plug a touch tone phone into this jack and follow the voice menu to program. This jack is **not** for connection to the telephone company line.

4

Programming Your Guard-It™ Autodialer

4.1 Programming Menu

To program your Guard-It™ autodialer, you will need a standard touch-tone telephone.

Telephones which have the keypad located separately from the handset, are most convenient for this purpose.

Just plug the telephone temporarily into the Programming Jack on the front panel of the product, lift the receiver, and follow the voice menu to enter your programming and record your voice messages.

If you do not make any selection from the "top" menu, it will be repeated once and then the program mode will be terminated.

To begin again, simply hang up the programming phone for a second or so, and then pick it up again. You may do this from most places in the programming menu, whenever you want a fresh start.

For most programming items, you will hear the present programming entry if any, and then you will be given a chance to either accept this existing entry by pressing pound (#), or else make a new entry.

If you make a new entry, it will be repeated back to you for confirmation.

In general, pressing the pound (#) key will cause whatever you have keyed in to be accepted and recited back for confirmation.

When keying in a menu choice rather than a value, the choice will be accepted and recited without need to press pound (#).

Pressing the pound (#) key when you have not keyed in any entry, will generally return you to the previous menu level.

If you make an entry that the Product considers invalid, it will respond with a statement, *"Value fault. Enter a new value."* The previous valid setting will be retained and restated, and then you will be prompted to make a new entry if you wish to do so. This would occur, for example, if you entered a value that was outside the allowable range of values for that programming item.

Guard-It™ Programming Flow Chart

Range of Values Table

PROGRAM ITEM	DEFAULT	RANGE
Input On/Off	On	On, Off
Alarm State if configured for contact Input	Closed is alarm	Closed, Open
Alarm Set Points if configured for Analog Input	Off	0.0-99.9%, Off
Telephone Numbers	None	Up to 60 digits
Alarm Trip Delay All Inputs (Power Fail Delay is 5 minutes fixed)	2.0 sec	0.1-999.9
Alarm Reset Time	1.0 hours	0.1-99.9
Ring Answer Delay	1 ring	1-20
Time Between Calls	10 min (10-99.9)	0.1-99.9 if there is only one phone #
Dialing Delay	10 sec	1-20 sec
Tone/Pulse Dial Mode	Auto	Auto, Tone, Pulse
Phone Fault Monitor	Off	On, Off
Call Progress Control	Off	Off, On
Max rings before abandon call (When CPC is on)	5 rings	4-20

Flow chart boxes:

- 7 Ackn. Alarm Reset — Sec. 4.7
- 6 Program Review — Sec. 4.6
- 5 Status Report — Sec. 4.5
- 4 General Items — Sec. 4.4
  - 1 Alarm Trip Delay
  - 2 Alarm Reset Time
  - 3 Answer Delay
  - 4 Time Between
  - 5 Dialing Delay
  - 6 Tone/Pulse
  - 7 Phone Fault
  - 8 Call Progress
    - CPC On/Off
    - Max # of Rings
- 3 Recorded Messages — Sec. 4.3
  - 1 Review Messages
  - 2 Record Messages
- 2 Phone Numbers — Sec. 4.2
  - Select Which#
    - Enter #
- 1 Input Configuration — Sec. 4.1
  - Select Channel
    - 1 Open
    - 2 Closed
    - 3 Off
    - 4 Analog
      - 5 Ana. Hi
      - 6 Ana. Lo

Refer to the table later in this section, for a listing of the initial default values and allowable range of values which you can program, for each programming item.

✎ ***Note:***

If you delay more than five seconds without pressing any new key, the Product will treat this the same as pressing the pound (#) key, except when recording messages.

Also note that your Guard-It™ autodialer will not respond to new alarm conditions while you are programming. The LED's will generally remain in the state they were in prior to the beginning of the programming session, until a few seconds after the programming session has ended. Most program changes do not take effect until you end the programming session. The same is true during an alarm call; messages for new alarms are not included in a call that is already underway.

4.1.1 Input Configuration

```
┌─────────┐
│    1    │
│  INPUT  │
│ CONFIG. │
└─────────┘
```

The default input configuration for each of the four input channels is *contact input, alarming on closed circuit.*
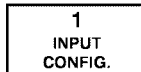
If you need a different configuration, after selecting [1] from the top menu, you must select which of the four available input channels (first, second, etc.) you want to configure. The voice menu will ask you for this number which will be a number from 1 to 4.

After you select the input channel number to configure, the voice menu will prompt you with the following choices:

◆   [1] Alarm on Open Circuit

◆   [2] Alarm on Closed Circuit (which is the default setting)

◆   [3] Off (so that this input channel will not report or activate its corresponding front panel LED)

◆   [4] Analog (4-20 ma current loop) signal.

If an input channel is configured for an analog signal, the menu also gives you two additional choices:

◆   [5] To program an analog high alarm level set point value

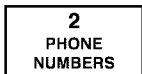◆   [6] To program an analog low alarm level set point value

Example:

To configure input channel 3 to alarm on Open Circuit, from the top menu press:

    1 3 1

Refer to Appendix A for additional information on programming for analog signal inputs.

4.1.2

```
┌─────────┐
│    2    │
│  PHONE  │
│ NUMBERS │
└─────────┘
```

Phone Number Programming

You must program at least one phone number for your Guard-It™ autodialer to dial when it has an alarm to report.

Note:

Until you do so, any alarms which are detected will be automatically acknowledged without any alarm calls being placed.

To program phone numbers, you must first select which of 8 available phone numbers (first, second, etc.) you want to program. The voice menu will ask you for this number, which will be a number from 1 to 8. Then it will recite the presently programmed phone number for that selection, if any. Then it will allow you to accept the current entry by pressing pound (#), or else enter a new phone number for that selection.

Be sure to include any necessary prefixes or area codes, just as you would dial it on an ordinary telephone.

As you enter each digit, be sure to listen for the voice to repeat back that digit, before you enter the next digit.

Example:

To program the third phone number to be 1 (510) 658-6713, from the top menu you would press [2] for phone number programming, then [3] to select the third phone number, then:

    1   5   1   0   6   5   8   6   7   1   3   #

Listen carefully as the completed entry is repeated back to you, to be sure it was entered and accepted correctly.

To delete a phone number, program it to be 00.

For example, to clear out the fourth phone number, from the top menu you would press [2] for phone number programming, then [4] to select the fourth phone number, then:

    0 0 #.

To program a phone number for use with numeric pagers, see Appendix E.

4.1.3

```
┌─────────────┐
│      3      │
│  RECORDED   │
│  MESSAGES   │
└─────────────┘
```

Recording Voice Messages

Your Guard-It™ autodialer has "canned" generic alarm messages ("Channel one alarm", etc.) but you will probably want to record your own more specific and informative alarm messages.

There are five alarm messages which you can record: a message for each of the four input channels, plus a "Station ID" message which identifies the site where the Product is located.

In order to prevent one message from being recorded or re-recorded over another message, *it is necessary to record all five messages, in proper order, in one sequence of steps.*

Under the Message Review and Recording menu which you get by pressing [3] from the top menu, you will be prompted to choose:

◆   [1] to review the existing set of five messages, or

◆   [2] to begin the sequence of recording all five messages.

If you select [2] to begin the recording sequence, the Guard-It™ autodialer moves you automatically through the sequence of all five messages to record, starting with the message for input channel number one.

The voice menu identifies which message is to be recorded next (i.e. for input channel number 1, for input channel number 2, etc.).

To actually record the message, wait for the sound of the beep, then speak clearly into the telephone mouthpiece of the programming phone. When you are done, press pound (#). The Product will then play back the message you have just recorded.

If you want to re-record the resulting message after hearing it played back, press star (*) instead of pound (#). You may re-record as many times as you wish, until you are satisfied with a given message. When you are satisfied with the message, press pound (#) to move on to the next message.

Proceed in this manner to record *all five messages*. The Station ID message is the last message in the set of five messages. It is the message that will be recited during every phone call, to identify the site that is calling or being called.

If you have configured a given input channel as "OFF", you will still be asked to record a message for it. Just "record" a moment of silence for that departed input channel, and proceed with recording the remaining messages.

For any input channels which you have programmed for analog signal input, record the message in the form of: "The water level percentage is". Whenever you call in or when an alarm call is placed, analog channels will be reported with the message you record followed immediately by the percentage value. You may want to include a spoken reference to the translation table which is found in Appendix A.

If you later need to change a message, simply re-record the entire set of 5 messages.

Each message may be as long as 12 seconds, for an available total of 60 seconds.

4.1.4

```
┌──────────┐
│    4     │
│ GENERAL  │
│  ITEMS   │
└──────────┘
```
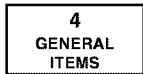
General Programming Items

The following general programming items allow you to "custom tailor" some specialized aspects of product operation.

Many users will find that the default settings work well, without need to program any of the items in this general category.

4.1.4.1   [1] Alarm Trip Delay

The alarm trip delay is the number of seconds during which the alarm violation (fault) must be continuously present on any input channel, before the Product will trip that input channel into Unacknowledged Alarm condition and begin dialing the first programmed phone number.

The default value is two seconds. If you wish to alter this value, the range of programmable values is 0.1 to 999.9 seconds. Use the star (*) key if you want to use a decimal point, but it is also OK to use whole numbers.

During the time period when a fault exists but has not yet lasted long enough to trip an alarm, the LED for that input channel will change from green to flashing green. Also during this interval, if you should hear a spoken status report on this channel, the word "fault" will be added to the message.

Note that the Product also has an internal power failure alarm. The trip delay for this alarm is fixed at 5 minutes.

4.1.4.2   [2] Alarm Reset Time

In the Unacknowledged Alarm state, the Product will place alarm calls, going endlessly through the list of up to 8 programmed phone numbers until the alarm is acknowledged by someone pressing a "9" at the sound of the tone, or by placing a return call to the Product and pressing "9" at the sound of the tone.

Either way, when the alarm is acknowledged, further alarm calls on behalf of that input channel (or power failure alarm) will be suspended. An internal Alarm Reset Timer begins timing, and when it has completely timed out, the acknowledged alarm status for that input channel is automatically cleared. As a result, if there is no current alarm condition, no new alarm will be created. If an alarm condition does still exist, then after the alarm trip delay expires, a new Unacknowledged Alarm and alarm calling will occur.

The default value for the Alarm Reset Time is one hour. If you wish to alter this value, the range of programmable values is 0.1 to 99.9 hours. Use the star (*) key if you want to use a decimal point, but it is also OK to use whole numbers.

Note:

Note that when testing, once you trip an alarm on a given input channel and acknowledge the alarm, you will not be able to promptly re-create an Unacknowledged Alarm for that input channel, since the Alarm Reset Timer will not have timed out, and this input channel will still be in an Acknowledged Alarm state. To create a new alarm, you can trip an alarm on another input, or you can force a clearout of all Alarm Reset Timers by using selection [7] on the top menu, or by turning the product off and then on again.

4.1.4.3 [3] Answer Delay

When you place a call to the Product, it will wait for a programmed number of rings before answering the call. This number of rings is called the Answer Delay.

The default value is one ring. If you wish to alter this value, the range of programmable values is 1 to 20 rings.

Note About Extension Phones:

The best practice is to provide a phone line service for the exclusive use of the Guard-It™ autodialer. However, if you do need to have an extension phone on the same line for use by personnel, you might want to program a ring delay of, say, 6 rings, so that anyone present at the site would have a chance to answer the call before the Guard-It™ autodialer answers it. If the line is in use by an extension phone when the Guard-It™ tries to place an alarm call, the call will not be completed, but the messages will be heard on the extension phone.

4.1.4.4 [4] Time Between Alarms Calls

After the Product is finished placing a call to a given phone number, and if the alarm was not acknowledged during that call, the Product enters a waiting period before it begins placing the next alarm call. This waiting period is the Time Between Alarm Calls.

The default value is 10.0 minutes. If you wish to alter this value, the range of programmable values is 0.1 to 99.9 minutes.

Note, however, that in order to comply with governmental regulations for alarm autodialers, if only one phone number is programmed, the product will not alllow the time between alarm calls to be less than 10 minutes.

4.1.4.5 [5] Dialing Delay

If you want your Guard-It™ autodialer to place alarm calls to a numerical pager, you will need to refer to Appendix E for special instructions, which include programming the special Dialing Delay.

The default value is 10 seconds. If you wish to alter this value, the range of programmable values is 1 to 20 seconds.

4.1.4.6 [6] Tone/Pulse Dialing

Your Guard-It™ autodialer is capable of dialing using Pulse Dialing or Tone Dialing.

● For Tone Dialing, press [1]

● For Pulse Dialing, press [2].

● For "Auto Detect," press [3]. This is the default setting.

When Auto-Detect is chosen, the Product will periodically test the phone line and it will automatically use Tone Dialing if it determines that Tone Dialing works on the phone service line it is connected to.

4.1.4.7 [7] Phone Fault Monitor

Occasionally a telephone line will cease to operate. When the Phone Fault Monitor function is turned on, the Product will go "off hook" to check for the presence of a dial tone. If it fails to hear a dial tone, it begins flashing the "PHONE LINE FAULT" LED on the front panel, and continues to do so until such later time as it again hears a dial tone during another periodic check.

This action of going off hook every few minutes (as indicated by the yellow light on the front panel) may make it seem like the product is behaving erratically, to someone who is not familiar with its functioning.

Because the line is checked only periodically, if there is a change in the status of the phone line connection, *it will take a few minutes for the LED to reflect the change.*

Note:

Note that if this feature is turned on and there is another phone device connected to the Guard-It™ autodialer's phone line, if that device happens to be "off hook" (in use) when the product checks the phone line, a phone line fault indication may occur.

Even if the product has detected an apparent phone line fault, if it needs to place an alarm call it will attempt to do so. Thus in some circumstances during a call to or from the product, you might hear the message "phone line fault, now normal." This generally would mean that a phone extension was in use at last check, or that the phone line is intermittent and should be checked.

When the product has detected a phone line fault and then subsequently finds the line to be operational, the warning LED will be turned off. However the verbal warning will be retained until after you either place a call to the product, or acknowledge an alarm call.

Detection of a phone line fault will not cause an attempt to place alarm calls.

The default setting for this feature is "Off". To turn it on, when prompted press [1].

4.1.4.8 [8] Call Progress Control and "Maximum Number of Rings"

The Guard-It™ autodialer can be programmed to monitor the progress of the alarm calls it places, by listening to the tones and voice signals on the phone line.

Based on the signals the product hears, it knows when to start delivering its messages, and it also knows if it should abandon the current call attempt, as described below.

If Call Progress Control is turned on, when placing alarm calls the product counts the number of ring signals it hears. If more than the programmed "Maximum Number of Rings" occurs with no answer, it ends the phone call attempt without issuing any spoken message. It then waits the programmed Time Between Alarm Calls, before placing a call to the next phone number.

If Call Progress Control is turned on, the programming menu will allow you to program this "Maximum Number of Rings." The default value is 5 rings. If you wish to alter this value, the range of programmable values is 4 to 20 rings.

Also when Call Progress Control is turned on, when placing alarm calls the product listens for the ring signals, and only begins speaking when it misses the sound of the next ring. For this reason, there may be a delay of a few seconds after picking up the phone, before the first message is heard, when this function is turned on.

Also when Call Progress Control is turned on, when placing alarm calls the product listens for a busy signal. If it hears a busy signal it immediately ends the call and waits the programmed Time Between Alarm Calls, before placing a call to the next phone number.

The default setting for Call Progress Control is "off".

Call Progress Control depends upon the product's ability to interpret the various tone signals heard on the phone line. Because there is a lot of variance in the nature of these signals from one local phone company to another, it is important to thoroughly test the proper functioning of Call Progress Control, if you choose to turn this feature on.

4.1.5

```
      5
   STATUS
   REPORT
```

Status Report (Input Review)
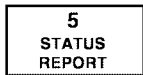
This selection in the top menu causes the Guard-it™ to recite the status of any input channels which are in any kind of non-normal state. Any channels which have been programmed "off" will not be mentioned.

4.1.6

```
      6
  PROGRAM
   REVIEW
```

Programming Review

This feature allows you to review all the programming settings. Any messages which you have recorded will also be recited. We suggest that you use this feature to write all your programming entries on the **Programming Log Sheet** provided in this manual. This will allow you to easily re-create your Guard-It™ autodialer setup should it ever be necessary to replace or reprogram the unit. It is also helpful in the event you need to call for Customer Support.

4.1.7

Acknowledged Alarm Reset

Note:

Note that unlike the other six menu choices, this choice is not printed on the front label of the product.

As previously mentioned, under test conditions you cannot quickly recreate an unacknowledged alarm on a given input when that input is already in an Acknowledged Alarm state. The reset feature allows you to force a clearout of the alarm reset timers, so that all input channels (and power failure alarm) are immediately ready to be tripped into Unacknowledged Alarm for the purpose of further testing or alarm monitoring.

4.2 Restoring Programming To Factory Default Settings

It is possible to restore your Guard-It™ autodialer to factory default settings for all programming items, including clearing out all recorded messages.

To do this, locate the plugged hole in the top of the enclosure, and remove the plug. While the product is turned on (but not in programming mode), use a screwdriver blade or similar device to momentarily connect the two pins which are accessible through the hole.

The four input channel LED's will turn orange while the unit "reprograms" itself to factory default settings. When this process is completed, the LED's are restored to their normal color and the product is ready for new programming.

4.2.1 Programming Log Sheet

Range of Values Table

PROGRAM ITEM	DEFAULT	RANGE	REPROGRAMMED TO:
Input On/Off	On	On, Off	
Alarm State if configured for contact Input	Closed is alarm	Closed, Open	
Alarm Set Points if configured for Analog Input	Off	0.0-99.9%, Off	
Telephone Numbers	None	Up to 60 digits	
Alarm Trip Delay All Inputs (Power Fail Delay is 5 minutess fixed)	2.0 sec	0.1-999.9	
Alarm Reset Time	1.0 hours	0.1-99.9	
Ring Answer Delay	1 ring	1-20	
Time Between Alarm Calls	10 min (10-99.9)	0.1-99.9 if there is only one phone #	
Interdigit Dialing Delay	10 sec	0-99.9 sec	
Tone/Pulse Dial Mode	Auto	Auto, Tone, Pulse	
Phone Line Alarm On/Off	Off	On, Off	
Call Progress Monitoring	Off	Off, On	
Max rings before abandon call (When CPM is on)	5 rings	4-20	

PROGRAMMING LOG SHEET

PROGRAM ITEM	DEFAULT	RANGE	REPROGRAMMED TO:		
Input Channel 1	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	Closed ☐ Analog ☐ ⌐→____% *High Set Point*		Open ☐ Off ☐ ____% *Low Set Point*
Input Channel 2	Alarm on Closed Circuit	Closed, Open	Closed ☐ Analog ☐ ⌐→____% *High Set Point*		Open ☐ Off ☐ ____% *Low Set Point*
Input Channel 3	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	Closed ☐ Analog ☐ ⌐→____% *High Set Point*		Open ☐ Off ☐ ____% *Low Set Point*
Input Channel 4	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	Closed ☐ Analog ☐ ⌐→____% *High Set Point*		Open ☐ Off ☐ ____% *Low Set Point*
Phone Number 1					
Phone Number 2					
Phone Number 3					
Phone Number 4					
Phone Number 5					
Phone Number 6					
Phone Number 7					
Phone Number 8					
Message for Input 1	Channel 1 Alarm				
Message for Input 2	Channel 2 Alarm				
Message for Input 3	Channel 3 Alarm				
Message for Input 4	Channel 4 Alarm				
Message for Station ID	This is Phone Alarm Station				

PROGRAM ITEM	DEFAULT	RANGE	REPROGRAMMED TO:
Ring Answer Delay	1 ring	1-20	
Time Between Callls	2.0 seconds	0.1-999.9[1]	
Alarm Reset Time	1.0 hours	0.1-99.9	
Tone/Pulse Dialing	Auto detect	Tone, Pulse, Auto	
Pager Dialing Delay	10.0 seconds	0.1-99.9	
Phone Line Fault Monitor	Off	On, Off	
Call Progress Monitor	Off	On, Off	
Max Rings Before Abandon Call Atempt [3]	5	4-20	
Input Channel 4	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	

Notes:
[1] For power failure alarm, Alarm Trip Delay is fixed at 5 minutes.
[2] Minimum programmable Time Between Calls is 10 minutes, if only
    one phone number is programmed.
[3] Call Progress Monitoring must be On for this to apply.

5

The Guard-It™ Autodialer In Operation

5.1   The Alarm Process

Much of the operation of the Guard-it™ was explained in the previous chapter on programming.

To review the sequence of events that starts with the detection of a fault condition on a given input channel, refer to the Alarm Process diagram.

Please keep in mind the following facts:

A fault condition must be detected continuously for the duration of the programmed Alarm Trip Delay, before an Unacknowledged Alarm will occur. During this timeout, the corresponding input channel LED will blink green.

The Alarm Trip Delay for input channels is programmable, with a default value of 2 seconds. For power failure alarm, the Alarm Trip Delay is fixed at 5 minutes.

Once an Unacknowledged Alarm occurs, the corresponding LED will blink red, and alarm calls will be placed indefinitely until the alarm is acknowledged, even if the fault condition returns to normal.
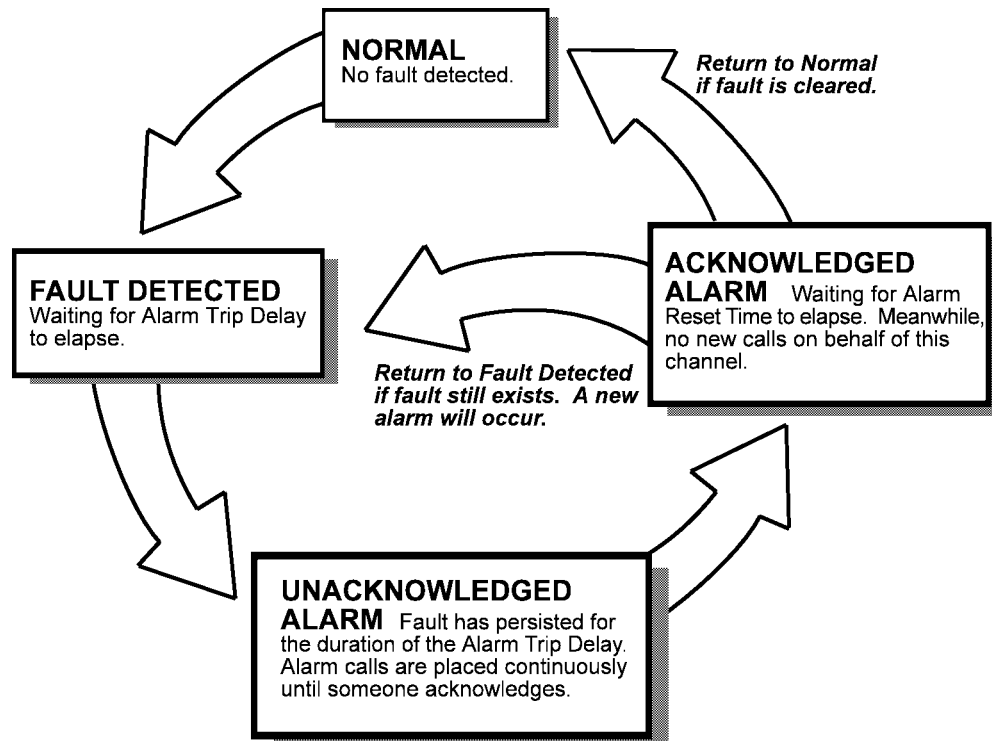
When the alarm is acknowledged, the corresponding LED turns solid red, and further alarm calls on behalf of that input channel (or power failure alarm) will be suspended.

At the moment of acknowledgment, an internal Alarm Reset Timer begins timing, and when it has completely timed out, the acknowledged alarm status for that input channel is automatically cleared. As a result, if the fault condition no longer exists, no new alarm will be created. If a fault condition does still exist, then after the alarm trip delay elapses, a new Unacknowledged Alarm and a new cycle of alarm calling will occur.

If the product loses all power or is turned off, when power is restored the acknowledged alarm status will have been cleared. Therefore, if a fault is still present, then after the alarm trip delay has elapsed, a new unacknowledged alarm will occur, resulting in new calls being placed.

If the OFF/DISARMED/READY switch on the front panel is in the DISARMED position, any such alarm will be automatically acknowledged so that no alarm calls will be placed.

Guard-It™ Alarm Process Diagram

NORMAL
No fault detected.

Return to Normal if fault is cleared.

FAULT DETECTED
Waiting for Alarm Trip Delay to elapse.

Return to Fault Detected if fault still exists. A new alarm will occur.

ACKNOWLEDGED ALARM Waiting for Alarm Reset Time to elapse. Meanwhile, no new calls on behalf of this channel.

UNACKNOWLEDGED ALARM Fault has persisted for the duration of the Alarm Trip Delay. Alarm calls are placed continuously until someone acknowledges.

Channel Light (LED) Indications:
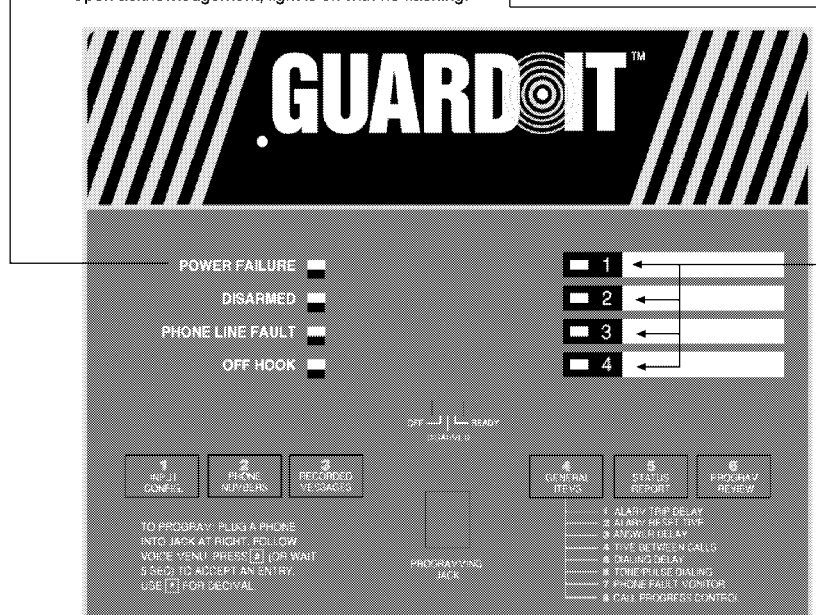
Steady green - Normal

Flashing green - Fault detected but alarm trip delay not timed out.

Flashing red - Unacknowledged alarm.

Steady red - Acknowledged alarm.

Power Failure Alarm (LED) Indications:

Flashing red indicates loss of external 12 VDC power. After 5 minutes, alarm calls will be placed. Upon acknowledgement, light is on with no flashing.

If the phone line connected to the Guard-it™ autodialer has an extension phone and it is in use at the time the product attempts to place an alarm call, the call will not go through to the programmed phone number, but the alarm message will be superimposed on the phone call in progress on the extension phone.

Note that the alarm reset function is somewhat similar to a "snooze alarm" on an alarm clock. If someone acknowledges an alarm but does not correct the condition, a new series of calls will be placed after a "snoozing" period has elapsed.

5.2 Receiving And Acknowledging An Alarm Call

When you receive an alarm call from your Guard-it™ autodialer, listen to the message to learn what alarm(s) exist. The message round will start with the Station ID message, followed by the specific alarm message for the input channel(s) in alarm, and/or a message stating "power is off".

Note that any input channels which have been programmed for analog, will be reported regardless of whether they are in alarm or not. If there is a high or low level alarm on an analog channel, the words "high (or low) level alarm" will be added.

The additionally informative words "fault", "now normal", and "acknowledged" may be added as follows:

If the input of a given input channel is in fault but has not yet persisted long enough to trip an alarm for that input, the message for that input will be included with the word "fault" added.

If the input of a given channel in alarm has returned to normal as of the time of the phone call, the message for that input will be included with the words "now normal" added.

If a given input channel is already in an acknowledged alarm state, the message for that input will be included with the word "acknowledged" added.

At certain points in the message round, a prompting beep will be issued. This is your cue to press a "9" immediately after the tone to acknowledge the alarm. Upon detecting the "9", the Product will say "Alarm is acknowledged. Goodbye", and the call will end.

Following the final message round, the microphone will be turned on so that you can hear sounds occurring in the area of the product. Then there will be one last beep to allow acknowledgment before the call ends.

If you do not acknowledge an alarm call, the Product will end the call and wait for the programmed Time Between Alarm Calls (default 10 minutes), before going on to place a call to the next programmed phone number, repeating the calling endlessly until the alarm is acknowledged.

If the Call Progress Monitoring function is not turned on, you will generally pick up the phone in the middle of a message. Simply continue to listen, and the message will continue to the start of a complete new round.

If the Call Progress Monitoring function is turned on, there may be a delay when you answer the phone, before the messages begin.

You may also acknowledge the alarm by placing a return call to the Guard-it™ autodialer. The best way to do this is to wait for the alarm call to end before you place your return call, so that the line will not be busy. At the sound of the prompting beep, press a "9", and the Product will respond by saying "Alarm is acknowledged. Goodbye."

5.3 Power Failure Alarms

The alarm trip delay for power failure alarm is fixed at 5 minutes.
Note that you can only receive a power failure alarm if an optional rechargeable lead acid "Gel Cell" battery is installed, since otherwise the power failure would prevent operation of the product. If you have installed an external "uninterruptible" source of 12 VDC power for the product, it will not know that there has been a failure of primary power unless this is reflected at one of the signal inputs.

5.4 Placing An Inquiry Call To The Guard-It™ Autodialer

You may call the Guard-it™ autodialer at any time other than when you are programming, to get a status report of all input channels.

The product will answer the phone after waiting for the programmed ring answer delay (default 1 ring).

The message you hear may include particular informative phrases such as "no phone numbers programmed", "power is off", "disarmed", etc. There will be two complete message rounds, followed by a listening period when the microphone is turned on, before the product ends the phone call.

If there are any unacknowledged alarms, you may acknowledged them by pressing "9" immediately following the beep.

5.5 | Acknowledging An Alarm From The Front Panel

To acknowledge an alarm from the front panel, move the selector switch to the DISARMED position, then return it to the READY position. The product must not be in programming mode or presently placing a phone call, for the alarm to be acknowledged in this way.

5.6 | Clearing An Acknowledged Alarm From The Front Panel

To force a clearing of the acknowledged alarm status in advance of the time when the alarm reset timer would otherwise do it, select choice [7] from the top menu, or simply turn the product off and then on again. If there is still a fault being detected, then after the expiration of the alarm trip delay, a new unacknowledged alarm will occur with new alarm calls being placed.

6

Troubleshooting & Repair Service

If the product appears "dead" with no lights or action of any kind, suspect the external power source (most likely) or a blown internal fuse (less likely). There is a diagnostic light located behind a round hole on the lower right hand edge of the enclosure. If this light is lit, it means that there is at least 8 VDC (the minimum voltage required) reaching the product <u>and</u> that the internal fuse (5 x 20 mm, 0.8 ampere) is good.

In turn, this means that if the light is not lit, then you can track down and correct the problem without need to return the product to the factory for service. If it is lit and the product appears dead, then factory service is needed.

Verify that all connections are correct and that the connector block is plugged firmly into place in the correct orientation.

If there is a problem with phoning, use the programming phone to test the phone line, temporarily plugging it into the premises phone line jack in place of the autodialer connection.

Most other apparent problems, especially at startup, are the result of incorrect connection or programming, or misunderstanding of how the product operates.

If after reviewing this manual you still have difficulty, Omega's Customer Support department is available from 8:30 a.m. through 6:00 p.m. E.S.T. on weekdays.

6.1   Phone Support Procedures

Make sure you have the following before you call:

- <u>Serial #</u>: Found on the enclosure.
- <u>Note the unit's symptoms</u>: Exact speech pattern, what it is saying, if it is calling or not. The more specific and accurate you are in describing the symptoms, the quicker the Customer Support Department will be able to diagnose and troubleshoot the problem. In many cases, it may save a return to the factory.

THEN call 1-800-327-4333 for Customer Support.

If Customer Support determines that the unit needs repair, you will be given a Return Materials Authorization (RMA) number.

7 Testing

A suitable program of testing is highly adviseable for any alarm autodialer. The frequency and thoroughness of the test should be gauged according to the potential consequences of missing an alarm call.

Test the unit by simulating an alarm at one or more of the inputs. If you have an optional rechargeable battery installed, you can create a power failure alarm by disconnecting the external 12 VDC power source and waiting 5 minutes for a power failure alarm to be tripped.

You can leave the power disconnected and see how long the unit remains operational, running on its optional rechargeable battery. You might temporarily program an alarm reset time of, say, four hours, so that you would get a new set of calls every four hours until the battery lost charge.

8 Maintenance

The only maintenance item on the Guard-It™ autodialer is the optional rechargeable battery. It should be replaced every three years, since it will eventually fail with old age in the same way that an automobile battery does.

Replacements for this battery must be ordered near the time of changeout, since long storage on a shelf without a charger will damage the battery. It may be ordered from Omega or from the manufacturer as printed on the battery.

A

A.1

ANALOG (4-20 MA) INPUTS

Connecting 4-20 MA Analog Signal Inputs

As an alternative to contact inputs or digital logic inputs, you may connect 4-20 ma analog signals to any of the inputs. The connections must be made with the correct polarity. Refer to the diagram.

Note that the negative connection points for each of the inputs are connected to each other, and to common ground, inside the product. Most 4-20 ma signal circuits are "floating" with respect to ground, and for such signal circuits the grounded inputs on the Guard-It™ autodialer will usually cause no problems.

However some 4-20 ma signal circuits already have a connection to ground at some other point in the current loop. If your current loop has such a connection and if you cannot remove it, it is best to install an "isolator" such as Model T700-0000 made by Action Instruments (619) 279 5726 . Otherwise, signal errors will be introduced, both for the Guard-It™ autodialer and for any other elements in the same current loop.

Note that similar devices are available from the same manufacturers, which accept signals in different formats (such as 0-1 VDC, etc.) and which translate such signals into standard 4-20 ma signals which the Guard-It™ autodialer can accept.

The easiest way to verify that there are no grounding problems, is to verify that the current in the loop does not change when the Guard-It™ autodialer is added to the loop.

For example, if there is a chart recorder or readout device in the current loop, first take a reading with the Guard-It™ autodialer completely disconnected from the loop.

Do this by unplugging the connector block and temporarily shorting the + and - inputs on the signal input points on this connector block. Observe the reading, and then remove the short and plug in the connector block to include the Guard-It™ autodialer in the loop, turn it on, and verify that this does not change the reading on the readout device. All power and ground connections to the Guard-It™ autodialer must be in place for this test to be valid. Also, the input channel being tested must be programmed for analog input as described below.

If you are troubleshooting by making voltage measurements across the signal input connection points on the Guard-It™ autodialer, bear in mind that if the product is turned off or if it has not been programmed for analog input, an internal voltage clamp will result in a fixed voltage drop of about 7 VDC. If the product is turned on and the input has been programmed for analog input, a loop resistance of about 220 ohms will result in a voltage drop of approximately 0.88 VDC with a signal level of 4 ma, and approximately 4.4 VDC with a signal level of 20 ma.

A.2   Programming For Analog Signal Inputs

From the top menu, when you select [1] for input programming and then select an input channel number to program, the voice menu will prompt you with the following choices:

[1] Alarm on Open Circuit

[2] Alarm on Closed Circuit

[3] Off (so that this input channel will not report or activate its corresponding front panel LED)

[4] Analog (4-20 ma current loop) signal.

If an input channel is configured for an analog signal, the menu also gives you two additional choices:

[5] To program an analog high alarm level set point value

[6] To program an analog low alarm level set point value

Example: to program input channel number four for analog input, from the top menu you would press [1] for input programming, then [4] to select input number four, then [4] again to configure this input channel for analog input.

Input channels which have been programmed for analog (4-20 ma) signals, will report a 4 ma signal level as 0.0% and a 20 ma signal level as 100.0%. Signal levels between these limits will be reported in linear scale proportion as a percentage between 0.0% and 100.0 %. Note that as a result of this linear analog scale, an input current of 0 ma would give a reading of *minus* 25.0%.

The Guard-It™ autodialer is very sensitive, being capable of detecting variations as little as 0.1%. Absolute accuracy should be within 0.5%. Due to substantial input filtering, it takes several seconds for any sudden change in input level to become fully settled.

A translation table appears below, relating the analog input signal in milliamperes to the spoken percentage reading. It also allows you to write in the corresponding actual physical readings (such as water level in feet, etc.) for various signal levels.

When programming analog high or low alarm set points, enter the set points as a percentage value, using the star (*) key for a decimal point if desired.

EXAMPLE: to enter a high set point value of 56.8% for input channel number 4, from the top menu you would press [1] for input programming, then [4] to select input number four, then [5] to select the high alarm set point for this input channel, and then:

5 6 * 8 #.

The menu will allow you to program high or low analog set points only if the input channel has first been programmed for analog input.

To turn off a given alarm set point so that it will not create an alarm, press "star" (*) and then pound (#).

In operation, whenever a high or low level alarm setpoint is exceeded continuously for the duration of the programmed alarm trip delay, an unacknowledged alarm will occur.
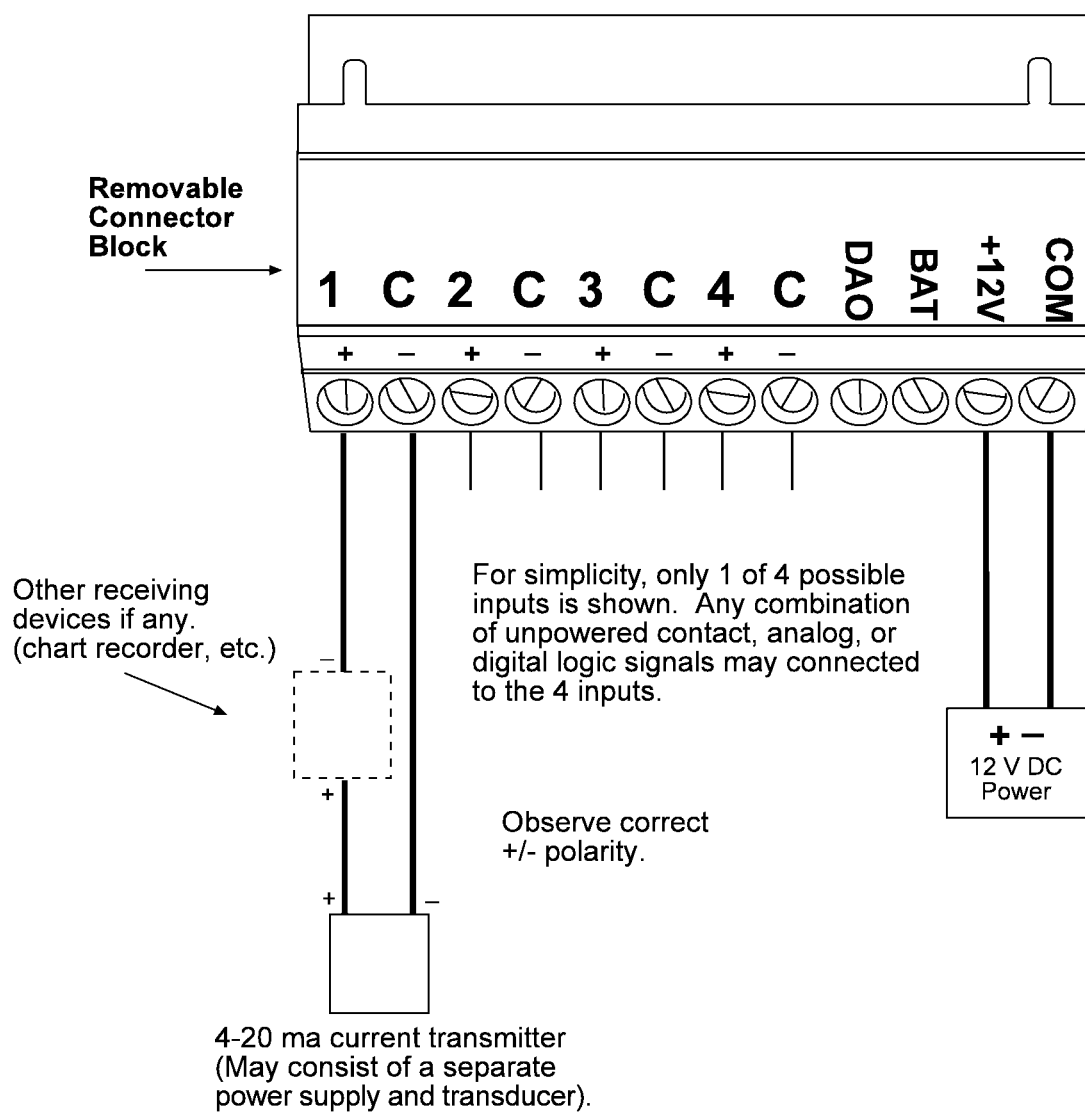
A.3 | Analog Translation Table

This table translates various input signal levels in milliamperes, to the corresponding percentage values which will be reported.

It also allows you to write in the corresponding translation to the actual physical parameter being measured, such as water level in feet, etc. You can make copies of this for later use, even including reference to this table in your recorded message, which might be: "Referring to the analog translation table, the water level percentage reading is."

SIGNAL LEVEL:	SPOKEN READING:	CORRESPONDS TO PHYSICAL VALUE ON INPUT CHANNEL NUMBER (Description)			
		1(_____)	2(_____)	3(_____)	4(_____)
4.0 Millamperes	0%				
4.8 Millamperes	5%				
5.6 Millamperes	10%				
6.4 Millamperes	15%				
7.2 Millamperes	20%				
8.0 Millamperes	25%				
8.8 Millamperes	30%				
9.6 Millamperes	35%				
10.4 Millamperes	40%				
11.2 Millamperes	45%				
12.0 Millamperes	50%				
12.8 Millamperes	55%				
13.6 Millamperes	60%				
14.4 Millamperes	65%				
15.2 Millamperes	70%				
16.0 Millamperes	75%				
16.8 Millamperes	80%				
17.6 Millamperes	85%				
18.4 Millamperes	90%				
19.2 Millamperes	95%				
20.0 Millamperes	100%				

Analog 4-20 ma Signal Input Wiring Connection Diagram

Removable Connector Block

1 C 2 C 3 C 4 C DAO BAT +12V COM

+ − + − + − + −

Other receiving devices if any. (chart recorder, etc.)

For simplicity, only 1 of 4 possible inputs is shown. Any combination of unpowered contact, analog, or digital logic signals may connected to the 4 inputs.

+ −
12 V DC
Power

Observe correct +/- polarity.

4-20 ma current transmitter (May consist of a separate power supply and transducer).

B | CONNECTING DIGITAL LOGIC SIGNAL INPUTS

As an alternative to contact inputs, you may connect 5-volt logic signals as long as the common electrical ground for the Guard-It™ autodialer is the same as for the 5 volt logic system.

A logic "0" will be interpreted by the Guard-It™ autodialer as a closed circuit, and a logic "1" will be interpreted as an open circuit.

If you want to connect higher voltage logic signals (up to 24 VDC), insert a rectifier diode (such as a 1N914, 1N4005, etc.) between the logic signal and the signal input on the Guard-It™ autodialer. *The diode must be oriented so that the cathode (banded) end is connected to the logic signal.*

Digital Logic Signal Input Wiring Connection Diagram

Removable Connector Block

1 C 2 C 3 C 4 C DAO BAT +12V COM

Diode is required if digital logic level exceeds 5 VDC. Observe correct orientation.

For simplicity, only 1 of 4 possible inputs is shown. Any combination of unpowered contact, analog, or digital logic signals may connected to the 4 inputs.

+ −
12 V DC Power

DIGITAL OUTPUT COMMON GROUND
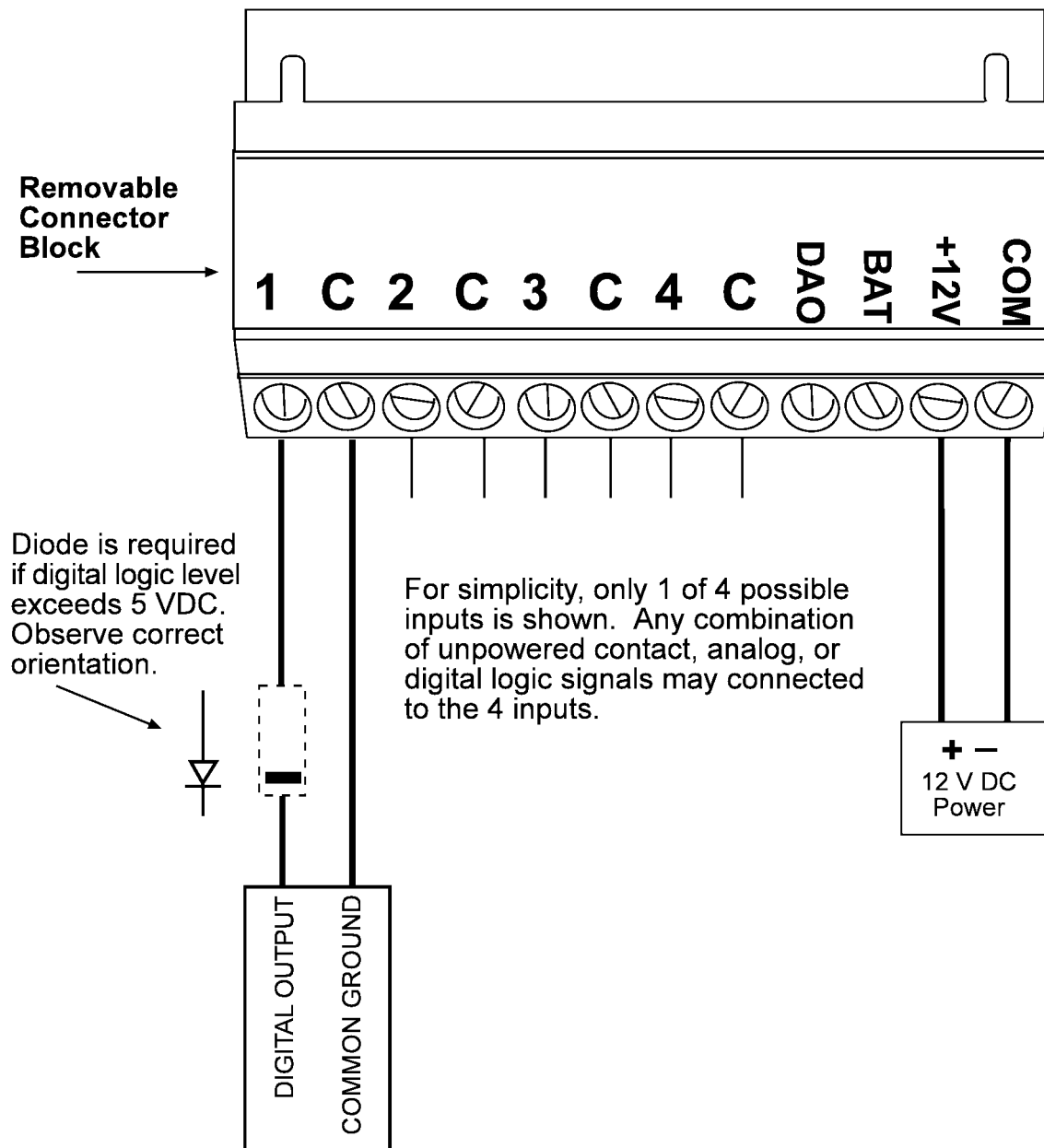
C DIGITAL ALARM OUTPUT (DAO)

The digital alarm output may be used to activate an external device such as the coil of a relay or the input of a logic circuit.

This output is activated (pulled down to common ground voltage) whenever there is an unacknowledged alarm. It is deactivated when the alarm is acknowledged.

The load you connect will have 12 VDC applied across it when activated, if you connect as shown in the diagram. It must draw no more than 200 milliamperes, and so it must have a resistance of at least 60 ohms.

A typical application would be to power the coil of a relay. The contacts of the relay may then be used to control devices of higher voltage and power, such as outside warning lights or buzzers.

Alternatively, the DAO output may be connected directly into a DC logic input circuit. It has an internal 10k resistor pulling it to +5VDC when deactivated, and it is pulled to ground when activated. It may even be connected into a 24 VDC logic input such as found on PLC's, but due to the resistor connected to +5VDC, an external pullup resistor (nominally 1K) to a +24 VDC source may be needed.

*Optional Digital Alarm Output (DAO) Connection Diagram*
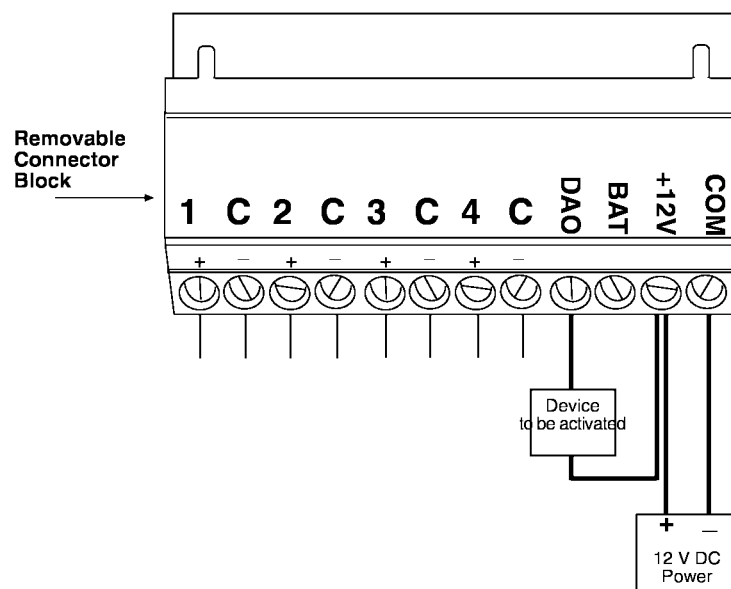
D OPTIONAL EXTERNAL GEL CELL BACKUP BATTERY

An internal 6 volt, 4 ampere-hour battery is an available option for the Guard-It™ autodialer. However as an alternative or in addition to the optional internal battery, you may connect your own <u>6 volt</u> gel cell lead acid battery as shown in the diagram. It may have a capacity of up to 10 ampere hours. The battery will be kept charged by the product's internal circuitry.

The function of any such battery is to maintain operation of the product during failures of primary power. Each ampere hour of capacity will keep the product operational for approximately 6 hours depending on the number of alarm calls placed and other factors.

Optional External Battery Connection Diagram

E
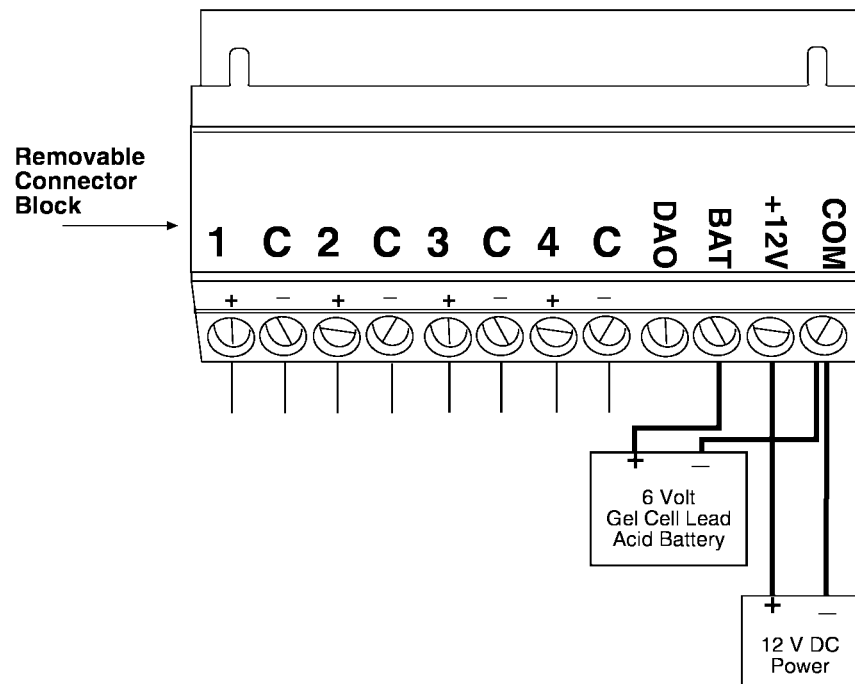
PROGRAMMING FOR USE WITH NUMERIC PAGERS

Numeric pager systems require the caller to dial the phone number of the pager service, wait for a prompting beep, and then enter some additional digits which are to be displayed on the receiving pager, and then finally, enter a pound(#) to complete the entry.

To call and cause a display on a numeric pager, your Guard-It™ autodialer will do essentially the same thing, except that it will wait for a delay period which you set, instead of listening for the pager system's beep, before sending the remaining digits.

This is all accomplished by programming an "extended" phone number, which includes a delay which you invoke by pressing the star (*) key.

To program this special "extended" phone number, after selecting which of the 8 phone numbers to program, key in the telephone number of the paging service, then press the star (*) key, then continue with the digits that you want to appear on the receiving pager, and finally press pound (#) when your entry is complete, then wait three seconds for the Guard-It™ autodialer to automatically accept and repeat back the extended phone number which you have entered.

In this special case after you have invoked a dialing delay by using the star (*) key, the Guard-It™ autodialer treats the pound (#) key in a special way. Normally, the pound (#) key is used to accept an entry or to return to a previous menu level. However once a delay has been invoked, *the star and pound keys are treated as "dialable" digit values for the remainder of this programmed phone number.* This allows for the desired result of including a # which will actually be "dialed" to complete the communication with the pager system.

For example, to display "12345" on a pager which can be "paged" by calling 555 1000, you would key in:

5 5 5 1 0 0 0 * 1 2 3 4 5 #

and then wait three seconds for the Guard-It™ autodialer to accept and recite back this extended phone number, which it will recite as:

5 5 5 1 0 0 0 "Delay 1 0 seconds" 1 2 3 4 5 "Pound".

(The stated number of delay seconds will be whatever Dialing Delay value is programmed—see below).

In a typical application, the Guard-It™ autodialer's own phone number would be the number to be programmed for display.

The other step you must take, is to place several calls to the pager system in order to determine by experiment how long a waiting time is suitable before the paging system will reliably have issued its prompting beep, so that it is definitely ready to accept the digits to be displayed. Begin the timing at the moment you dial the last digit of the pager service number, and end the timing when you hear the pager service's prompting beep. We suggest you add three seconds to the longest time period you observe. Use a regular telephone to place the calls.

Then program this delay value in seconds, as the Dialing Delay under the General Programming Menu. The default value is ten seconds, and this value will work for many pager systems without alteration.

With the extended phone number and Dialing Delay value fully programmed, it is best to verify (three times is suggested) that the Guard-It™ autodialer will successfully cause the pager to be reached with the intended display.

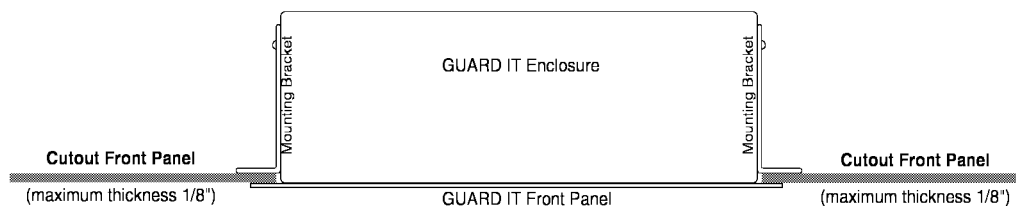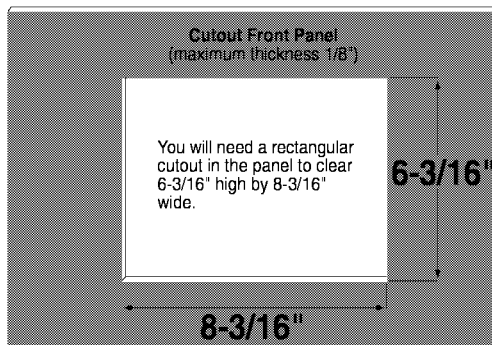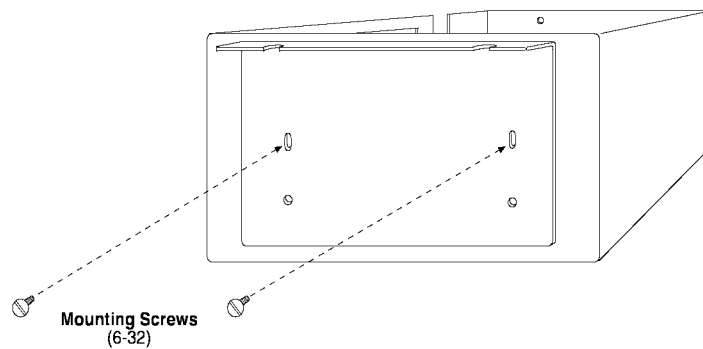This is done by manipulating one of the signal inputs to cause an alarm.

Note: Because pager systems issue a variety of special signaling tones, it is best to keep the Call Progress feature turned off if using pager systems.

You can "eavesdrop" on the progress of the test calls using a programming phone, as long as Call Progress is turned off. Do not pick up the programming phone until the dialing begins.
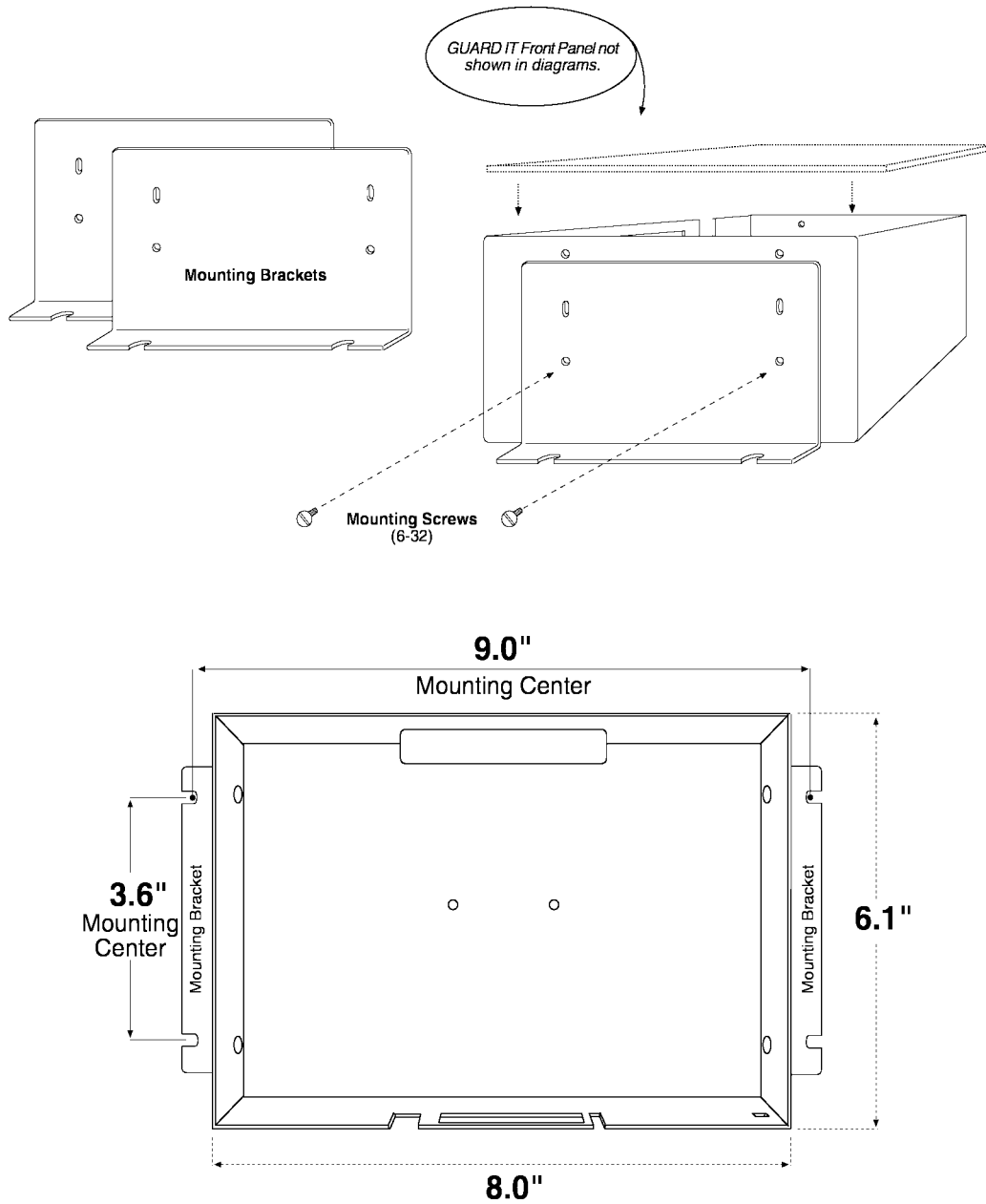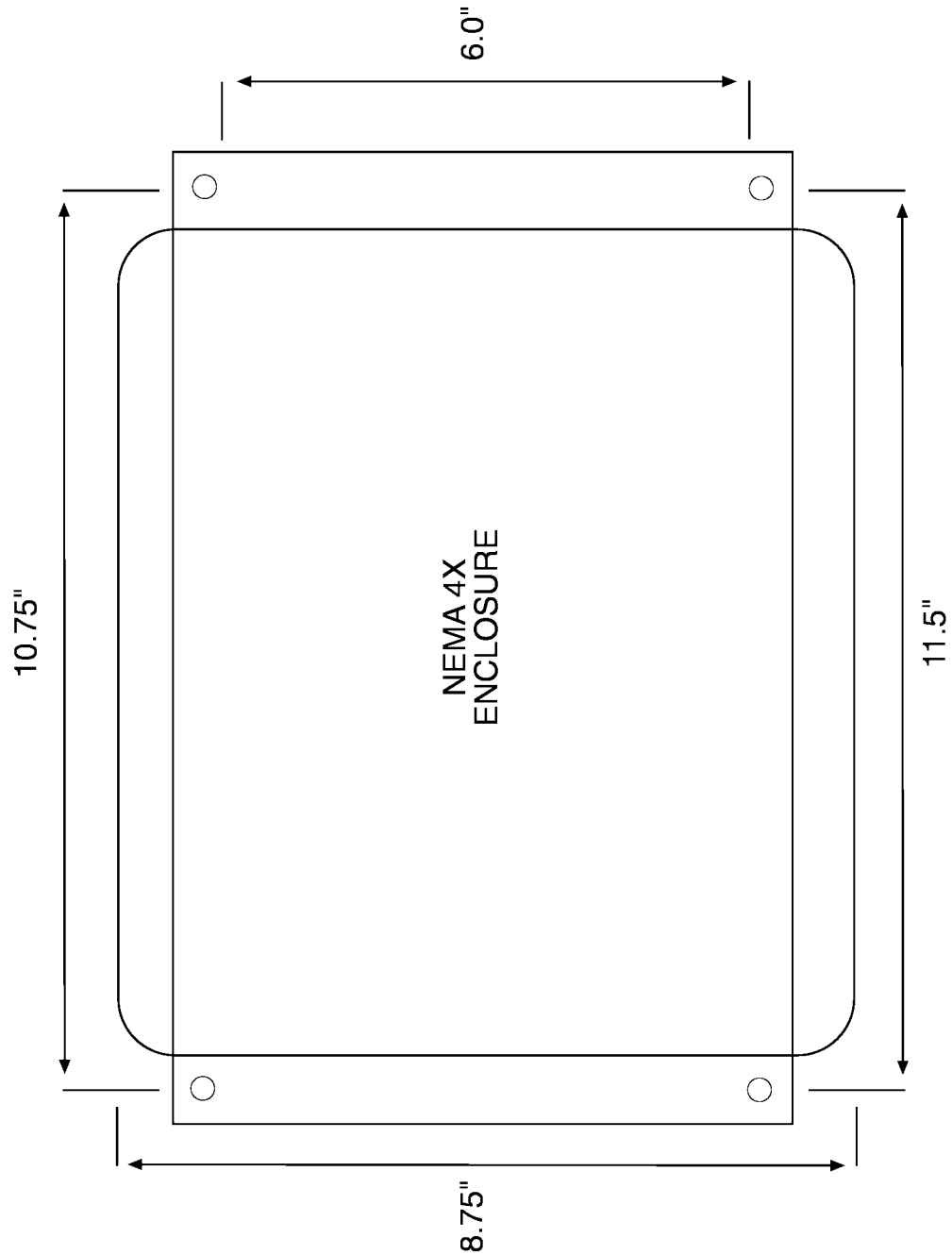
F ENCLOSURE MECHANICALS & WIRING DIAGRAMS

Mounting the Guard-It™ Autodialer Enclosure Flush into a Front Panel

Mounting Screws
(6-32)

Cutout Front Panel
(maximum thickness 1/8")

You will need a rectangular cutout in the panel to clear 6-3/16" high by 8-3/16" wide.

6-3/16"

8-3/16"

Mounting Bracket

GUARD IT Enclosure

Mounting Bracket

Cutout Front Panel

(maximum thickness 1/8")

GUARD IT Front Panel

Cutout Front Panel

(maximum thickness 1/8")

Mounting the Guard-It™ Autodialer
Enclosure onto a Back Surface

GUARD IT Front Panel not
shown in diagrams.

Mounting Brackets

Mounting Screws
(6-32)

9.0"
Mounting Center

3.6"
Mounting
Center

Mounting Bracket

Mounting Bracket

6.1"

8.0"

Guard-It™ NEMA4X Enclosure

6.0"

10.75"

11.5"

NEMA 4X
ENCLOSURE

8.75"

FCC Notice to Users

FCC Requirements

1. The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.

2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.

3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.

4. If the telephone company requests information on what equipment is connected to their lines, inform them of:

> a. The telephone number to which this unit is connected.
>
> b. The Ringer Equivalence Number. [0.8B]
>
> c. The USOC jack required. [RJ11C]
>
> d. The FCC Registration Number. [EMRUSA-30496-AL-E]

Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of REN's of all devices on any one line should no exceed five (5.0). If too many devices are attached, they may not ring properly.

Service Requirements

In the event of equipment malfunction, all repairs should be performed by our Company. It is the responsibility of users requiring service to report the need for service to our Company. Service can be obtained from **Omega Engineering at (800) 327-4333,** to obtain an RMA# and our shipping address.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY / DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:	FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:
1. Purchase Order number under which the product was PURCHASED,	1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product under warranty, and	2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.	3. Repair instructions and/or specific problems relative to the product.

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Wire: Thermocouple, RTD & Thermistor
Calibrators & Ice Point References
Recorders, Controllers & Process Monitors

Infrared Pyrometers

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Transducers & Strain Gauges
Load Cells & Pressure Gauges
Displacement Transducers
Instrumentation & Accessories

FLOW/LEVEL

Rotameters, Gas Mass Flowmeters & Flow Computers
Air Velocity Indicators
Turbine/Paddlewheel Systems
Totalizers & Batch Controllers

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Benchtop/Laboratory Meters
Controllers, Calibrators, Simulators & Pumps
Industrial pH & Conductivity Equipment

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Data Acquisition & Engineering Software
Communications-Based Acquisition Systems
Plug-in Cards for Apple, IBM & Compatibles
Datalogging Systems
Recorders, Printers & Plotters

HEATERS

Heating Cable
Cartridge & Strip Heaters
Immersion & Band Heaters
Flexible Heaters
Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL

Metering & Control Instrumentation
Refractometers
Pumps & Tubing
Air, Soil & Water Monitors
Industrial Water & Wastewater Treatment
pH, Conductivity & Dissolved Oxygen Instruments

M3335