

K3852

Cellular Control Channel Transceiver

Installation and Setup Guide

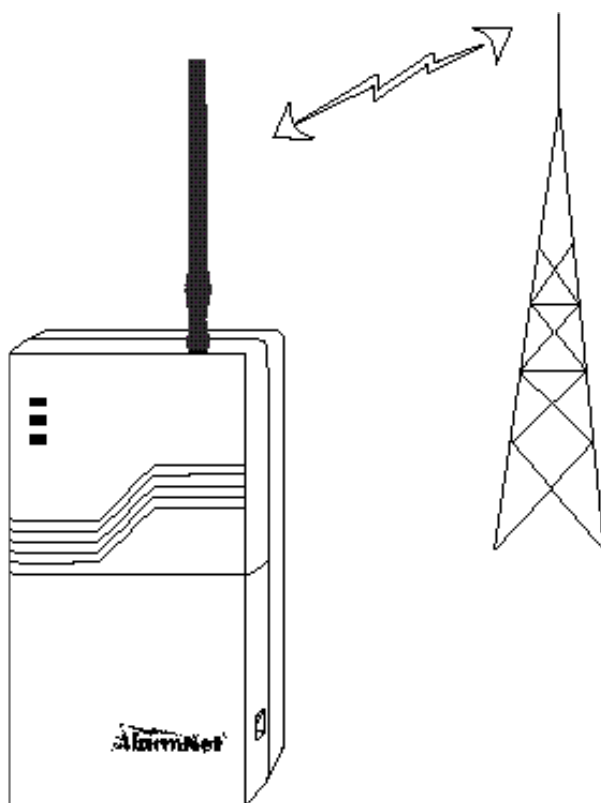


Table of Contents

List of Terms	2
Section 1. General Information	3
Introduction	3
System Features	3
Section 2. Quick Start/Programming Guide	4
Section 3. Installation and Setup	6
Removing the Lower Cover	6
Initial Power-Up Sequence	7
Selecting a Radio Installation Site	8
Testing the Installation	9
Section 4. Programming the K3852	10
Using a 7720P Programming Tool	10
Subscriber Information	11
Pulse/Delay Zone Selection	12
Inverted Zone Selection	13
Restoral Reporting Zone Selection	14
Open/Close, Telco, Tamper Zone Selection	15
System Options	15
Redundant Central Station Reporting	16
Exiting Program Mode, Setting Defaults and Assigning Passwords	17
Section 5. Registration	18
Section 6. Mounting and Wiring	21
Section 7. Operation Overview	26
Section 8. Keyboard Commands	28
Section 9. Troubleshooting	30
UL Requirements	32
Specifications	34
Summary of Connections Diagram	35

List of Terms

AMPS:	Acronym for Advanced Mobile Phone System, which is the existing analog mobile phone system used for cellular communication in North America.
A Side / B-Side:	The FCC has divided the spectrum allocated to cellular communication between two carriers in each geographic location: A and B. The “B” side is operated by the local telephone company (known as wireline), while the “A” side is run by a competitor (known as non-wireline).
Cell:	The equipment, including antennas, RF transmitters, RF receivers, that is used to establish and route communications between a mobile cellular radio and its intended end point.
Control Channel:	Any one of several dedicated RF channels that are used by a cellular radio to register its MIN with a local cell and to periodically check in with that cell. The control channel is also used by the radio to “dial” a phone number through the cell. Additionally, control channels are used by the cell to “ring” a mobile cellular radio.
MIN:	Acronym for Mobile Identification Number, which is a cellular radio’s unique, 10-digit “phone number.”
SS7:	Acronym for Signaling System Seven, which is the network that is used by all telephone companies for dialing and establishing all cellular and land-line phone calls.
Voice Channel:	Any one of many dedicated RF channels used for transmitting and receiving audio data between a mobile phone and a cell. (Not used with the K3852.)

Section 1: General Information

Introduction

The K3852 is the subscriber end of the AlarmNet C reporting system. It is comparable to a digital communicator, but instead of transmitting signals over the telephone lines, it transmits radio signals to the central monitoring station using the control channel of the AMPS cellular phone network. This allows faster and more secure reporting and greater coverage.

The K3852 is compatible with existing installations using ADEMCO equipment or other control panels. It can be used in conjunction with digital communicators on the same system to provide redundant reporting.

The K3852 Transceiver uses the control channel of the Advanced Mobile Phone System (AMPS) cellular network to report subscriber alarms and system status messages. It operates on either the “A” or “B” side of the cellular network without using a voice channel. Because alarms are transmitted only on the control channel, a true “phone call” is never placed. This eliminates delays due to busy or saturated cells where no voice channels are available.

The K3852 is compliant with the MicroBurst standard for packet-based control channel cellular communication. Alarm and status packets are transmitted from the subscriber to a local cell where they are identified and then routed using SS7 to the AlarmNet Control Center. The AlarmNet Control Center then logs the alarm and routes it via RF to the appropriate AlarmNet-A or AlarmNet-M equipped central station.

System Features

Hardware Features

- Up to 6 input zones (when ECP is not used) that can be triggered by either applying or removing a voltage.
- Zones 1 and 2 are configurable to trigger on the application of a voltage or ground.
- Zones 5 and 6 are configurable as voltage-tripped zones or as ECP IN / ECP OUT, respectively (the installer must choose either zone inputs or ECP communication, not both).
- Radio fault relay Form A contacts, programmable.
- Auxiliary, general purpose relay, Form A contacts, controllable across the radio link.
- Trigger voltage for use with dry contact relays.

LED Indications

- Received Signal Strength Indication (RSSI), displayed on a 5-position bar graph.
- Three radio status LEDs to indicate message status and radio status.

Antenna

- ADEMCO cellular antenna included (part number K3209).

Power

- Wall-mounted 16.5VAC / 40VA transformer ADEMCO PN: 1361 (1361CN for Canadian installations).
- Optional battery backup adds over 4 hours of additional system life during AC loss. ADEMCO PN: 7720BT

Programmable Features

- | | |
|--|--|
| • Subscriber, city and central station ID | • Tamper zone |
| • Carrier selection | • Old alarm time reporting period |
| • Supervision messaging period | • AC loss reporting |
| • Time zone | • Battery backup with optional battery |
| • Steady state or pulsed zones with delays | • Radio fault relay |
| • Inverted zone trigger levels | • Radio fault time |
| • Zone restoration messaging | • Secondary CS reporting |
| • Open/Close reporting | • Password assignment |
| • Telco fault zone | |

Section 2: Quick Start/Programming Guide

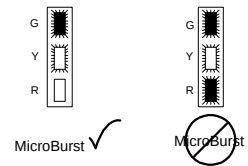
1. **Unpack and initialize the radio.**

- Unpack the K3852 and install the antenna.
- Remove the unit's lower cover (refer to *Removing the Lower Cover* section).
- Connect a fully charged battery (Ademco 7720BT) or a 40VA transformer (Ademco 1361 or 1361CN).
- Monitor the initial power-up LED sequence (refer to the Initial Power-Up Sequence section). This can take several minutes.

2. Find coverage and select a site.

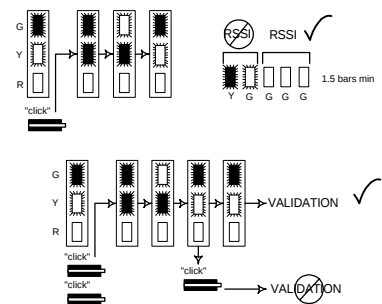
If this is the first K3852 to be installed in a given area, please verify that there is coverage in that ZIP code by either checking the coverage selection at the AlarmNet web site www.ademco.com/alarmnet, or by calling 1-800-222-6525 and asking our technical assistance group.

- Verify MicroBurst coverage using the radio status LEDs as shown at right, or use the “B” command on the 7720P Programming Tool.
- Select an installation site by observing the signal strength (RSSI) bar graph or use the “B” command on the 7720P Programming Tool (refer to the *Selecting a Radio Installation Site* section for detailed procedure).



3. Test the site.

- a. Test the RF link between the K3852 and the local cell with a single click test message (refer to the *Testing* section for details).
- b. Test communication with the AlarmNet C network by double clicking the tamper/test switch and receiving message validation. If desired, you can cancel validation by clicking the tamper switch once.

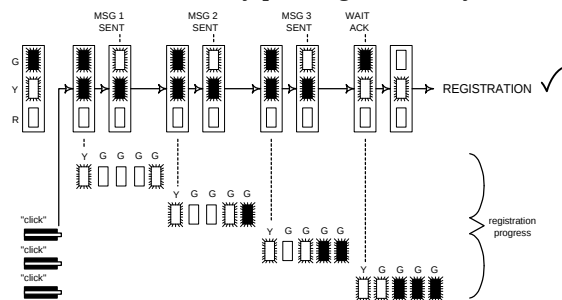


4. Program the radio.

- Connect the 7720P Programming Tool, reset the radio by cycling the power off then on; press [Enter] during the initial power-up sequence to enter Programming mode.
- Program the K3852 as described in the *Programming* section. Refer to the programming defaults on the next page.

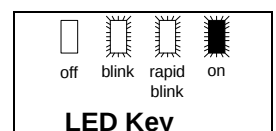
5. Register the radio.

- Send test registration with the 7720P “T” command to verify account and routing.
- Register the K3852 with AlarmNet by triple clicking the tamper switch and observing the LED displays as shown below, or by pressing the $\uparrow$ key on the 7720P.



6. Complete the installation.

- Mount the radio (refer to the *Mounting* section).
- Wire to the Control (refer to the *Wiring* section) and test all signals.
- Test the installation (refer to the *Testing* section)



Quick Start/Programming Guide

K3852 Programming Defaults for Zone Mode

* Options 2, 3 and 4 must be programmed to complete Quick Start.

	Programming Option	Standard Default Value	Actual Entry
1	ECP Radio (Y/N)	N	
2	ID Number *	xxxx	
3	City Number *	xx	
4	CS ID *	xx	
5	Supervision	24 hours	
6	Time Zone	Eastern	
7	Carrier Select	Auto	
8	Device Address (ECP only)	xx	
9a	Pulse Z1 (Y/N)	N	
9b	Z1 Delay (00-127)	0	
10a	Pulse Z2 (Y/N)	N	
10b	Z2 Delay (00-127)	0	
11a	Pulse Z3 (Y/N)	N	
11b	Z3 Delay (00-127)	0	
12a	Pulse Z4 (Y/N)	N	
12b	Z4 Delay (00-127)	0	
13a	Pulse Z5 (Y/N)	N	
13b	Z5 Delay (00-127)	0	
14a	Pulse Z6 (Y/N)	N	
14b	Z6Delay (00-127)	0	
15	Invert Z1 (Y/N)	N	
16	Invert Z2 (Y/N)	N	
17	Invert Z3 (Y/N)	N	
18	Invert Z4 (Y/N)	N	
19	Invert Z5 (Y/N)	N	
20	Invert Z6 (Y/N)	N	
21	Restore Z1 (Y/N)	N	
22	Restore Z2 (Y/N)	N	
23	Restore Z3 (Y/N)	N	
24	Restore Z4 (Y/N)	N	
25	Restore Z5 (Y/N)	N	
26	Restore Z6 (Y/N)	N	
27	Arm/Disarm Z6 (Y/N)	N	
27a	Enable Z1 on arm (Y/N)	N	
27b	Enable Z2 on arm (Y/N)	N	
27c	Enable Z3 on arm (Y/N)	N	
27d	Enable Z4 on arm (Y/N)	N	
27e	Enable Z5 on arm (Y/N)	N	
28	Open/Close Zone	0	
29	Telco Channel	0	
30	Tamper Zone	0	
31	Old Alarm Time	10 minutes	
32	AC Loss Report	Y	
33	Battery Present (Y/N)	Y	
34	Fault Relay On (Y/N)	N	
35	Fault Time (minutes)	5	
36	2 nd CS (Y/N)	N	
37	2CS Z1 (Y/N)	N	
38	2CS Z2 (Y/N)	N	
39	2CS Z3 (Y/N)	N	
40	2CS Z4 (Y/N)	N	
41	2CS Z5 (Y/N)	N	
42	2CS Z6 (Y/N)	N	
43	2CS Tamp (/N)	N	
44	2CS Sys Rpt (Y/N)	N	
45	2 nd ID #	xxxx	
46	2 nd City	xx	
47	2 nd CS ID	xx	
48	Review?	N	
49	Enter Password? (Y/N)	N	

7720P Keyboard Commands

- A Software revision
- B Radio and connectivity display (network OK, no service, no contact, signal strength, A or B carrier, MIN)
- C Network time display
- D Battery test (starts 10 minute battery test)
- E Network system display (channel, local carrier, SID)
- F Carrier display (A or B carrier, MicroBurst found, preferred side indication)
- S Status display
- T Test signal/Test registration when unregistered
- X Reset
- ↑ Register radio (must be programmed)
- ↓ Replacement radio (must have PIN)

Section 3: Installation and Setup

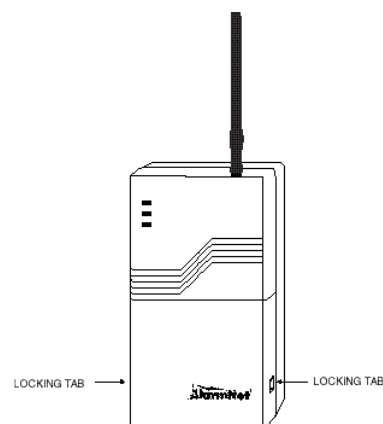
Removing the Lower Cover

During normal operation, the lower cover of the K3852 should remain in place.

To remove the cover, gently press in on either of the two locking tabs and lift the cover.

Removing the cover will trigger the following two events:

1. A tamper zone alarm will be transmitted.
2. The RSSI bar graph, which is intended to be used as an installation tool and troubleshooting aid, will become active.



Do not attempt to remove the upper cover. There are no user serviceable components beneath this cover.

Refer to the following diagram to identify the components of the K3852.

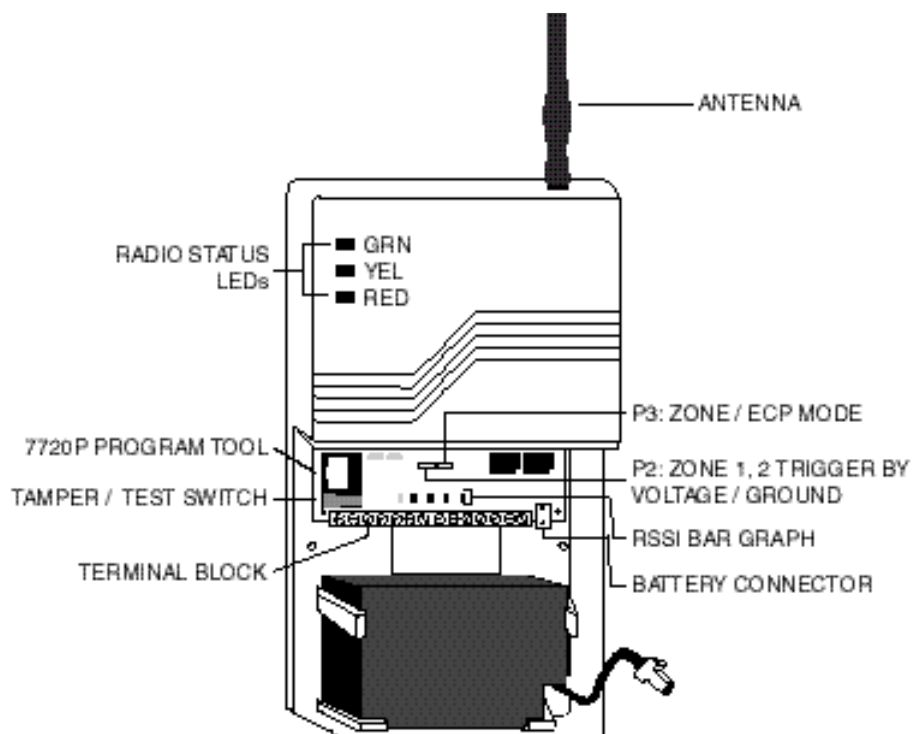


Figure 1. K3852 with Cover Removed for Component Identification

K3852 Initial Power-Up Sequence

Before connecting power, check that the following have been completed:

- ☐ 16.5VAC / 40VA transformer connected to terminal block positions 1 & 2
- ☐ P2 in the correct position for zone 1 & 2 trigger levels (zone mode only)
- ☐ P3 in the correct position for zone or ECP operation
- ☐ Antenna installed

Apply power by plugging in the 16.5VAC / 40VA transformer. If using the optional battery, plug it into the battery jack. Initially, all K3852 programming options are set to the factory default settings.

Upon applying power, the K3852 enters the power-on reset mode, indicated by all 8 LEDs being solidly lit for approximately 5 seconds followed by the RSSI bar graph green LEDs lighting in a “chaser” sequence from left to right. After this power-up sequence, the Radio Status LEDs display solid green, blinking yellow, and solid red.

This indicates the K3852 is functioning but not yet initialized. The K3852 then begins its initialization sequence. During this process, the K3852 is verifying its Mobile Identification Number (MIN) and checking for MicroBurst service on both the “A” and “B” side carriers. This initialization is displayed on the RSSI bar graph as follows (refer to Table 1): The yellow LED will remain unlit and the green LED at the extreme right of the display will begin to blink. This green LED then lights solid (after a short period of time), and the next green LED to the left begins to blink. When this LED lights solid, the next green LED begins to blink, and so on, until all 4 green LEDs are lit solid. This countdown event may take up to 3 minutes to complete.

Once this sequence has been completed, the RSSI display begins to function as a signal strength indicator as described in *Selecting a Radio Installation Site* section. The radio is now in normal, unprogrammed and unregistered operation. If radio setup and self-test fails, LED 5 will blink continuously and no further progress will be made. If MicroBurst coverage is not found on either the A or the B side, the K3852 will repeat steps 2 and 3. These steps will be repeated until MicroBurst is found.

Table 1. K3852 Initial Power-Up Bar Graph and Radio Status LED Sequence

Active Function	Bar Graph Display	Radio Status Display
1) LED 5 blinking: K3852 performing radio setup and self-test. Time to complete: less than 1 minute. NOTE: If the K3852 fails the self-test, the initial powerup will not progress beyond this point.		G Green on: un-registered Y Yellow blinking: waiting R Red on: no MicroBurst coverage
2) LED 4 blinking: K3852 searching for MicroBurst coverage from the B-side carrier. Time to complete: 1 – 3 minutes	 5 on: radio set-up ok.	G Green on: un-registered radio Green blinking: service request message successful, B-side Green off: previously registered radio Y Yellow on: request for service message pending, B-side Yellow blinking: B-side (once per second) R Red on: MicroBurst coverage not yet found, B-side Red blinking: service request message un-successful, B-side Red off: MicroBurst coverage found, B-side
3) LED 3 blinking: K3852 searching for MicroBurst coverage from the A-side carrier. Time to complete: 1 – 3 minutes	 4 on: B-side MicroBurst OK or 4 off: B-side MicroBurst fail.	G Green on: un-registered radio Green blinking: service request successful, A-side Green off: previously registered radio Y Yellow on: request for service pending, A-side Yellow blinking: A-side (twice per second) R Red on: MicroBurst coverage not yet found, A-side Red blinking: service request message un-successful, A-side Red off: MicroBurst coverage found, A-side
4) LED 2 on: K3852 initial powerup complete. Time to complete: 10 seconds	 3 on: A-side MicroBurst OK or 3 off: A-side MicroBurst fail.	G Green on: un-registered radio Green off: previously registered radio Y Yellow blinking: A-side or B-side blink indication R Red on: no MicroBurst coverage Red off: MicroBurst coverage, carrier indicated by Yellow LED
off blink rapid blink on LED Key:		

Selecting a Radio Installation Site

The K3852 is designed to be mounted on a vertical surface (wall), with the included antenna pointing up. When selecting mounting a site, maintain distances from various types of electrical equipment as listed in Table 2. Additionally, observe the maximum wire run lengths (see Table 4).



The K3852 is intended for indoor installation only. Mounting outdoors will cause system failure and may present a shock hazard.

1. Remove the cover and install a fully charged battery. If a fully charged battery is not available, you can connect a 16.5VAC / 40VA transformer.



During battery operation, removal of the lower cover will significantly reduce the life of the charge on the battery. To get the maximum backup battery life in the event of an AC loss, the lower cover must be replaced when the installation is complete. (Note that the signal strength bar graph located below this cover is only needed during installation.)

2. Select a likely location by monitoring the signal strength bar graph. Refer to the *Using an Unregistered K3852 as an Installation Tool* paragraph below. A strong signal lights more LEDs than a weak signal.
3. Find a location where the signal level is consistently better than 1-½ bars or -101dBm as measured with the 7720P. The K3852 can function properly with the signal strength level as low as one-half bar (yellow blinking), but this may be an indication of marginal coverage.

Notes:

1. Optimum RF performance can usually be found at the highest point within a building, with the fewest number of walls between the radio and the outside of the premises.
2. Avoid mounting the antenna near other electronic devices. Table 2 provides minimum distances. Highest RF energy is in the direct, horizontal line of the antenna. Therefore, vertical separation (moving electronic devices either higher or lower on the wall) provides a higher level of isolation from the radio.

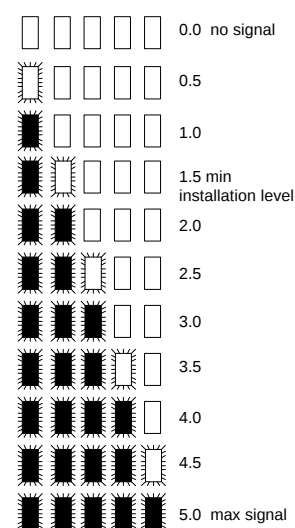
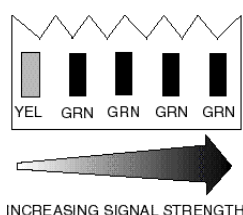
Table 2. Minimum Distances From Electrical Equipment	
Equipment	Distance
PIR	10 ft.
FM radio or TV ant.	25 ft.
Other devices	10 ft. minimum

Using an Unregistered K3852 as an Installation Tool

An unregistered K3852 will display signal strength once the initial power-on sequence is complete.

Use the guide on the right when selecting an installation site.

Select an installation site where the RSSI is between 1.5 – 5 bars.



Signal Strength Bar Graph Displays

Testing the Installation

Using an Unregistered K3852 to Test the Installation

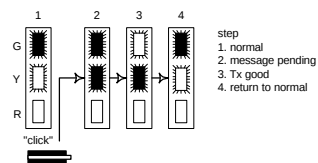
An unregistered K3852 can send three types of test messages: unvalidated, validated, and test registration. Refer to the table below.

Unvalidated Test Message

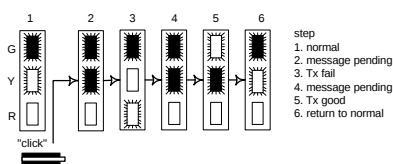
Use this to test the path from the K3852 to the cell.

SINGLE click the tamper switch to send a test message to the local cell. The RSSI bar graph displays how well the K3852 is receiving this cell. Read the RSSI display from left to right: If the yellow and the next two green LEDs are illuminated, the display is read as “three bars.” If the yellow and the next two green LEDs are lit solid with the following green LED flashing, the display is read as “three and a half bars.” This is a stronger received signal than the previous example. Refer to the Full Scale RSSI Display diagram on the previous page.

Radio status LEDs for a good test message transmission to local cell:



Radio status LEDs for a failed test message transmission and a good retransmission to local cell:



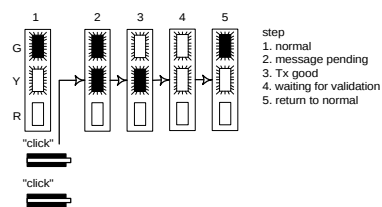
Validated Test Message

Use this to test the path from the K3852 to AlarmNet and back to the K3852.



DOUBLE click the tamper switch to send a test message to AlarmNet with a validation request. The yellow radio status LED blinks rapidly while waiting for validation. Validation is a low priority receipt from AlarmNet to the K3852 and may take several minutes to receive. If a message is not validated by AlarmNet within 90 seconds, the K3852 will retransmit the test message and wait for validation.

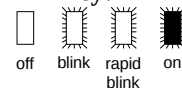
Radio status LEDs for a good test message transmission to AlarmNet and validation:



NOTE: When a good test message is sent from the K3852, it can be assumed with a high degree certainty that it reached AlarmNet without waiting for validation

To cancel any test message, SINGLE click the tamper switch.

LED Key:



Test Registration

Use this to test the path from the K3852 to AlarmNet, then to the central station, and back to the K3852. This confirms the radio's programming and routing across the AlarmNet network without actually registering it.

NOTE: Quick Start Programming Options 2, 3, and 4 must be programmed to use this feature.

Use the “T” command on the 7720P to initiate test registration. Refer to section 5 for a detailed description of this feature

Section 4: Programming the K3852

There are 3 methods of programming the K3852: (1) Using a 7720P Programming Tool; (2) using an ECP capable control panel that supports long range radio programming.; (3) using the Programmerless Registration Option (PRO).

To use the 7720P, connect the 7720P then power-up the radio. Refer to the description below.

To use an ECP capable control, connect the control, then power-up the radio. Select ECP operation by pressing the tamper switch once while the radio status LEDs are flashing in unison, which toggles the default configuration from zone mode to ECP mode. The unprogrammed K3852 flashes the radio status LEDs as follows during initial power-up:

ECP mode = twice per second

Zone mode = once per second

The default device address of the radio is 3. Refer to the control's instructions for programming procedures.

To use the Programmerless Registration Option, power-up the radio, then contact AlarmNet Technical Assistance Center (TAC). Refer to the Programmerless Registration Option Installation and Programming Guide insert.

Using a 7720P Programming Tool

The 7720P Programming Tool is powered by the K3852 via the Programming Jack. The K3852 will automatically sense the presence of the 7720P when it is plugged in.

Each key of the 7720P has two possible functions: a normal function and a SHIFT function. To perform a normal key function, simply press the desired key. To perform a SHIFT key function, press the SHIFT key, then press desired function key.

Table 3. 7720P Normal & Shift Key (shift LED lit) Functions

Key	Normal Key Function	SHIFT Key Function
BS/ESC	[BS]: Press to delete entry	[ESC]: Press to quit program mode; also can reset EEPROM defaults*
↓/↑	[↓]: Scroll down programming	[↑]: Scroll up programming
N/Y	[N]: Press for "NO" answer	[Y]: Press SHIFT-Y for "YES" answer
SHIFT	Press before pressing a SHIFT key function. Will light SHIFT LED. LED goes out once a key is pressed. Press again for each SHIFT function desired.	
1/A	[1]: For entering the number 1	[A]: For entering letter A
2/B	[2]: For entering the number 2	[B]: For entering letter B
3/C	[3]: For entering the number 3	[C]: For entering letter C
4/D	[4]: For entering the number 4	[D]: For entering letter D
5/E	[5]: For entering the number 5	[E]: For entering letter E
6/F	[6]: For entering the number 6	[F]: For entering letter F
7/S	[7]: For entering the number 7	[S]: For entering letter S
8/T	[8]: For entering the number 8	[T]: For entering letter T
9/X	[9]: For entering the number 9	[X]: For entering letter X
/SPACE	[]: For scrolling option list	[SPACE]: For scrolling option list
0	[0]: For entering the number 0	No SHIFT function
#/ENTER	[#/ENTER]: Press to accept entries	No SHIFT function

* Active only when the "REVIEW?" prompt is displayed.

After connecting the 7720P cable, power up the K3852 . The following will be displayed:

K3852 x.xx
(c) Pittway 1999

x.xx = current software revision level **NOTE: This document applies to software Rev. 1.20 or higher**

At this prompt during initial power-up, you may proceed with programming the K3852. Programming is accomplished by answering displayed questions. Most questions require only a [Y]es or [N]o response, while others require a numerical response (ID numbers, etc.). Press ENTER to accept each response and proceed to the next question. A "?" indicates an invalid entry. The current value is displayed on the second line in parentheses (). To accept the current entry, simply press the ENTER key. If the current value is an invalid entry, pressing the enter key will cause the display to repeat the unanswered question; the next question will not be displayed until a valid answer is entered. Use the UP/DOWN arrow keys to scroll through the programming questions without changing any values. The ESC key will bring the list of questions to the end.

Enter programming mode by pressing [ENTER] during the initial power-up period after the chaser sequence (while radio status LEDs are flashing consecutively or in unison).

The K3852 reads its EEROM to determine its preprogrammed parameters. A CRC of the EEROM locations is also read. If the computed CRC does not match the one read from EEROM, or if the programming parameters are invalid, the 7720P LCD displays "NO PROG" and the radio status LEDs flash in unison (after the initial chaser sequence). Otherwise, the LEDs flash consecutively.

Password Protection

If you are NOT programming the radio through an ECP capable control panel (e.g., VISTA-128FB), the programming menu can be password protected

Once a password is assigned, the following prompt appears upon entering programming mode:

ENTER PASSWORD:

See "Exiting Program Mode" paragraph later in this section for assigning and changing passwords.

Subscriber Information (Questions 1-7)

- Question 1*. Press "Y" to enable ECP communication for alarm input (check that jumper P3 is to right). Press "N" to enable voltage triggers for alarm input.
* This question will NOT appear if you are programming via the control panel, since ECP mode is automatically required; Question 2 will be the first programming option displayed on the keypad.
- Question 2. Enter the 4-digit customer account number, 0001-9999.
- Question 3. Enter the 2-digit primary city code, 01-99 (decimal).
- Question 4. Enter the primary central station's system ID number, 01-FE.
- Question 5. This selection sets the supervision timing for the K3852 for either 24 hour or weekly. The default supervision timing is 24 hours. The K3852 sends a supervision message once during the supervision period. AlarmNet transmits a communications failure alarm to the central station if the supervision message is not heard within the period. Use the Space key to select weekly or 24 hour supervision. Must be set to 24 hr for UL installations.
- Question 6. Use the [*] key to select the time zone in which the K3852 is being installed: Eastern, Central, Mountain, Pacific, or Atlantic.
- Question 7. Use the [*] key to choose the method by which the K3852 will select its cellular carrier: "A" or "B" side.
- Auto: K3852 selects the carrier to which it will connect. In this mode, the K3852 will automatically change its carrier side if coverage becomes degraded.
NOTE: If the K3852 had been operating and competed its initialization sequence with this option set to "auto," one of the following prompts will appear:
Auto B then A: shows that the B-side carrier was initially selected.
Auto A then B: shows that the A-side carrier was initially selected.
These prompts are displays only, not programming choices, and the prompt will disappear if the [*] key is pressed.
- A then B: K3852 prefers connecting to the "A" side carrier rather than the "B" side carrier. If coverage is lost on the A side, the radio will switch to the "B" side carrier.
- B then A: K3852 prefers connecting to the "B" side carrier rather than the "A" side carrier. If coverage is lost on the B side, the radio will switch to the "A" side carrier.
- A Only: K3852 searches for coverage on the "A" side only. Fixed carrier operation.
- B Only: K3852 searches for coverage on the "B" side only. Fixed carrier operation.

ECP Configuration (Question 8)

Question 8.

Skip this question if using zones (if you answered “N” to Question 1) and go to Question 9.

If using ECP mode (you answered “Y” to Question 1), enter the ECP device address of the radio. For VIA 30+, VISTA-10SE, and VISTA-20SE this must be address 3. For other control panels, see the control panel’s Installation Instructions. Skip to question 31.

Pulse/Delay Zone Selection (Questions 9-14)

By configuring a zone as a pulsed zone, it is possible to use the output of a panel bell/siren driver to activate the radio directly when the signal from this driver is a pulsed output for fire and a continuous output for burglary. To implement a fire/burglary detection at the radio, connect the driver output directly to 2 zones on the K3852. Program the fire zone as a pulsed zone and the burglary zone as a delayed zone (this is to prevent this zone from reporting an alarm when the pulsed signals are detected). The number of pulses and the length of delay will depend on the particular panel or siren driver being used, and is therefore a programmable feature.



Zones designated as open/close or telco zones cannot be programmed for pulse. If this occurs, the pulse detection on the zone is automatically disabled.

UL

Questions 9-14: Select “N” for Pulse and “00” for Delay for UL installations.

- Question 9 Press “Y” if zone 1 is connected to a pulsed bell output. Question 9b will appear. If you pressed “N”, the following appears.
- Question 9a Enter the reporting delay from 1-127 seconds for zone 1. Enter “00” for no reporting delay.
- Question 9b If you answered “Y” to “Pulse Z1,” the next question will be “Pulse Cnt?” Input the number of pulses required to place the zone in alarm.
- Question 10 Press “Y” if zone 2 is connected to a pulsed bell output. Question 10b will appear. If you press “N,” the following appears.
- Question 10a Enter the reporting delay from 1-127 seconds for zone 2. Enter “00” for no reporting delay.
- Question 10b If you answered “Y” to “Pulse Z2,” the next question will be “Pulse Cnt?” Input the number of pulses required to place the zone in alarm.
- Question 11 Press “Y” if zone 3 is connected to a pulsed bell output. Question 11b will appear. If you press “N,” the following appears.
- Question 11a Enter the reporting delay from 1-127 seconds for zone 3. Enter “00” for no reporting delay.
- Question 11b If you answered “Y” to “Pulse Z3,” the next question will be “Pulse Cnt?” Input the number of pulses required to place the zone in alarm.

- Question 12 Press "Y" if zone 4 is connected to a pulsed bell output. Question 12b will appear. If you press "N," the following appears.
- Question 12a Enter the reporting delay from 1-127 seconds for zone 4. Enter "00" for no reporting delay.
- Question 12b If you answered "Y" to "Pulse Z4," the next question will be "Pulse Cnt?" Input the number of pulses required to place the zone in alarm.
- Question 13 Press "Y" if zone 5 is connected to a pulsed bell output. Question 13b will appear. If you press "N," the following appears.
- Question 13a Enter the reporting delay from 1-127 seconds for zone 5. Enter "00" for no reporting delay.
- Question 13b If you answered "Y" to "Pulse Z5," the next question will be "Pulse Cnt?" Input the number of pulses required to place the zone in alarm.
- Question 14 Press "Y" if zone 6 is connected to a pulsed bell output. Question 14b will appear. If you press "N," the following appears.
- Question 14a Enter the reporting delay from 1-127 seconds for zone 6. Enter "00" for no reporting delay.
- Question 14b If you answered "Y" to "Pulse Z6," the next question will be "Pulse Cnt?" Input the number of pulses required to place the zone in alarm.

Inverted Zone Selection

You can program zones 1-6 for inverted input signals.

- Question 15 Press "Y" to invert the input signal for zone 1. Press "N" for normal input signal.
- Question 16 Press "Y" to invert the input signal for zone 2. Press "N" for normal input signal.
- Question 17 Press "Y" to invert the input signal for zone 3. Press "N" for normal input signal.
- Question 18 Press "Y" to invert the input signal for zone 4. Press "N" for normal input signal.
- Question 19 Press "Y" to invert the input signal for zone 5. Press "N" for normal input signal.
- Question 20 Press "Y" to invert the input signal for zone 6. Press "N" for normal input signal.

Restoral Reporting Zone Selection (Questions 21-27)

Restoral reporting can be enabled or disabled. If you have programmed any of the zones for pulse operation, then, following the restoral question, the 7720P will display "REST ON CHG (Y/N)". This feature is used for zones connected to the bell output of a panel, and when enabled (by pressing "Y") will report the zone in restoral when the pulse train stops and a steady-state level, either high or low, is left on the zone input or when the steady-state level starts pulsing. If you do not enable this feature (by pressing "N"), the zone will only restore on a steady-state low logic level.

UL

Zone restoral must be enabled for UL installations.

Question 21	Rest. Z1 (Y/N)	Press "Y" to enable restoral reporting for zone 1. Press "N" to disable restoral reporting.	
	Question 21a	Rest. On CHG (Y/N)	Press "Y" if restore is to be sent when the type of signal changes, i.e., when pulsing state changes to a steady-state level (high or low) or when a steady state changes to a pulsing state. Restore normally occurs when the opposite steady state occurs, e.g., when a steady-state high goes low.
Question 22	Rest. Z2 (Y/N)	Press "Y" to enable restoral reporting for zone 2. Press "N" to disable restoral reporting.	
	Question 22a	Rest. On CHG (Y/N)	Press "Y" if restore is to be sent when the type of signal changes, i.e., when pulsing state changes to a steady-state level (high or low) or when a steady state changes to a pulsing state. Restore normally occurs when the opposite steady state occurs, e.g., when a steady-state high goes low.
Question 23	Rest. Z3 (Y/N)	Press "Y" to enable restoral reporting for zone 3. Press "N" to disable restoral reporting.	
	Question 23a	Rest. On CHG (Y/N)	Press "Y" if restore is to be sent when the type of signal changes, i.e., when pulsing state changes to a steady-state level (high or low) or when a steady state changes to a pulsing state. Restore normally occurs when the opposite steady state occurs, e.g., when a steady-state high goes low.
Question 24	Rest. Z4 (Y/N)	Press "Y" to enable restoral reporting for zone 4. Press "N" to disable restoral reporting.	
	Question 24a	Rest. On CHG (Y/N)	Press "Y" if restore is to be sent when the type of signal changes, i.e., when pulsing state changes to a steady-state level (high or low) or when a steady state changes to a pulsing state. Restore normally occurs when the opposite steady-state occurs, e.g., when a steady state high goes low.
Question 25	Rest. Z5 (Y/N)	Press "Y" to enable restoral reporting for zone 5. Press "N" to disable restoral reporting.	
	Question 25a	Rest. On CHG (Y/N)	Press "Y" if restore is to be sent when the type of signal changes, i.e., when pulsing state changes to a steady-state level (high or low) or when a steady state changes to a pulsing state. Restore normally occurs when the opposite steady state occurs, e.g., when a steady-state high goes low.
Question 26	Rest. Z6 (Y/N)	Press "Y" to enable restoral reporting for zone 6. Press "N" to disable restoral reporting.	
	Question 26a	Rest. On CHG (Y/N)	Press "Y" if restore is to be sent when the type of signal changes, i.e., when pulsing state changes to a steady-state level (high or low) or when a steady-state changes to a pulsing state. Restore normally occurs when the opposite steady state occurs, e.g., when a steady state high goes low.

- Question 27 Press "Y" to designate zone 6 as the arm/disarm zone, which can be used to determine whether alarm reports of certain zones get transmitted. See questions 27a-27e to designate each zone. The system is disarmed when the zone is tripped (voltage applied); otherwise the system is armed. This feature enables users to limit alarm traffic when the system is disarmed. Press "N" to disable the arm/disarm feature; skip to question 28.
- Question 27a Press "Y" to report alarms on zone 1 ONLY when the system is armed. Press "N" to report alarms of zone 1 regardless of system state.
- Question 27b Press "Y" to report alarms on zone 2 ONLY when the system is armed. Press "N" to report alarms of zone 2 regardless of system state.
- Question 27c Press "Y" to report alarms on zone 3 ONLY when the system is armed. Press "N" to report alarms of zone 3 regardless of system state.
- Question 27d Press "Y" to report alarms on zone 4 ONLY when the system is armed. Press "N" to report alarms of zone 4 regardless of system state.
- Question 27e Press "Y" to report alarms on zone 5 ONLY when the system is armed. Press "N" to report alarms of zone 5 regardless of system state.

Open/Close, Telco & Tamper Zone Selection (Questions 28-30)

UL

UL requires one zone designated for open/close reporting, one zone designated for Telco fault reporting, and one zone designated for tamper reporting.

- Question 28 Enter the open/close reporting zone number, 1-6. A "0" entry will not assign a zone to O/C status monitoring. If the zone selected was programmed to be a pulse zone (see Questions 9-14), the pulse detection on the zone will be automatically disabled. Open/close reporting will require an additional fee.
- Question 29 Enter the physical telco line fault zone, 1-6. A "0" entry disables telco detection. **If this zone is the same as the open/close zone, this selection will automatically be set to "0" and telco detection will be disabled.** If the zone selected was programmed to a pulse zone (see Questions 9-14), the pulse detection on the zone will be automatically disabled.
- Question 30 Enter tamper zone, 7 or 8. A "0" entry disables tamper detection. If tamper is enabled, delayed restores will be automatically generated.

System Options (Questions 31-35)

- Question 31 The old alarm time sets how long and often an undeliverable alarm will be retried for delivery to AlarmNet. If the message is not validated, it will be retried until the old alarm time is reached or the message is validated.
You can change the old alarm time by pressing the space key on the 7720P. If the desired entry has scrolled past, press the back-space key to scroll back through the list. If the desired time is displayed, press the enter key to proceed to the next menu. The choices available are: 10 Min., 15 Min., 30 Min., 1 Hr

UL

Old Alarm time must be set to 10 minutes for UL installations.

- Question 32 If you answered “yes” (Y) to “AC Loss RPT,” the radio will report the loss of AC line voltage within a 10-to 40-minute window after its detection. If this feature is disabled (by pressing “N”), AC loss alarms will be suppressed. NOTE: In either case, if a battery is installed, low-battery messages will be sent as detected. **Must be “Y” for UL installations.**
- Question 33 Press “Y” if optional battery will be used. **Must be “Y” for UL installations (a battery must be installed).**
- Question 34 **If ECP mode is enabled, skip to question 35.** Press “Y” if fail-safe mode is desired. In this mode, the fault relay is normally energized and will de-energize in the event of a radio fault. Note that fail-safe mode draws slightly more standby current. **Must be “Y” for UL installations.**
- Question 35 Enter in minutes 1 - 99 the time delay before the fault relay will change state, after a loss of contact with the network.

If ECP mode is enabled, skip to question 45.

Redundant Central Station Reporting (Questions 36-47)

- Question 36 Press “Y” if redundant reporting to a second central station is desired. Press “N” if not desired (skip to end).
- Question 37 Press “Y” to enable reporting to second central station for zone 1. Enter “N” to disable reporting.
- Question 38 Press “Y” to enable reporting to second central station for zone 2. Enter “N” to disable reporting.
- Question 39 Press “Y” to enable reporting to second central station for zone 3. Enter “N” to disable reporting.
- Question 40 Press “Y” to enable reporting to second central station for zone 4. Enter “N” to disable reporting.
- Question 41 Press “Y” to enable reporting to second central station for zone 5. Enter “N” to disable reporting.
- Question 42 Press “Y” to enable reporting to second central station for zone 6. Enter “N” to disable reporting.
- Question 43 Press “Y” to enable tamper reporting to second central station. Enter “N” to disable reporting.
- Question 44 Press “Y” to enable reporting of system report to second central station. Enter “N” to disable reporting.
- Question 45 Enter the 4-digit customer account number for the second central station, 0001-9999. If you answered “Y” (ECP Mode enabled) to Question 1, you **MUST** enter the second customer account number because the panel may request that a given message is to be sent to the second central station.
- Question 46 Enter the secondary city code 2-digit ID (01-99 decimal). If you answered “Y” (ECP Mode is enabled) to Question 1, you **MUST** enter the secondary city code because the panel may request that a given message is to be sent to the second central station.
- Question 47 Enter the second central station's system ID number, 01-FE. This ID number must be different from the one programmed in Question 4 (the Primary CS ID). If you answered “Y” (ECP Mode is enabled) to Question 1, you **MUST** enter the second central station number because the panel may request that a given message is to be sent to the second central station. This number **DOES NOT** have to be different from the primary number, in this case.

Exiting Program Mode, Setting Defaults & Assigning Passwords

When the last question is answered, the system validates all entries. If no errors are found, the following is displayed:

REVIEW?

To review the programming options (to ensure that the correct responses have been made), press “Y.” The programming questions will be displayed again, starting with Question 1. Use the UP/DOWN arrow keys to scroll through the program fields without changing any of the values. If a value requires change, simply type in the correct value. When the last field is displayed, the “REVIEW?” question again appears.

Setting Factory Defaults: You can reset the programming options globally to their factory default values by pressing ESC at the “REVIEW?” prompt. A confirmation prompt will appear. Press “Y” to reset, or press “N” to cancel this function. If you press “Y,” all programmed values will be reset to their original factory settings.

To exit program mode and assign passwords, press “N” in response to the “REVIEW?” question. If you are NOT programming the radio through a panel and no password has been assigned, the following appears:

ENTER PASSWORD?
[Y/N]

Passwords can be used to split the programming questions into two menus. See the “Password Protection” paragraph earlier in this section. If a password is desired, press “Y”. The following prompts appear. Press “N” if no passwords are desired.

If a password has already been assigned for the current programming menu, the “ENTER PASSWORD?” prompt is replaced by the following:

CHG PASSWORD?
[Y/N]

Press “Y” or “N,” depending on whether you want to change the password for the current programming menu. If [Y]es, you will be prompted to enter the new password twice (as confirmation). To clear an existing password, answer “Y” to the “CHG PASSWORD” prompt, but press only the ENTER key when prompted for the new password and its confirmation.

ENTER PASSWORD:

Enter the 4-digit password.

VERIFY PASSWORD:

Reenter the 4-digit password as confirmation.

When the password question(s) have been answered, the system exits program mode and returns to normal mode. You can then disconnect the programming tool, or use it to trigger test messages. Refer to *Testing the System* section.

Section 5: Registration

Test Registration

Prior to registering the radio, a test registration can be sent. The test registration is used to confirm the programming of the radio and the routing across the AlarmNet C network without actually registering the radio. This feature requires a 7720P.

To initiate a test registration, first complete Quick Start programming. Options 2, 3, and 4 must be programmed. After this, press shift-“T” on a connected 7720P. Test registration progress messages will be displayed on the 7720P as described in the Interactive Registration paragraph below. When a test registration has been completed, the radio will be reported to the central station as 5555 5555 9. This indicates that the radio is programmed and routed correctly, but is not registered. If test registration fails, a message on the 7720P will indicate the failure.

Registering the Radio

Once you have initialized and programmed the K3852, you must register it with AlarmNet Control. An unregistered K3852 is indicated on the radio status LEDs as: solid green, blinking yellow, and unlit red.

The registration process consists of transmitting 3 messages in succession and receiving a registration validation from AlarmNet Control. It can take several minutes to complete.

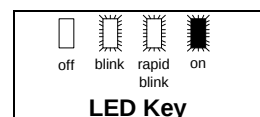
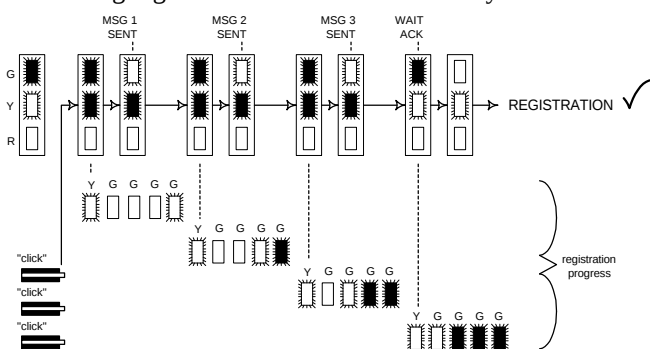
Initiate the registration sequence by either clicking the tamper switch 3 times or by pressing shift and the up arrow [↑] on the 7720P. If you are using a 7720P, skip to the Interactive Registration section.

You can monitor the registration process on the RSSI display as follows: yellow LED will be blinking and the green LED at the extreme right of the display will blink. When this green LED lights solid, the next green LED to the left begins to blink. When this LED lights solid, the next green LED begins to blink, and so on, until all 4 green LEDs are lit solid.

Once you have successfully completed the registration, the radio will enter normal operating mode; the green radio status LED extinguishes, the yellow radio status LED continues normal blinking, and the RSSI display indicates received signal strength.

If registration is not validated within 90 seconds, the K3852 will time out and all 5 RSSI LEDs will blink in unison for 30 seconds. If repeated registration attempts time out, select a new installation site.

If the K3852 has been programmed with an invalid ID, city, or central station number, the registration will be rejected. The right green LED will blink alternately with the remaining 4 RSSI LEDs.



Interactive Registration

The interactive registration feature allows the installer to register the K3852 through a series of keyboard commands on the 7720P installation tool. This method of registration lets the installer monitor the registration process.

Registration MSG1 Sent	Once the installation is complete the installer should select the [↑] command on the 7720P.
Registration MSG2 Sent	Three messages are sent, then the unit waits for acknowledgement.
Registration MSG3 Sent	
Registration Waiting for ACK	
Registration Successful!	If this is a new installation, and the City, CS, and Cust# have been correctly entered, the K3852 will be registered and this message will be displayed. At this point the K3852 is in full service and available for alarm reporting to the central station.

Possible Errors

MIN Exists	This prompt may appear only if this is a test registration and indicates that a different account number is already associated with this MIN in the AlarmNet database.
Registration Timed Out!	If no response to the registration request is received from AlarmNet, this message will be displayed.
Reg Reject Bad ID! PS	If the City, CS, and Cust# were not correctly entered, this message will be displayed. If this message is displayed with a “P” primary ID, and or an “S” secondary ID, it indicates that the ID information was either entered in error, or the central station failed to pre-authorize programmed ID numbers with AlarmNet customer service.
Account Exists Sub Y/N	This prompt is displayed if this is a repair/replacement, or an error was made in programming the K3852 for an existing account. If this is a test registration, the opportunity to substitute the radio will not be offered.

Replacement Radios

Do You Have A PIN # Y/N	At this point the installer should have called in for a 4-digit alpha numeric PIN # that must be obtained by having an authorized person call the AlarmNet Technical Assistance Center (TAC). Answering “Y” will continue the registration process. Answering “N” will abort the process. If “Y” was selected then the next prompt will be displayed.
----------------------------	---

Alarm Will Be
Sent, OK Y/N

If the installer proceeds beyond this point by answering “Y,” a correct PIN number must be supplied to complete the registration. Any attempt at registration at this point, whether successful or unsuccessful, will result in a radio substitution alarm being sent to the CS. Answering “Y” allows the installer to continue registration. Answering “N” will abort the registration. If “Y” was chosen, see the next section on Replacement Radios for the remainder of the process.

If the installation is a known repair/replacement, you can skip the previous section by selecting the [↓] command to initiate the replacement registration process, beginning with the PIN entry as follows.

Enter PIN#

The installer must enter a 4 digit alpha numeric PIN # that must be obtained by having an authorized person call the AlarmNet TAC (Technical Assistance Center). The PIN should be entered, followed by the enter key.

Registration
MSG1 Sent

Three messages are sent, then the unit waits for acknowledgement.

Registration
MSG2 Sent

Registration
MSG3 Sent

Registration
Waiting for ACK

Registration
Successful!

If the PIN is valid, the new K3852 will register and the old unit will be unregistered. A radio substitution alarm will be sent to the central station by AlarmNet.

Registration
Canceled!

If at any point in the substitution process the installer chooses not to register the K3852, this is the displayed message.

Substitution
Rejected!

If an invalid PIN was entered this is the display message, and the registration process will be aborted and will need to be started from the beginning. Note that each attempt will cause a radio substitution alarm to be sent to the central station.

Section 6: Mounting and Wiring

Mounting

Install the included “rubber duck” antenna by screwing it onto the connector that extends from the top of the K3852. The final mounting site should be chosen so that:

- the wire lengths do not exceed the maximum wire lengths as specified in Table 4
- the minimum distance to other electrical devices is maintained
- the minimum signal strength level is observed
- there is access to the 7720P programming port & tamper switch
- all LED displays can be observed
- the antenna is free from any interference

Once the K3852 has been installed, programmed, and tested, anchor the radio permanently to the wall using the screws included with the radio. Use the 3 mounting holes as shown in Figure 2. All 3 mounting holes must be used. It is important to attach the unit securely so that it cannot be removed or accidentally knocked off the wall after installation.

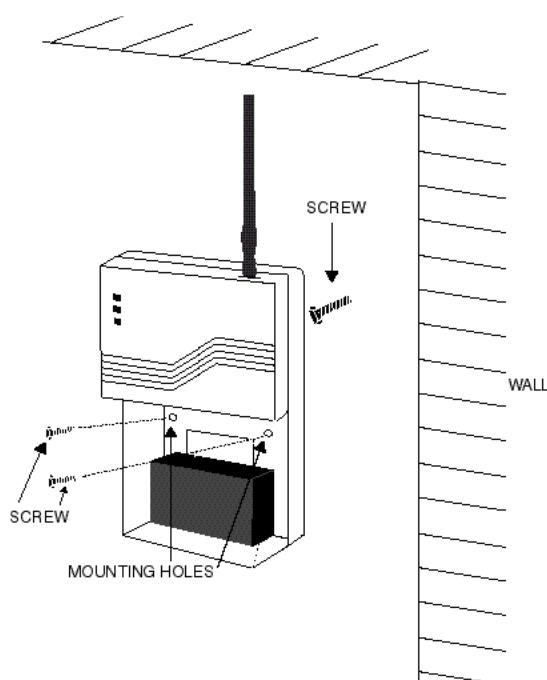


Figure 2. Mounting the K3852

Wiring the K3852

Observe the wire length/gauge limitations for all input zone, radio fault and power connections as listed in Table 4.

Table 4. Maximum Wire Run Lengths	
Gauge	Distance (ft)
18	300
20	200
22	125

Zone Options

For zone operation, set the jumper on P3 for Z5 and Z6 as shown in Figure 5.

There are a total of 6 input zones available on the K3852.

- Zones 1 and 2 are selectable for either a (+V) or (GND) trigger with jumper P2.
- Zones 3, 4, 5 and 6 are set up strictly for a (+V) trigger. A positive voltage applied to these zones will trigger an alarm. For added flexibility, each zone may be programmed individually to "invert" its input so that a positive voltage is removed from the zone input to trigger an alarm.

Other zone options include:

- Telco fault input (triggered when the phone line to the control panel loses voltage).
- Open/Close reporting (triggered when the user arms and disarms the alarm control panel). An additional monthly charge is applicable to this service.
- Steady or pulsing on input.

If using zone mode, run a wire for each input zone. A single common ground between the radio and control is also required. The alarm and power wires must be routed through the back of the K3852. The ground wire should be run from the alarm panel. The wire access port is located between the terminal block and the battery on the back cover. Refer to Figure 3 for terminal block positions. Refer to the following wiring diagrams corresponding to the installation's configuration.

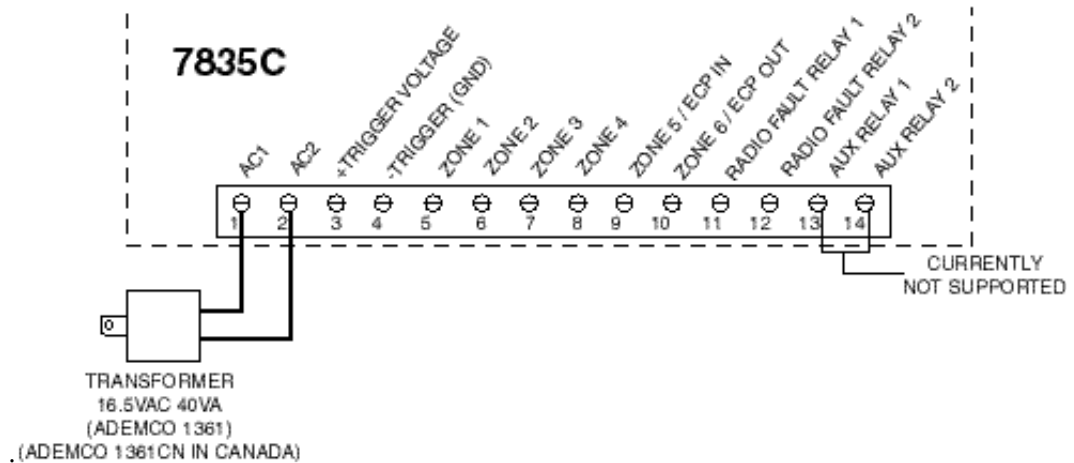


Figure 3. K3852 Terminal Block

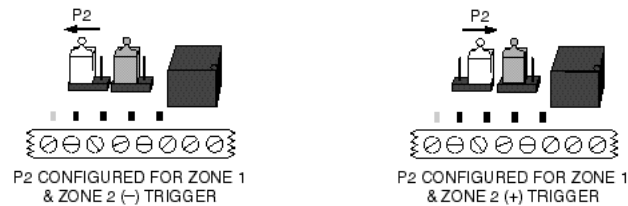


Figure 4. K3852 P2 Jumper Configuration



Figure 5. K3852 P3 Jumper Configuration

Wiring and Configuring for Zone Operation

To trip a zone on the K3852, the triggering voltage from the control must be within 4.5V-14.2V. Trigger levels above this range may cause permanent damage to the unit. Trigger levels below this range will result in unreliable operation.

If using zone mode, connect a wire from the triggering source (bell output, voltage trigger, etc.) to each zone on the radio to be used. Examples of zone connections are shown in Figures 6, 7 and 8.

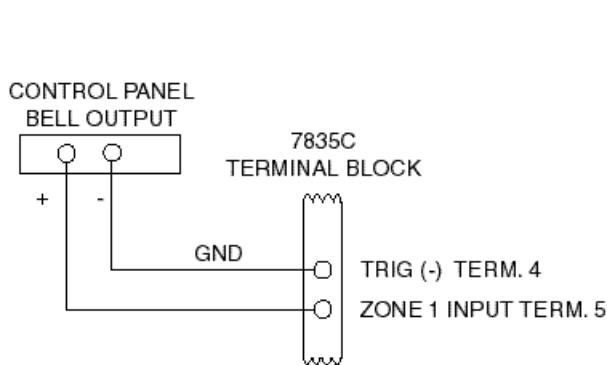


Figure 6. Wiring the K3852 zone 1 Input to trigger on (+) Bell Output voltage

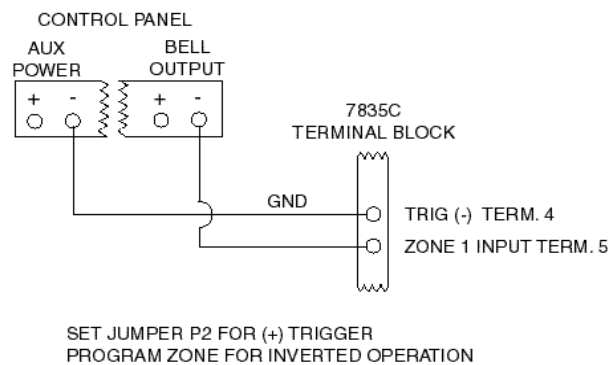


Figure 7. Wiring the K3852 zone 1 Input for ground triggered bell output

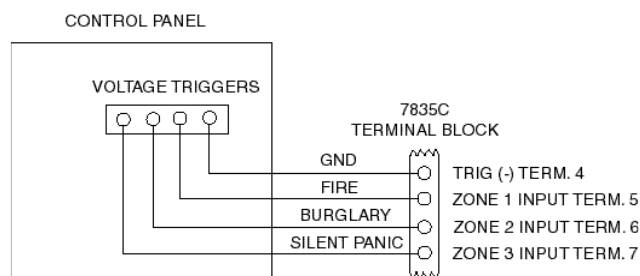


Figure 8. Wiring the K3852 zone inputs to voltage triggers, which generate (+) voltage on each wire for different alarm conditions

NOTE: Trig (-) must be connected to the control's electrical ground as shown in figures 6, 7, 8 9, and 10, and not to earth ground.

If the alarm control panel is activating an output relay that will be used to apply voltage to one of the input zones on the radio, do the following:

1. Connect the arm (common) of the relay to 12VDC.
2. Connect the N.O. contact of the relay to the input zone. When the relay is activated, voltage will be applied to the zone, causing the radio to send its message (see Figure 9).

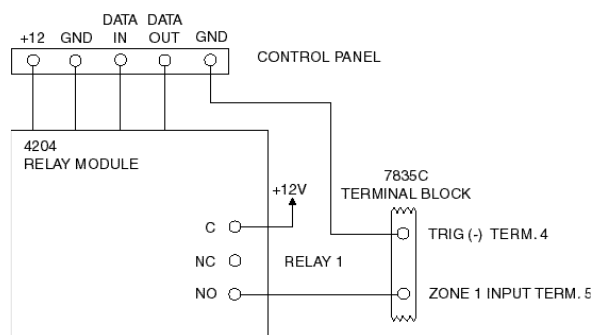


Figure 9. Wiring the K3852 zone 1 input to be triggered by an ADEMCO 4204 Relay Module

UL

- For UL zone operation, the K3852 must be used with controls that are UL Listed.
- Bell outputs cannot be used as a zone trigger for UL installations.
- All interconnecting wiring between the K3852 and the control unit must be no longer than 3 feet.

UL

Wiring and Configuring ECP Communication (ECP Options)

The K3852 supports ECP messaging to communicate directly with the control panel. An unprogrammed radio can be set to communicate on the ECP bus at device address 3 by pressing the tamper switch during the initial power up period. See “Programming the K3852” for details. Only certain panels support ECP data communication at this time (i.e., ADEMCO’s VISTA-10SE, VISTA-20SE, Via-30P and VISTA-128FB). Select this mode of operation with jumper P3. When P3 is in the ECP position, zone 5 and zone 6 become ECP IN and ECP OUT, respectively. When using ECP, zones 1 through 3 cannot be used. Zone 4 becomes the arm/disarm “zone,” if this feature is selected.

Connect the K3852 in parallel with keypads and other peripheral devices such as RF receiver, VIP module, etc., that use ECP. To wire the radio for ECP communication, do the following:

1. Connect terminal 9 on the K3852 to Data Out terminal of the alarm control panel.
2. Connect terminal 10 on the K3852 to the Data In terminal of the alarm control panel.
3. Connect terminal 4 on the K3852 to the Ground terminal of the alarm control panel.

Wire length/gauge limitations are the same for the control panel keypads as they are for the radio. Refer to the control panel Installation Instructions.

- For UL ECP installations, the K3852 must be connected to a Listed compatible control unit.

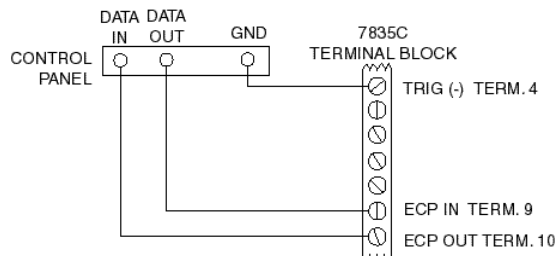


Figure 10: Wiring the K3852 for ECP data communication

ECP Status Codes

When the K3852 is configured for ECP mode, it sends status messages to the control for battery, AC power, tamper and RF failures. The status is displayed on the control’s keypad as “Long Rnge Fail” followed by a 4-digit code when using Ademco’s low-end control panels (Vista-10SE, Vista-20SE, Via-30P). These code are listed below, as well as Contact ID codes sent to the central station.

Table 5. ECP Status Codes Table		
Keypad		Contact ID
Status Code	Explanation	Code* Meaning
0000	Control lost communication with K3852	R330 C8xx** Restore of RF faults
3000	K3852 lost AC power	 (restore of peripheral trouble)
0880	K3852 tamper detected (cover removed)	E342 C8xx** ECP AC loss
0060	K3852 low battery	R342 C8xx** ECP AC restore
0005	K3852 has lost contact with AlarmNet	E338 C8xx** ECP low battery
0009	K3852 hardware failure; requires factory service	R338 C8xx** ECP low battery restore
000D	K3852 radio account is no longer active	E339 C8xx** ECP power-on reset
000F	K3852 is not registered; radio account not activated	E341 C8xx** ECP tamper
		R341 C8xx** ECP tamper restore
		E355 C000 radio lost comm. with control
		R355 C000 radio restore comm. w/control
* as displayed on 685 Digital Receiver		
** xx = K3852 device address		

Wiring for Radio Faults

You may program the radio fault output relay (refer to *Programming the K3852* section) for either:

FAIL-SAFE mode (UL requirement) • Answer "Y" to "FLT REL ON (Y/N)" • Relay always energized [N.C.] • Relay will change state (and trigger a dialer, if connected) in the event of power loss. • Fail-safe mode increases the standby current by about 10mA, which results in lower battery backup time (about 15%) in the event of power loss.	LOW CURRENT mode • Answer "N" to "FLT REL ON (Y/N)" • Relay normally de-energized [N.O.] • Does not increase standby current • NOT approved for UL installations.
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Run two wires from the K3852's radio fault terminals 11 and 12 to a zone on the control panel. Refer to the Figures below for wiring the radio fault relay.

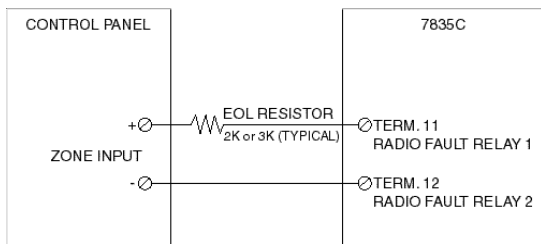


Figure 11. Wiring the K3852 to trip a control panel zone during a radio fault (required for UL installations)

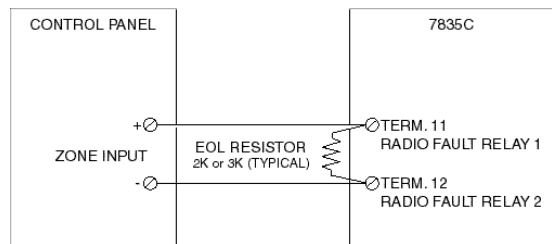


Figure 12. Wiring the K3852 to trip a control panel zone for normally open fault (not UL approved)

AC Power Connections

Primary power for the K3852 is provided by a wall-mounted 16.5VAC / 40VA transformer ADEMCO PN: 1361 (1361CN in Canada). Use of a transformer with a lower power rating will result in unreliable system operation.

Connect the AC power wires from the 16.5V 40VA wall transformer to terminals 1 and 2 on the K3852. Do not plug the transformer into the AC power source until all wiring connections have been made and you are ready to power up the K3852. Refer to the *K3852 Initial Power-Up Sequence* section.

Backup Battery Connection

The optional battery backup (ADEMCO 7720BT) can provide over 4 hours of system life in the event of an AC power failure. When AC power is lost, the K3852 enters a low-power state and the programmable AC loss message can alert the AlarmNet Control Center (AC loss messages are reported within 10-40 minutes of actual AC loss). Any alarms that are tripped during this low-power state will wake the system up to transmit the appropriate message. After a successful transmission, the K3852 will reenter its low-power state. When the battery reaches 10.5V, a low-battery message is transmitted, which alerts the AlarmNet Control Center that this may be the radio's last message. When the battery reaches 8.5V, radio transmissions are no longer possible and the system shuts down. If AC power is restored before the system shuts down, an AC Restore message will be sent and the battery will be recharged using the K3852's built-in battery charger. If AC power is restored after the system has shut down, a power-on reset condition exists, and the radio will initialize itself as described earlier and the battery will be recharged.

The K3852 performs a battery test under load on a daily basis. During this test, if the battery drops below 10.5V, a low-battery message will be generated to indicate that the battery should be replaced.

To install the battery, snap it into the battery holder with the connector wire towards the lower right. Do not plug the battery in until all wiring connections have been made and you are ready to power up the K3852. Refer to *K3852 Initial Power-Up Sequence* section. When you are ready to power up the radio, plug the battery connector into the battery jack located on the right-hand side of the K3852 terminal strip.

Lower cover must be in place for the K3852 to enter its lower power state during battery operation.

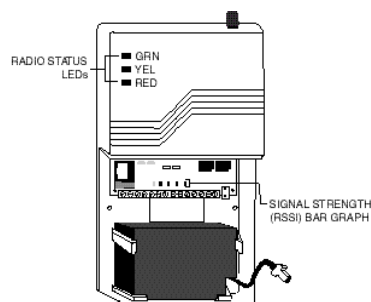


Section 7. Operation Overview

LED Indications

The K3852 has two sets of LED displays: Radio Status LEDs and a multi-function bar graph.

Radio Status: Green, yellow, and red LEDs, which provide information on pending messages, successful or unsuccessful message transmission, network connectivity, and registration status. Refer to Table 6 below.



LED Displays

Table 6. Radio Status LED Indications

LED	PATTERN	MEANING
Green	Flash	With solid yellow, successful message transmission
	Solid	With flashing yellow, network contact but radio is unregistered
Yellow	Solid	Message pending
	Flash rapidly, continuous	Waiting for message validation after successful transmission
	Flash, once per sec	Normal operation, connected to "B" side carrier
	Flash, twice per sec	Normal operation, connected to "A" side carrier
Red	Solid	No network contact / RF fault
	Periodic flash	ECP mode only: loss of communication with control
	Flash rapidly, continuously	RF fault (unsuccessful transmission) and ECP fault
	Flash rapidly, briefly	Transmit error (refer to transmit error codes diagram on next page)
All	Solid	Power on, LED Test
	Rapid chaser	Power on reset condition
	Slow chaser	Program mode accessible, radio previously programmed
	Slow flash in unison once per second	Program mode accessible, radio previously unprogrammed, zone defaults
	Slow flash in unison twice per second	Program mode accessible, radio previously unprogrammed, ECP defaults

Bar Graph Indications

Signal Strength: Viewed with the cover removed (refer to *Removing the Cover* section), this display consists of one yellow and four green LEDs arranged in a bar graph. It indicates the signal strength at which the K3852 is receiving the local cell. The display is intended as an installation aid for determining a suitable mounting location. Refer to *Selecting a Radio Installation Site* section for an explanation of its use.

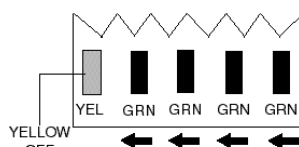
Power-Up: During power-up, the bar graph LEDs are used to monitor radio initialization, and is read from right to left. Refer to the *K3852 Initial Power-Up Sequence* section for details.

Registration: The bar graph display also monitors the radio's registration progress. Refer to *Registering the Radio* section for detailed information.

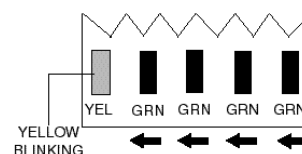
Transmit Error: The bar graph LEDs also indicate failed message transmission error codes by the number of lit segments. Refer to the *Transmitting an Alarm* paragraph on the next page for details.



Signal Strength Bar Graph



Initial Power-Up Display



Radio Registration Display

Table 7. Bar Graph LED Indications

PATTERN	MEANING
Solid	Power on, LED Test.
Rapid chaser	Power on reset condition.
From left to right, one or more LEDs are lit, with the leading LED either solid or blinking.	Normal RSSI display. Refer to Figure 2 and "Selecting a Suitable Installation Site" section for a description of this display.
Yellow LED not lit, green LEDs sequentially being lit from right to left – counting down.	Radio initial power-up sequence. This display will only be seen when the K3852 is being powered up (refer to "Initial Power-Up" section).
Yellow is blinking, green LEDs sequentially being lit from right to left – counting down.	Radio registration sequence. This display will only be seen when the K3852 is being registered. Refer to <i>Registering the Radio</i> section.
Flash in unison	Registration unsuccessful.

Normal Operation

With the K3852 installed, programmed, and registered, and after a successful transmission of the Power on Reset message, the K3852 enters normal operation. Normally, with good cellular coverage and no messages pending, the yellow status LED will flash in one of two patterns indicating the operating carrier.

- Yellow flashing once per second indicates no alarm messages are pending and that the K3852 is connected to a cell being operated by the “B” side carrier.
- Yellow flashing twice rapidly, then a pause every second, indicates no alarm messages are pending and the cell that the K3852 is in contact with is operated by the “A” side carrier.

Refer to Table 6 for all LED patterns



Note that at any point during operation, a solid red LED indicates that contact with the cell has been lost. The K3852 will automatically attempt to regain contact with the cell. If contact is not regained before the programmed radio fault time, the radio fault relay will change state, sending a radio fault to the panel. Refer to Table 6 for all LED patterns.

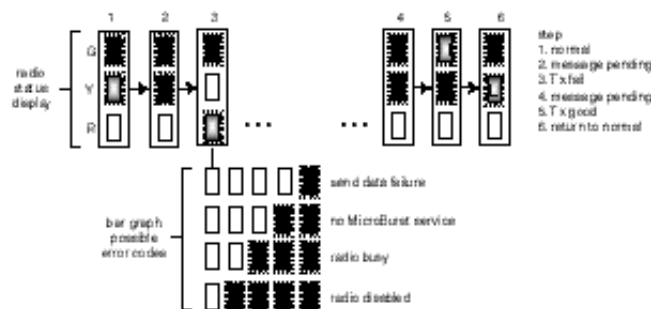
Transmitting an Alarm

While in normal operation, triggering any zone or reception of a valid ECP message will initiate the transmission of an alarm. The yellow status LED will light solid, indicating a message pending. The green LED will flash rapidly 8 times when the alarm message has been successfully transmitted. The yellow LED will begin to flash rapidly, indicating the K3852 is waiting for a message validation from AlarmNet Control. This may take several minutes to receive, since the validation is a low priority message. When the K3852 receives the validation from AlarmNet, the yellow LED resumes its normal blinking pattern. If the K3852 does not receive a validation within 90 seconds of a successful transmission, it will retransmit the alarm. The K3852 will continue to retransmit an unvalidated alarm once every 90 seconds until the message is validated, or the “old alarm time” has expired. If the message is not validated, the alarm is removed and the K3852 resumes normal operation. When the zone restores, if zone restoral has been programmed, the restoration message will be transmitted and the validation will be received with the same LED patterns. Refer to Table 6 for LED patterns.

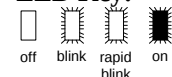


If an alarm is not successfully transmitted before the old alarm time expires, the radio fault relay will go to its programmed fault state.

The red LED will flash 8 times and the yellow LED will remain solid any time a transmission is unsuccessful. Additionally, the bar graph LEDs will display an error code (refer to the diagram below). The K3852 will automatically attempt retransmission of the alarm within 10 seconds. The radio will continue to retransmit until it is successful, unless a radio fault has been generated (the red LED lights solid on). Refer to Table 6 for LED patterns.



LED Key:



Transmit Error Codes as Displayed on the Bar Graph

(Note: Green Radio Status LED is lit, indicating an unregistered radio)

Radio Supervision

The K3852 periodically transmits supervisory and status messages to alert the network that it has communication integrity. The supervision period (window) is a programmable feature (see Question 5). If no messages are received by the AlarmNet Control Center during the supervisory window, a communication failure signal is routed via RF to the appropriate AlarmNet-A or AlarmNet-M equipped central station.

Section 8. Keyboard Commands

7720P Keyboard Commands

“A”

K3852	x.xx
(c) Pittway	1998

Software Revision

Display the installed software Revision.

“B”

NET OK	-xxxDBM Z
MIN	xxx-xxx-xxxx

Radio & Connectivity Display

“NET OK” indicates that the K3852 is in contact with a local cell and AlarmNet.

“-xxxDBM” is the numeric value of the RSSI bar graph. It indicates the power level at which the K3852 is receiving the local cell. Note: -dBm is a measure of power; decibels less than a milliwatt. A reading of -98DBM is a better signal than -104DBM.

“Z” = A or B carrier

“MIN xxx-xxx-xxxx” is the radio’s unique identification number

NET NS	-xxxDBM Z
MIN	xxx-xxx-xxxx

“NET NS” (no service) indicates the K3852 is in contact with a local cell but has no AlarmNet service.

“Z” = A or B carrier

NO CONTACT
MIN xxx-xxx-xxxx

“NO CONTACT” indicates that the K3852 has lost contact with the local cell and AlarmNet.

“C”

NET TIME

“NET TIME” displays the network time.

“E”

Channel = xxx
Sys=x SID=z xxxx

Network System Display

“Channel = xxx” indicates the control channel that the K3852 is using to communicate with the local cell.

“Sys=x” indicates the local carrier (“A” side or “B” side) that the K3852 is connected with.

“SID=z xxxx” is the System Identification Number, the unique ID number for each cellular carrier, where:

“z” is the international identifier code:

0 = United States

1 = other countries

2 = Canada

3 = Mexico

“xxxx” is a numeric value from 0000 – 1023

“F”

A mz	xxxx
B mz	xxxx PREF *

Carrier Display

* = Carrier currently selected

“xxxx” is the System Identification Number

“z” = the international identifier code where:

0 = United States

1 = other countries

2 = Canada

3 = Mexico

“M” = MicroBurst service found. Blank if not found.

“PREF” = Preferred side selected in question 7

“D”

Bat Test Start
Hit S to Chk

Battery Test

This selection initiates a 10-min. battery test. The charger is removed from the battery and a load is applied for 10 min. The “S” command can be used to monitor the battery condition throughout the test.

“S”

123456TmBaAcFlt
555555 6 + + 0

Status Display

The status of the K3852 can be viewed on the 7720P. The status display includes zone input status, test terminal status, tamper status, battery condition, charging voltage status, and radio fault status.

Status Display Interpretation for “S” Command

123456 The numbers 1-6 represent the 6 zone inputs, and follow ADEMCO High Speed Format codes:

- 1 New Event
- 2 New Opening
- 3 Restore
- 4 New Closing
- 5 Normal
- 6 Previously Reported Event
- @ Telco New Event
- P Telco Previously Reported
- p Telco Restore

Tm Tamper status follows High Speed Format codes above.

Ba Represents battery condition:

- + Battery voltage acceptable
- Battery voltage below 10.5V ± 5%
- V Battery voltage going low has not yet been sent to the central station (appears only briefly)
- X Battery not installed

Ac Represents line voltage:

- + AC line voltage OK
- AC line voltage bad & reported
- V AC line voltage bad, not reported (reporting window not expired)
- ^ AC voltage restored, not reported as restored

Flt Represents Radio Faults:

- 0 Normal
- 5 No contact with AlarmNet (check antenna, connections)
- 9 Hardware failure; requires factory service

CRC RAM/EEROM corruption. Reset the radio and, if necessary, reprogram. If this fault recurs, return radio for service.

“T”

Registration
MSG 1 Sent

Test Registration

Sends a test registration to the central station, reporting as “5555 5555 9.” Functional for unregistered K3852’s only. Refer to section 5.

“T”

Test Alarm Sent

Test Alarm

Sends a Test alarm to AlarmNet. Functional for registered K3852’s only.

“X”

Reset (Y/N)

Reset the K3852.

This will be the display following the “X” command. Answering “N” will return to normal mode. Answering “Y” will reset the radio and display the following:

Resetting!

“↑”

Registration
MSG 1 Sent

Registration

Registers a programmed K3852 with AlarmNet. Refer to section 5.

“↓”

Enter PIN #

Replacement Registration

Used only when replacing an existing K3852. Refer to section 5.

Section 9: Troubleshooting

Problem	Probable Cause	Solution
K3852 not being received at the central station. Message transmit successful; yellow LED extinguishes, green LED flashes 6 times.	Programming (subscriber number, central station ID number, or city number.)	Verify and correct programming entry with the 7720P. Refer to the Programming section.
K3852 not being received at the Central station. Message transmit not successful. Yellow LED is lit solid, red LED flashes 6 times.	Antenna location or installation.	Remove K3852 cover, check RSSI level with a 7720P or the bar graph. Select a better mounting location. Refer to "Selecting a Suitable Installation Site". Ensure the antenna connector is not damaged or obstructed. Ensure the antenna is screwed down securely.
During installation, with cover removed, using battery power and wall transformer not plugged in, K3852 not being received at the central station. Message transmit not successful. Yellow LED is lit solid, red LED flashes 6 times.	Battery is low.	Replace battery with a fully charged battery or plug in the wall transformer.
Radio fault, solid red LED on the Radio Status display.	Antenna location or installation.	Remove K3852 cover, check RSSI level with a 7720P or the bar graph. Select a better mounting location. Refer to "Selecting a Suitable Installation Site" section. Ensure the antenna connector is not damaged or obstructed. Ensure the antenna is screwed down securely.
Low Battery message sent with cover installed and wall transformer installed, during normal operation .	AC voltage supply	AC power loss, excessive AC wire run, or incorrect transformer.
	Environment.	If temperature exceeds -30°C to 60°C, this will diminish battery capacity and or life. Replace battery if required.
Tripping a zone or valid ECP message does not generate a message pending display; solid yellow LED	No connection ground.	Connect (–) trigger output (TB Pin 4) to the panel ground.
	Incorrect trigger input.	Verify type of input. Check P2 & P3 configuration. Application of +4.5 to 12 volts (Non-Inverted). Check programmed trigger levels. Absence of +4.5 to 12 volts (Inverted). Check wiring.
	Incorrect jumper settings. P2 & P3	See Setting the Jumper Options.
Radio will not initialize. The 5 RSSI LEDs blink in unison during initial power-up.	Data stored in EEPROM is corrupt.	Connect the 7720P and enter programming mode. Skip all programming questions and restore factory defaults as described in Programming section.
Radio will not register.	Error in programmed features.	Verify programmed options. Change as required.

FEDERAL COMMUNICATIONS COMMISSION (FCC) Part 15 STATEMENT

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

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 in 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:

- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient the receiving antenna until interference is reduced or eliminated.
- Move the radio or television receiver away from the receiver/control.
- Move the antenna leads away from any wire runs to the receiver/control.
- Plug the receiver/control into a different outlet so that it and the radio or television receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user or installer may find the following booklet prepared by the Federal Communications Commission helpful: "Interference Handbook"

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

THIS DEVICE COMPLIES WITH PART 15 OF FCC RULES AND WITH RSS-210 OF INDUSTRY AND SCIENCE CANADA. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION OF THIS DEVICE.
ISC: RSS/CNR 210

UL Requirements

Below is a list of UL requirements that must be met for UL installations.

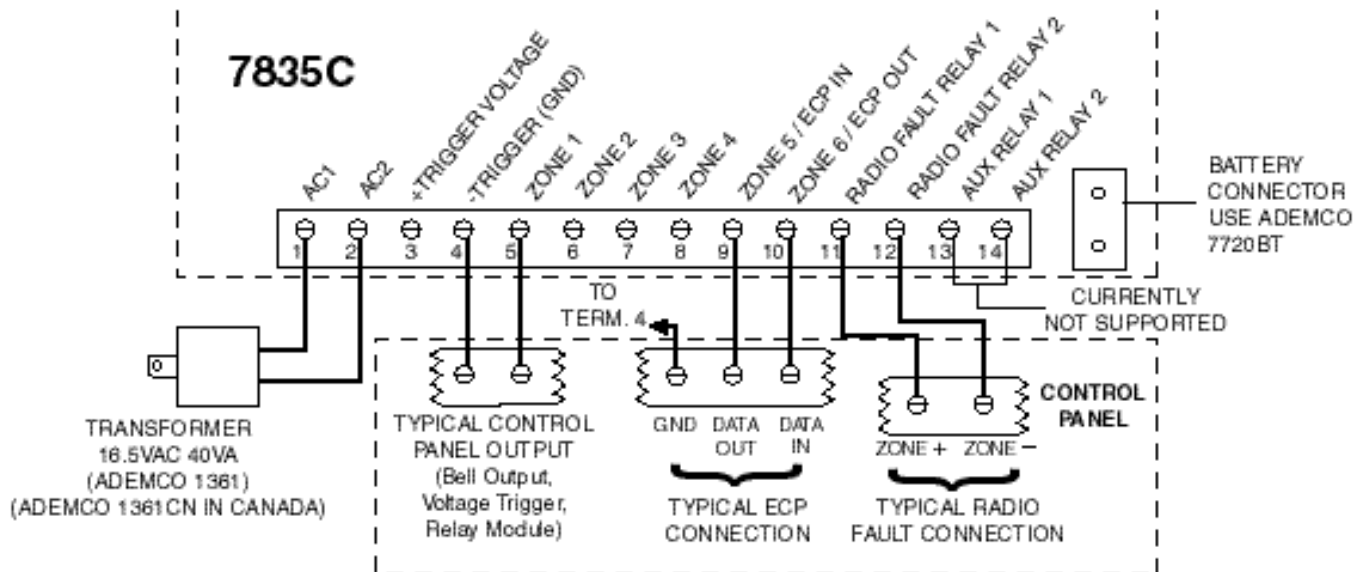
NOTE: The K3852 is not UL Listed for fire alarm service. For fire, the K3852F can be used as the backup dialer. K3852F is not approved for use as the primary fire dialer.

1. There are no UL Listed siren drivers available for commercial burglar alarm use.
2. When the K3852 is set for Zone Mode operation on a UL commercial burglar alarm installation, all interconnecting wiring between the control unit and the K3852 must be no more than 3 feet in length and contained within the same room. All interconnecting wiring must be installed in rigid conduit or EMT (where exposed on interior walls) or in flexible metal tubing if run in the walls or ceiling.
3. The wiring method shown in Figure 11 (page 23) is required on UL installations. The Low Current Mode may not be used on UL installations.
4. For all modes of operation, commercial burglar alarm installations must be in accordance with the National Electrical Code and UL681, Installation and Classification of Burglar and Hold-Up Alarm Systems.
5. For all modes of operation, residential burglar alarm installations must be in accordance with the National Electrical Code and UL1641, Installation and Classification of Residential Burglar Alarm Systems.
6. For Zone Mode operation, the K3852 must be connected to either dry contacts or voltage trigger outputs of a Listed compatible control unit.
7. For ECP Mode, the K3852 must be connected to a Listed compatible ECP capable control unit.
8. The antenna (and thereby the K3852) may be mounted remotely from the control panel when ECP mode is used.
9. The K3852 must be programmed as follows:
 - a. The K3852 must be registered as described in the Installation Instructions.
 - b. Zones must be programmed “No” for “Pulsed” and “00” for “Delay” (Questions 9-14)
 - c. Enable restoral signals (Questions 21-26).
 - d. At least one zone must be set to provide opening and closing signals (Question 28).
 - e. At least one zone must be programmed to provide Telco Channel monitoring (Question 29).
 - f. Either zone 7 or 8 must be enabled as the Tamper zone (Question 30).
 - g. The Old Alarm Time must be set to 10 minutes (Question 31)
 - h. AC Loss Report must be enabled (Question 32).
 - i. Bat Present must be enabled (Question 33).
 - j. Fault Relay On must be enabled (Question 34).
 - k. 24 Hour Supervision must be enabled (Question 5).

Specifications

Dimensions:	5" x 9.25" x 1.625" without antenna
Power:	ADEMCO 1361 Transformer (16.5VAC, 40VA)
Backup Battery	ADEMCO 7720BT
AC Current drain:	Normal operation: 330mA AC (2.0A AC peak during transmission)
Radio fault output:	Form A contacts rated for 0.5A, 125VAC
Input triggering levels:	Zones 1 and 2: selectable GND or 4.5 to 14.2 volts into 10k-ohms Zones 3-6: 4.5 to 12 volts into 10k-ohms
RF power output:	600mW
Frequency band:	833-835MHz Transmit 878-880MHz Receive
Channel separation:	30kHz
Receiver sensitivity:	-115dBm
Operating temp:	-30 to +60 deg. Celsius
Storage temp:	-40 to +70 deg. Celsius
Humidity:	0-90% relative humidity, noncondensing
Altitude:	to 10,000 ft. operating, to 40,000 ft. storage
Antenna:	ADEMCO K3209 Cellular Antenna, included

Summary of Connections



K3852 SUMMARY OF CONNECTIONS DIAGRAM

ADEMCO LIMITED WARRANTY

Alarm Device Manufacturing Company, a Division of Pittway Corporation, and its divisions, subsidiaries and affiliates ("Seller"), 165 Eileen Way, Syosset, New York 11791, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for 24 months from the date stamp control on the product or, for products not having an Ademco date stamp, for 12 months from date of original purchase unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any product which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. Seller shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than Ademco factory service. For warranty service, return product transportation prepaid, to Ademco Factory Service, 165 Eileen Way, Syosset, New York 11791.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO CASE SHALL SELLER BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, OR UPON ANY OTHER BASIS OF LIABILITY WHATSOEVER, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE SELLER'S OWN NEGLIGENCE OR FAULT.

Seller does not represent that the products it sells may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the products will in all cases provide adequate warning or protection. Customer understands that a properly installed and maintained alarm may only reduce the risk of a burglary, robbery, fire or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. HOWEVER, IF SELLER IS HELD LIABLE, WHETHER DIRECTLY OR INDIRECTLY, FOR ANY LOSS OR DAMAGE ARISING UNDER THIS LIMITED WARRANTY OR OTHERWISE, REGARDLESS OF CAUSE OR ORIGIN, SELLER'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE OF THE PRODUCT, WHICH SHALL BE THE COMPLETE AND EXCLUSIVE REMEDY AGAINST SELLER. This warranty replaces any previous warranties and is the only warranty made by Seller on this product. No increase or alteration, written or verbal, of the obligations of this Limited Warranty is authorized.



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