

# ***INSTALLATION INSTRUCTIONS***

## **AVENGER II PROGRAMMABLE ALARM SYSTEM**

**MODEL AV-3100E**



**acron  
corporation**

# SYSTEM DESCRIPTION

The Acron Model AV-3100E "AVENGER II" is an integrated alarm system consisting of a combination 8 zone control panel/digital communicator and one model DK-IIE digital control station. The control panel/digital communicator can be custom tailored for each installation. This is accomplished by programming a "PROM" (included with the system) on an Acron Model DD-1PC Programmer. Both control panel and digital communicator functions are programmed on the same PROM. For installations not requiring digital communication, programming only the panel portion is required. NOTE: THE SYSTEM WILL NOT WORK WITHOUT A PROGRAMMED PROM. For specific AV-3100E programming information consult the "DD-1PC programming addendum" included with the system.

## PROGRAMMABLE FUNCTIONS

A list of programmer selected functions are outlined below. The "Memory Location" column refers to the "Memory Location" function switch on the DD-1PC programmer.

### PROGRAMMABLE CONTROL PANEL

Memory Location	Function
27B	Normally Closed Zones
20B	Audible Panic Zones
21B	Audible Burglary Zones
22B	Delay Burglary Zones
26B	Fire Zones
23B	Exit Delay Time
24B	Entrance Delay Time
25B	Bell Shut-Off and Automatic Panel Reset Time
29B	Silent Panic Zones
31B	All Burglary Zones Normally Closed
32B	False Alarm Shutdown (Swinger Rejection)

Note: Unprogrammed Zones are Silent Zones

### PROGRAMMABLE COMMUNICATOR

Memory Location	Function
1A-13A	First Phone Number
1B-13B	Second Phone Number
14A,16A,28B	Account Number (SEE NOTE 1)
18A,19A	Reporting Delay Zones and Time
20A,21A	Test Cancel Zones and Code
22A,23A	Restore Zones and Code
24A-31A	Zone Codes
32A,18B,19B	Reporting Format
14B	Zones to Dial Second Number Only
17B	Zones to Dial Both Numbers
15B,16B	Listen-in Zones and Time
31B	Opening (SEE NOTE 2)
31B	Closing (SEE NOTE 2)
31B	24-Hour Self-Test
30B	Forced Arming
30B	Low Battery/Trouble (SEE NOTE 3)
19B	Non-Emergency Alarm Reports Dial Second or Both Phone Numbers
32B	Dial If No Dial Tone

} Non-Emergency Alarm Reports (Reports In Extended Format)

- NOTES: 1) NOT ALL RECEIVERS CAN ACCEPT A FOUR-DIGIT ACCOUNT NUMBER.  
 2) CONVENTIONAL OPENING AND CLOSING REPORTING MAY BE ACHIEVED AT THE EXPENSE OF USING ONE OF THE INPUT CHANNELS. CONNECT TERMINAL V14 TO CHANNEL INPUT 5 OR 8. IF CHANNEL 5 IS USED REMOVE LINK J2. IF CHANNEL 8 IS USED REMOVE LINK J1. THIS CHANNEL MUST BE PROGRAMMED FOR A SILENT PANIC N.O. LOOP WITH THE RESTORE FUNCTION. THE ZONE CODE BECOMES THE CLOSING CODE. THE RESTORE CODE BECOMES THE OPENING CODE.  
 3) CONVENTIONAL LOW BATTERY REPORTING MAY BE ACHIEVED AT THE EXPENSE OF USING ONE OF THE INPUT CHANNELS. CONNECT TERMINAL V13 TO ONE OF THE INPUT CHANNELS. THIS CHANNEL MUST BE PROGRAMMED AS A N.O. LOOP.

## OPTIONAL ACCESSORIES

In addition to the ability to select control panel and digital communicator characteristics, the system can be expanded through the use of one or more of the following optional modules:

DK-IIE-a digital arming station that allows full system control and displays full system status from one or more convenient locations. 8 LED's display zone status and alarm memory for each zone; 8 LED's display armed status of each zone; 3 LED's display general loop status, instant/delay mode and general armed status. Up to 5 DK-IIE's may be used.

V300D-LISTEN-IN MODULE-Provides "listen-in" capability from 1 to 15 minutes after kiss-off on desired zone/zones. Use with M1-microphone or equivalent.

EOL-8 SUPERVISED END OF LINE RESISTOR MODULE-converts the eight input zones to fully supervised zones. Each zone has a link to select Burglary or Fire operation. In the Fire position, an open will trigger a Trouble signal.

COURTESY OUTPUT-a +5 Vdc voltage is available at pin V12 during Exit/Entrance times, and can be used to operate a line carrier lamp driver, etc. A BSR BA-285 Burglar Alarm Interface, Radio Shack 49-526 Burglar Alarm Interface or equivalent product can be used.

LZA-LOCAL ZONE ANNUNCIATOR-provides troubleshooting aid by annunciating loop status and alarm memory at the panel.

DC-1-DERIVED CHANNEL INTERFACE-provides discrete outputs for use with derived channel or long range wireless systems.

### CAUTION:

1. Don't short terminals 5, 6 or 9 to 3 or 12 or the Bell Power/Aux. output fuse will blow.
2. Don't connect battery until installation is complete.
3. Zones which aren't programmed for panel functions become Silent Zones.

## PROM FACTORS

1. Determine the characteristics required for the installation. Program a PROM according to the DD-1PC Programming Addendum. The PROM may be programmed by the factory, distribution outlets, or on your own PROM programmer.

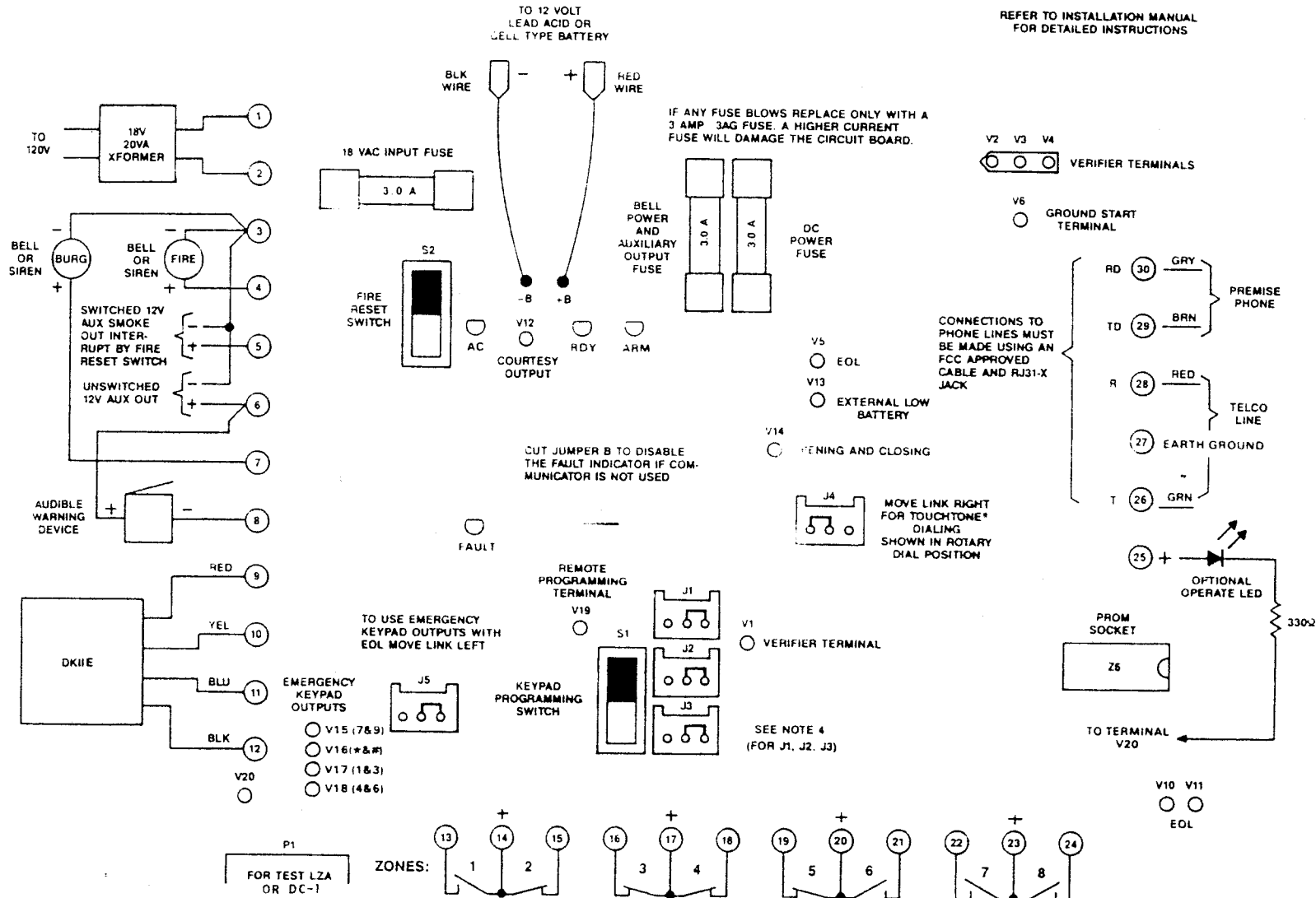
NOTE: REFER TO FIG. 1 FOR THE FOLLOWING STEPS:

2. Install the PROM, making sure that the identification notch is located as shown in Fig. 1.

# WIRING DIAGRAM FOR MODEL AV-3100E AVENGER II

DO NOT USE VIBRATING FIRE HORN DEVICE UNLESS A 1000  $\mu$ F CAPACITOR IS PLACED ACROSS THE DEVICE AND A DIODE IS WIRED IN SERIES WITH ONE POWER LEAD.

REFER TO INSTALLATION MANUAL  
FOR DETAILED INSTRUCTIONS



IF ANY FUSE BLOWS REPLACE ONLY WITH A 3 AMP 3AG FUSE. A HIGHER CURRENT FUSE WILL DAMAGE THE CIRCUIT BOARD.

CUT JUMPER B TO DISABLE THE FAULT INDICATOR IF COMMUNICATOR IS NOT USED

CONNECTIONS TO PHONE LINES MUST BE MADE USING AN FCC APPROVED CABLE AND RJ31-X JACK

MOVE LINK RIGHT FOR TOUCHTONE\* DIALING SHOWN IN ROTARY DIAL POSITION

SEE NOTE 4 (FOR J1, J2, J3)

ZONES ARE PROGRAMMED FOR N.O. OR N.C. OPERATION. IN THIS EXAMPLE ZONES 2-5 ARE N.C. AND ZONES 1, 6-8 ARE N.O.

**NOTES:**

1. EARTH GROUND GOES TO TERMINAL Z7
2. FCC REG. NO. AB798Z-67793-AL-E RINGER EQUIVALENCE: 0.1 B
3. TOUCHTONE\* IS A REGISTERED TRADE MARK OF AT&T CO.
4. WHEN USING EOL MODULE MOVE LINKS J1, J2 AND J3 LEFT. WHEN USING OPEN COLLECTOR DEVICES ON ZONE 5 MOVE LINK J2 LEFT. WHEN USING ZONE 5 FOR CONVENTIONAL OPENING AND CLOSING REPORTS REMOVE LINK J2. WHEN USING OPEN COLLECTOR RF DEVICES ON ZONE 8 MOVE LINK J1 LEFT. WHEN USING ZONE 8 FOR CONVENTIONAL OPENING AND CLOSING REPORTS REMOVE LINK J1.
5. SWITCHES S1 AND S2 ARE SHOWN IN NORMAL POSITION



# INSTALLATION

(DO NOT APPLY POWER UNTIL AFTER STEP 12)

An AUDIBLE WARNING DEVICE may be connected between terminals 6 and 8. The device may be located in the cabinet or it may be remote. The sounding device should operate at 12 Vdc, and must not require more than 40 mA. The device will produce a steady sound during Entrance Delay Time. The device will pulsate when the system has been Forcibly Armed (for the Exit delay time), and when in the Test mode. When Kiss-Off is received, it will sound momentarily, and if a receiver is not reached after 8 attempts, it will sound continuously while the fault LED is on.

NOTES: WHEN A TRIP OCCURS ON A ZONE(S) PROGRAMMED FOR SILENT PANIC IN MEMORY LOCATION 29B, THE KISS-OFF INDICATOR WILL NOT OPERATE AND THE LED'S WILL NOT FLASH.

2. Connect a 12 Vdc Burglary Bell or Siren to terminals 3 and 7. Observe polarity.
3. Connect a 12 Vdc Fire Bell or Siren to terminals 3 and 4. Observe polarity.
4. 12 Vdc is available at terminals 3 and 6 for auxiliary devices.

NOTE: UNSWITCHED POWER FOR AUXILIARY DEVICES IS AVAILABLE AT TERMINAL 6 AND TERMINAL 3. SWITCHED SMOKE DETECTOR POWER IS AVAILABLE AT 5 AND 3. TERMINAL 3 IS THE COMMON TERMINAL AND TERMINALS 5 AND 6 ARE THE +12VDC TERMINALS. THE AMOUNT OF AVAILABLE CURRENT IS 600 MA (INCLUDING ANY DK II'S EVEN THOUGH THEY ARE NOT CONNECTED TO TERMINALS 5 OR 6). TO DETERMINE THE TOTAL CURRENT REQUIREMENT FOR AN INSTALLATION, TOTAL THE CURRENT REQUIREMENTS FOR ALL ITEMS TO BE CONNECTED TO THE AUXILIARY OUTPUT. AS WELL AS THE DK-II'S. CURRENT REQUIREMENTS FOR ALL APPLICABLE ACRON ITEMS ARE:

Model	Current
DK IIE	80mA
EOL-8	30mA

Do not exceed 600 mA total

5. If the COURTESY OUTPUT is to be used to turn on a light during Exit and Entrance delay times, install a BSR BA-284 Burglar Alarm interface (or equivalent). Connect the positive (+) terminal of the interface unit to the COURTESY OUTPUT TERMINAL V12 and the negative (-) lead to terminal 3.

6. Connect the eight (8) input zones to terminals 13-24. The loops will be N.C. or N.O. according to the the PROM program.

7. If a V300D Listen-In Module is to be used, connect it to terminals V1, V2, V3 and V4. Refer to the instructions supplied with the Listen-In Module.

8. If an OPERATE LED is desired (ON when unit is in reporting cycle), connect the anode to terminal 25 and the cathode to one end of a 390 ohm resistor. Connect the other end of the resistor to terminal V20.

9. Connect the F.C.C. Approved telephone connection cable to terminals 26, 28, 29 and 30 as shown. Insulate all unused leads. THE CABLE MUST BE PHYSICALLY PARATED FROM POWER AND SIGNAL LINES.

10. Connect DK-IIE to AV-3100E. Red lead to terminal 9. Blue lead to terminal 11. Black lead to terminal 12. Yellow lead to terminal 10. Refer to DK-IIE Installers Manual for complete instructions regarding DK-IIE installation and options. WIRES CONNECTING DK-IIE TO AV-3100E MUST BE KEPT AWAY FROM A.C. AND TELCO WIRING TO MINIMIZE TRANSIENT PROBLEMS DUE TO LIGHTNING.

11. Connect Terminal 27 and Cabinet to an EARTH GROUND.

NOTE: 1) SUGGESTED EARTH GROUND AND PROTECTION LEVELS ARE:

A) PREFERRED PROTECTION----SEPARATE METAL GROUNDING ROD

B) ACCEPTABLE PROTECTION---METAL COLD WATER PIPE

2) USE AT LEAST 16 GAUGE WIRE BETWEEN TERMINAL 27 AND EARTH GROUND.

3) KEEP WIRE RUN AS SHORT AS POSSIBLE AND AWAY FROM OTHER PANEL WIRING.

4) DO NOT USE AN EXISTING LIGHTNING ROD GROUND, IT CAN PROVIDE A PATH FOR LIGHTNING STRIKES TO PANEL.

12. Check all connections, verifying polarity.

13. Connect the transformer to terminals 1 and 2. Polarity is not important.

14. Plug the transformer to a 125 Vac receptacle. The AC, RDY and ARM LED on the panel and the armed indicator on the DK-IIE should light. (The system arms itself on Power-Up.)

15. Connect the BLACK FLYING LEAD to the negative (-) terminal of a 12 volt, rechargeable gel type battery. Connect the RED FLYING LEAD to the positive (+) terminal of the battery. If the battery is not fully charged, allow 36 hours for battery to reach full charge.

16. Plug the telephone connection cable into the RJ31-X jack.

17. Program an access code into the DK-IIE keypad's, as per DK-IIE installation instructions. The system may now be Disarmed and Armed from the DK-IIE.

Leave system Disarmed.

18. TESTING THE LOCAL SYSTEM: Arm the system in the TEST MODE. (Press: Access Code, MODE, TEST, then ENTER). The audible warning devices will pulsate continuously during TEST, except when testing an Entrance Delay zone. During Entrance Delay time, the audible warning devices will change to a steady sound (for 5 seconds in the TEST MODE) and then return to a pulsating sound. All loops may now be tested independently. Violate each loop separately. The Arm and zone LED's will flash on alarm. No need to reset panel after each zone test. Bell or siren will shut off in 2 seconds and another zone can be tested. NOTE: Zones violated while in the TEST MODE will not report to the Central Reporting Station. After all zones are tested, Disarm the panel. All audible warning devices will shut off and the master Arm LED will turn off. The zone annunciator LED's will remain flashing.

19. TESTING COMMUNICATION TO THE CENTRAL REPORTING STATION: Arm the Panel. The flashing zone annunciator LED's will turn off. Violate a zone. The Siren/Bell should turn on, the zone and Arm LED's should flash and the premise telephone should be inoperative (DEAD). After the Central Reporting Station receives a good transmission of this violation, it will send a Kiss-off signal back to the panel and disconnect from the telephone line. The panel will light the Fault LED, sound the local audible warning device (if provided) for 5 seconds and restores the telephone line back to the premise telephone.

20. For additional information on DK-IIE operation and reprogramming the access code, refer to the DK-IIE Installer's manual and DK-IIE User's manual.

21. Fill in the appropriate information in the User's Manual, and give it to your customer when you explain how the system operates. Provision is made on the back page for your business card.

## TROUBLESHOOTING

SYMPTOM	CHECK
No indicators light-----	Make sure system is connected to either a good battery or AC. (Test battery under load.)
AC ON doesn't light-----	Transformer and connections
Bells won't ring-----	Check Bell power and D.C. power fuse.
Fault Light ON-----	System failed to communicate with a receiver after 8 attempts. If an Audible Warning Device is connected to Terminal 8, it will sound.

## ADDITIONAL NOTES

After 8 unsuccessful attempts, the system will wait for one hour before additional attempts. To silence the Audible Warning Device and clear the Alarm Memory to prevent further attempts to report the initial alarm, remove AC power and disconnect one of the battery leads for 30 seconds. This will clear the Alarm Memory and reset the system.

You may wish to advise your customer over the phone to use this method to clear the Alarm Memory until you can cure the problem.

To aid in troubleshooting zone loop problems, use the LZA. (The LZA maybe connected via P1).

The LZA indicators follow the status of each zone loop.

## SPECIFICATIONS

**POWER REQUIREMENTS:** 125 Vac, 20 VA, 18V transformer supplied. 12 volt battery, rechargeable gel type, not supplied.

**Bell Outputs:** Burglary and fire Outputs, 12 Vdc, total current not to exceed 3 Amps. (Includes Auxiliary Power Output)

**Auxiliary Power Output:** 12 Vdc, regulated, 600 mA. See NOTE preceding Step 6.

**Transient and Lightning Protection:** Lightning and surge protection provided on all input, power line, and telephone line.

**Zone Response Time:** 300 mSec. During reporting cycle, response time increases to 1 sec.

**Maximum Loop Resistance:** Do Not exceed 300 ohms on any zone loop (does not apply when Supervised End of Line Module is used)

**Dimensions:** 12" H x 10 1/2" W x 2 3/4" D

**Shipping Weight:** 10 lbs.

**FCC Registration Number:** AB798Z-67793-AL-E

**Ringer Equivalence:** 0.1B

#### FCC COMPLIANCE

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications of Subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient the TV or radio antenna.
2. Relocate or move the alarm control away from the receiver.
3. Plug the transformer for the alarm control into a different outlet so that the receiver and the alarm are on different branch circuits.
4. If necessary, the user should consult the alarm dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, stock #004-000-00345-4.

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#### NOTES

FOR TECHNICAL ASSISTANCE CALL:  
800-831-2144  
IN N. J. (201) 364-7200

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MEMORY LOCATION ASSIGNMENT

PAGE A			PAGE B		
MEM. LOC.	DESCRIPTION	DATA ENTRY	DESCRIPTION	DATA ENTRY	MEM. LOC.
1	1ST DIALED DIGIT		1ST DIALED DIGIT		1
2	2ND DIALED DIGIT		2ND DIALED DIGIT		2
3	3RD DIALED DIGIT		3RD DIALED DIGIT		3
4	4TH DIALED DIGIT		4TH DIALED DIGIT		4
5	5TH DIALED DIGIT		5TH DIALED DIGIT		5
6	6TH DIALED DIGIT	FIRST TELEPHONE NO	6TH DIALED DIGIT	SECOND TELEPHONE NO	6
7	7TH DIALED DIGIT		7TH DIALED DIGIT		7
8	8TH DIALED DIGIT		8TH DIALED DIGIT		8
9	9TH DIALED DIGIT		9TH DIALED DIGIT		9
10	10TH DIALED DIGIT		10TH DIALED DIGIT		10
11	11TH DIALED DIGIT		11TH DIALED DIGIT		11
12	12TH DIALED DIGIT		12TH DIALED DIGIT		12
13	13TH DIALED DIGIT		13TH DIALED DIGIT		13
14	1ST DIGIT		◀ SELECT ZONES TO DIAL SECOND NO. ONLY		14
15	2ND DIGIT	ACCOUNT NO.	◀ LISTEN-IN SELECT ZONES		15
16	3RD DIGIT		◀ LISTEN-IN TIME, 1 MIN. INCREMENTS		16
17			◀ SELECT ZONES TO DIAL BOTH NUMBERS		17
18	◀ ABORT/DELAY-SELECT ZONES (COMMUNICATOR ONLY)		◀ EXTENDED FORMAT SELECT ZONES		18
19	DELAY TIME-10 SEC. INCREMENTS		1 FAST/SLOW INVERT 4 BOTH NUMBERS 0 SECOND NUMBER		19
20	◀ TEST CANCEL, SELECT ZONES		◀ AUDIBLE PANIC, SELECT ZONES (24 HOURS)		20
21	TEST CANCEL CODE (U) = 9 (C†)		◀ AUDIBLE BURGLARY, SELECT ZONES		21
22	◀ RESTORE, SELECT ZONES		◀ DELAY BURGLARY, SELECT ZONE (MUST ALSO BE AUD. BURG.)		22
23	RESTORE CODE (U) = 0 (A†)		EXIT DELAY TIME, 10 SEC. INCREMENTS (U) = 30 SEC.		23
24	ZONE 1 REPORTING CODE (U) = 1 (F†)		ENTRANCE DELAY TIME, 10SEC. INCREMENTS (U) = 30 SEC.		24
25	ZONE 2 REPORTING CODE (U) = 2		BELL SHUTOFF TIME, 2 MIN. INCREMENTS (U) = 16 MIN.		25
26	ZONE 3 REPORTING CODE (U) = 3		• AUDIBLE FIRE, SELECT ZONES (24 HOURS)		26
27	ZONE 4 REPORTING CODE (U) = 4		◀ NORMALLY CLOSED LOOP SELECT ZONES		27
28	ZONE 5 REPORTING CODE (U) = 5		ACCOUNT NUMBER 4TH DIGIT		28
29	ZONE 6 REPORTING CODE (U) = 6		SILENT PANIC, SELECT ZONES (24 HRS.)		29
30	ZONE 7 REPORTING CODE (U) = 7		1 FORCED ARMING REPORTS 2 LOW BATTERY/TROUBLE		30
31	ZONE 8 REPORTING CODE (U) = 8		24 HR. TEST 3 CLOSING 4 OPENING 5 ALL BURG. N.C.		31
32	1 VOID PAGE 4 SK 4 + 2 1 ACRON FORMAT		1 VOID PAGE 4 DIAL IF NO DIAL TONE 1 FALSE ALARM		32

■ = PROGRAM NUMBER FOR DESIRED FUNCTION

◀ = USE ZONE SELECT MATRIX (FIG. III).

□ = CONTROL PANEL FUNCTIONS-USE ONLY WITH ACRON CONTROL PANELS

• = USE FIRE ZONE SELECT MATRIX (FIG. II).

(U) = UNPROGRAMMED

† = VALUE FOR ACRON FORMAT

		Zone							
		1	2	3	4	5	6	7	8
D	OFF								
A	1					•			
T	2						•		
S	3							•	
O	4								•
W	9	•	•	•	•	•	•	•	•
S	10					•	•		
I	12						•	•	
E	14					•	•	•	
T									
N									
C									
H									
O									
N									
R									
I									
Y									

FIRE ZONE SELECT MATRIX  
FIG. II

		Zone							
		1	2	3	4	5	6	7	8
D	OFF								
I	1	•							
S	2		•						
W	3			•					
D	4				•				
A	5					•			
T	6						•		
C	7							•	
H	8								•
O	9	•	•	•	•	•	•	•	•
N	10		•	•					
R	11				•	•			
I	12			•	•				
Y	13		•			•			
	14		•	•	•				
	15		•	•	•	•			

ZONE SELECT MATRIX  
FIG. III

FOR TECHNICAL ASSISTANCE CALL:  
800-631-2144



490 OBERLIN AVE. SO., LAKEWOOD, N. J. 08701