

THOR GUARD, INC

**MASTER ALARM CONTROL
(MAC)**

OPERATIONS MANUAL

MASTER ALARM CONTROL

LCD DISPLAY

THOR GUARD

LIGHTNING PREDICTION SYSTEMS



MENU



CHANGE



ENTER



AUTO
MANUAL



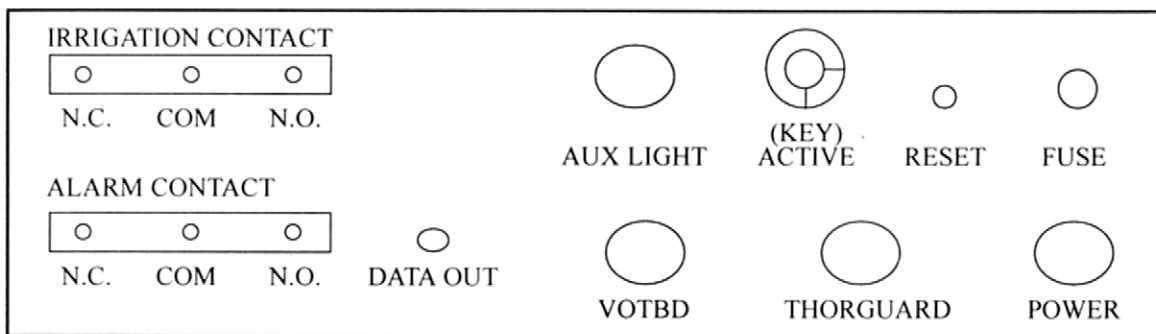
ALL
CLEAR



RED
ALERT

VOTMAC FRONT PANEL

1. **MENU** This switch permits you to access the SETUP MENU for the purpose of customizing your applications. (NOTE: FOR YOUR SECURITY, MENU ITEMS #2 thru #7 MAY BE CHANGED ONLY IF THE SECURITY KEY IS IN PLACE, AND ACTIVATED.)
2. **CHANGE** This switch permits you to make the required changes in any of the options available in the MENU section.
3. **ENTER** This switch permits you to advance through the options in the SETUP MENU. Once you have selected the option you want to modify and have verified the changes by pressing the CHANGE key, then press the ENTER key again, to make the change permanent.
4. **AUTO/MANUAL** During setup of the MAC you may select for your alarms to be activated either automatically, or manually. Regardless of your initial choice, you may instantly change the setting by depressing this switch. The alarms will remain in this new mode until the system is automatically restarted the next day (when it will automatically default to the original setting). NOTE: If the light on the button is illuminated you will know you are in the "AUTO" mode.
5. **ALL CLEAR** This button may be depressed at any time to advise people that safe lightning conditions exist. The green light will illuminate when activated and the signal is sent to the transmitter. (NOTE: This switch is not active if the THOR GUARD is sensing a Dynamic Index (DI) of 2 or more.)
6. **RED ALERT** In addition to an automatic setting, this button allows you to manually activate the red alert signal to warn people of an unsafe lightning condition. As above, the light will illuminate when successfully activated.



VOTMAC REAR PANEL

1. **POWER** An external power source is supplied with the VOTMAC. Plug the transformer into an a/c outlet and the connector plug to the POWER slot.
2. **FUSE** To prevent the power supply from damage, the VOTMAC is protected by a 2 AMP FUSE.
3. **RESET** If it is suspected that the VOTMAC is not operating properly press the RESET button. (Hold for 5 seconds - then release.)
4. **THORGUARD** This input is where you connect the cable from the THOR GUARD Base Console (L50 or L100).
5. **VOTBD** This is the connection to the Voice of THOR Base Driver that supplies the voltage to charge the 12 volt battery, activates the local horn, and signals the external RF transmitter to communicate with the Remote Alarms.
6. **AUX LIGHT** This output can control external relays that will indicate the lightning hazard status. (NOTE: These lights are active only when the alarm is active.)
7. **DATA OUT** This output can be interface to a computer or a printer to download operational data.
8. **IRRIGATION CONTACT** These contacts provide the normal closed (N.C.) or normal open (N.O.) signals for the control of irrigation systems only.
9. **ALARM CONTACT** These contacts provide the normal closed (N.C.) or normal open (N.O.) signals for the control of alarms manufactured by outside suppliers.
10. **SECURITYKEY** This switch restricts access to make changes in the setup menu.

OPERATING PROCEDURE

When power is first applied to the VOTMAC, the ALL CLEAR and the RED ALERT lights will illuminate, the LCD display will briefly show the current software revision, and the profile ID number in the upper right corner. The "Cable Off" warning will appear if disconnected from the THOR GUARD unit.

LCD DISPLAY SCREEN

After power is applied, the LCD display will indicate the current time and date on the first line, and the status of the alarm (On/Off) on the second line. All current actions will be displayed on this "OPERATING SCREEN", as they happen. In the event power has been removed for an extended time "Reset Time" will appear on the screen. In this event it will be necessary to reset the time prior to renewing normal operations.

month/day/year	hour/minute/am/pm
Alarm On	CABLE OFF

SETUP MENU

The SETUP MENU may be accessed at any time in order to change selected parameters of the system. To access this menu, press the MENU key and continue to press the MENU key until you have highlighted the option you want to change. The following is the list of options in the SETUP MENU: (**NOTE: FOR YOUR SECURITY, MENU ITEMS #2 Through #7 MAY BE CHANGED ONLY IF THE SECURITY KEY IS IN PLACE, AND ACTIVATED.**) No Menu keys will be active if THOR GUARD is sensing a DI of 2, or more.

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1. **SET CURRENT DATE & TIME**

Set Current Date & Time		
MM/DD/YY	DAY	HH:MM & AM/PM

PROCEDURE:

Press MENU key until "SET CURRENT DATE & TIME" is displayed. Display will show the current date, day & time. To change either the date, day or time, do the following:

- a. Press the ENTER key until the location you want to change is blinking.
- b. Once the location is blinking, press the CHANGE key until you have made the changes you desire.
- c. Once you have made the changes desired, push the ENTER key to accept and record the changes.
- d. Press the ENTER key again to move to the next event location and repeat (b.) and (c.), above.

2. **SET DEFAULT ALARM TIME**

Default Alarm Time	
ON	7am - 8pm

PROCEDURE:

Press MENU key until "DEFAULT ALARM TIME" is displayed (NOTE: All the default options are set for Monday - Sunday operation). If you want to change the hours for the default setting:

- a. Press the ENTER key to review the other options which are: (6am - 8pm), (7am - 5pm), (6am - 9pm), and (DEFAULT DISABLED).
- b. Once you have made your selection, press the CHANGE key to select your new Default time and then press ENTER to accept and record the change.
- c. If none of the Default times meet your needs, select "Default Disabled" and press ENTER.

NOTE: All alarms are inactive between 10 PM and 5 AM unless reset by factory.

3. **SET ALARM TIME**

Monday - Sunday			
ON	HH:MM am	OFF	HH:MM pm

PROCEDURE:

This setting is for those who desire to tailor the hours of operations to specific criteria. Please note, this Menu will be active only in the event that the "DEFAULT ALARM

TIME" (above) has been programmed for "Default Disabled". Press "Menu" anytime to exit procedure. To select your specific options for the operation of your system:

- a. Press the ENTER key until the location you want to change is blinking.
- b. Once the location is blinking, press the CHANGE key until you have made the changes you desire.
- c. Once you have made the changes desired, push the ENTER key to accept and record the changes.
- d. Press the ENTER key again to move to the next event location and repeat (b.) and (c.), above.

4. SET ALARM SIGNALS (For use with TG27 transmission system only)

Red Alert	1X	15 seconds
All Clear	3X	5 seconds

PROCEDURE:

The alarm sequence you see displayed is the "default" setting. This setting has two other options that are selected by pushing the ENTER and CHANGE keys as above:

- a. Red Alert (1X @ 15 sec.); All Clear (3X @ 5 sec.) "DEFAULT"
- b. Red Alert (2X @ 10 sec.); All Clear (3X @ 5 sec.)
- c. Red Alert (1X @ 15 sec.); All Clear (2X @ 5 sec.)

Note: This is the USGA tournament setting. If this mode is selected you have the option (IN THE "MANUAL" MODE ONLY, SEE BELOW) to choose between two different "Red Alert" signal sequences:

1. "Immediately Suspend Play" (1X @ 15 sec.) (DEFAULT).
2. "Suspend Play" (3X @ 5 sec.) Note: This option may only be selected after pressing the "Red Alert" button on the Front Panel, then the "Change" button. The display will reflect the change from the 1X sequence, to the 3X sequence.

5. SET AUTO/MANUAL ALARM

Set Auto/Manual Alarm
Alarm Auto Mode

PROCEDURE:

The "Default" setting for this item is "AUTO". This means that the external alarms will automatically be activated when the MAC receives the "Red Alert" and/or "All Clear" signals from the THOR GUARD Base Computer. To change this setting to the "MANUAL" mode, push CHANGE to select, then ENTER to confirm your choice.

The "AUTO/MANUAL" button on the Front Panel may be utilized to over-ride this setting for a finite period of time. If the alarms have cycled "OFF" (#3 above) this button

6. OTHER ALARM SYSTEMS

Other Alarm Systems
Relay Active: 10 Seconds

PROCEDURE:

This option will only be utilized in the event that the external alarm system was manufactured by someone other than THOR GUARD, Inc., and you desire to impulse the external switch for this system through the MAC. You will first need to connect the MAC to the external switch through the "ALARM CONTACT" connections on the Rear Panel. Follow the directions provided by the other manufacturer as to proper hookup and duration of impulse signal. The time "Default" setting for the impulse signal is 10 seconds, as seen above. However, this time may be changed to fit custom needs by pushing the CHANGE Key to alter the value, then ENTER to accept a change of up to 30 seconds. The other option is "Constant Closure" which will automatically close the alarm contacts for the entire duration of a "Red Alert." NOTE: You may not manually access this option in the "Auto" mode (only "Manual" mode).

7. IRRIGATION CONTROL

Irrigation Control
Output on Red Alert

PROCEDURE:

This option is available for those who have an automatic irrigation (or other equipment) disconnect switch that must be impulsed, to activate. The connections would be made through the "IRRIGATION CONTACT" block on the Rear Panel. The MAC will close contacts through this connection at your choice of four selection levels: "Red Alert" (Default), "Warning", "Caution", or "Disabled." You may select the setting of your choice by pushing the CHANGE Key to alter the value, the ENTER to accept the change.

8. REVIEW STORM DATA

Review Storm Data

PROCEDURE:

The VOTMAC will store information about a storm. This data may be retrieved to show the date and time that alarms were active (auto or manual entry) as well as "red alert" and "warning" trigger times and duration. This information may also be downloaded to a printer by connecting to the DATA OUTPUT jack on the Rear Panel. See "Accessories" for optional printer.

9. RF OUTPUT TEST

RF Output Test #
ACTIVE

PROCEDURE:

The RF Output Test has been designed to see if the signal from the Transmitter is being transmitted and received by the various Remote Alarm locations. When activated, this test continuously sends the RF signal (every 30 seconds, per display) for a period of 30 minutes, unless manually deactivated through this Menu. To initialize the Test, push the ENTER Key and the "ACTIVE" notice should start blinking, indicating that the Test is running. A counter of how many Test signals have been sent will be displayed on the top line of this display. If you don't want to wait 30 seconds between tests, push the ENTER Key and the test will be repeated. The RF Site number is also displayed in the right corner to insure compliance with your remotes.

10. BATTERY TEST

Battery Test

PROCEDURE:

The Voice of THOR Base Control utilizes a 12 Volt rechargeable battery to energize the Base Horns. To determine the status of the battery in this menu push the ENTER Key and the display will indicate the battery status: (No Service Required), or (Service Required).

11. SYSTEM DIAGNOSTIC

System Diagnostic

PROCEDURE:

By pushing the ENTER Key in this menu, the VOTMAC will cycle through a series of internal tests (display lights, switches, etc.) to determine if any problems exist.

12. EXIT MENU SETUP

PROCEDURE:

This is the last choice of the menu. Simply press Enter to return to the "OPERATING SCREEN."

EXPLANATION OF LEVELS OF ENERGY AS REPRESENTED IN "LHL" AND "DI" READINGS ON THE LCD DISPLAY PRIOR TO AND DURING STORM ACTIVITY:

"LHL": The "Lightning Hazard Level" represents the current level of energy (on a scale of 1 to 9) in the total area being monitored. This will be activated before any "DI" readings and will indicate when energy is first active in your region.

"DI": The "Dynamic Index" represents excursions of energy (on a scale of 1.0 to 9.9) within the 2 mile primary radius being monitored. You will note that at a level of 2.4 (which represents a 24% chance that lightning could be locally active) the unit has reached the "Warning" level. The "Red Alert" is activated once the "DI" has reached a level 3.0 (30 %). The "All Clear" will occur once the THOR GUARD reaches a safe condition.

CONNECTION INTERFACES FOR MAC

THOR GUARD Model L50:

1. Enclosed is a cable with a 5 pin connector on one end, and a 6 pin connector on the other end.

Connect the 5 pin to the socket labeled "VOT" on the rear panel of the THOR GUARD Model L50.

Connect the 6 pin to the socket labeled "THOR GUARD" on the rear panel of the MAC.

2. Also enclosed is a 2 conductor cable with a "pigtail" of white, blue, green, black and red wire on one end, and a 5 pin connector on the other end to connect the MAC to the base "Base Driver" cable going to the roof.

First, connect the respectively colored wires from the communications link to the "Base Driver" with the above "pigtail" cable. Use black tape and crimp or solder each wire conductor taking care not to touch wires of different color together (if the battery has been connected in the Base Driver, you will cause a "short" by touching the black and red wires).

Now connect the 5 pin connector to the socket labeled "VOTBD" on the rear panel of the MAC.

Make sure you have set the switch on the rear panel of the THOR GUARD L50 ("Red Alert" or "Warning") to activate the Red Alert alarm signal for the external horns/sirens. (See L50 Manual, Page 4)

NOTE: IF YOUR EXTERNAL ALARM SYSTEM HAS BEEN MANUFACTURED BY ANOTHER COMPANY, AND IT IS YOUR INTENTION TO ACTIVATE IT BY UTILIZING THE THOR GUARD MASTER ALARM CONTROL (MAC) THEN A 10' LENGTH OF 3 CONDUCTOR WIRE HAS BEEN INCLUDED FOR THIS PURPOSE. NORMALLY, THIS WILL BE CONNECTED TO THE "ALARM CONTACT" ON THE REAR PANEL OF THE MAC. (SEE MENU ITEM #6 ON PAGE 6 OF THIS MANUAL.) AND ALSO TO THE ALARM SWITCH OR ENGAGEMENT DEVICE FOR THE ALARM SYSTEM.

Default and Custom Options/Settings for the MAC

MENU ITEM	DEFAULT	CUSTOM
Current Date & Time		
Alarm Time (Active)	7am - 8pm (7am-8pm, 6am-6pm)	
Alarm Signals	1 @ 15 sec. 3 @ 05 sec.	TG27
Set Auto/Manual	Auto	
Other Alarm Systems	Relay Active @ 10 sec. Constant Closure	
Irrigation Control	Impulse on Red Alert (Warning, Caution)	

NOTE: Your Master Alarm Control is shipped with the above Default settings from the factory. Should you desire to customize or change the Default settings it is advisable make a notation on this page so you have a record of the current settings.



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