

# Lift-Master®

## The Professional Line®

To comply with FCC/IC rules, adjustment or modification of receiver and/or transmitter is prohibited, except for changing the code setting and replacing the transmitter battery. THERE ARE NO USER SERVICEABLE PARTS.



### WARNING

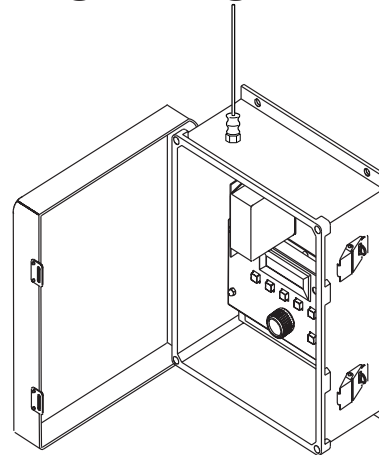
Disconnect power to the garage door or gate opener before installing the receiver.

Children operating or playing with a garage door or gate opener can injure themselves and others. *The garage door or gate could close and cause serious injury or death.* Do not allow children to operate the push buttons or the remote control transmitters.

Install the receiver (and any additional push buttons) out of the reach of children and away from all moving parts of the door or gate and its hardware, but *where the garage door or gate is visible.*

*A moving garage door or gate could injure someone under it.* Activate the opener only when the door or gate is properly adjusted, you can see it clearly, and there are no obstructions to door or gate travel.

## Access Control Receiver ACRx2000 OWNERS MANUAL



### WARNING

Install the control station and receiver where the door or gate is visible, but away from the door or gate and its hardware. When a receiver is used to activate a commercial door opener, a reversing edge **MUST** be installed on the bottom of the door. *Failure to install a reversing edge under these circumstances may result in serious injury or death to persons trapped beneath the door.*

### FEATURES

<b>Code Memory</b>	1000 users with unique radio codes . Any combination of 60, 80, 90, 400, 900 series transmitters and keypads. Supports Dip, Billion, "Security +", and "Homelink" code formats. Each radio code can have a 5 digit alpha-numeric user name assigned to it.
<b>Input/Output Connections</b>	Terminal block inside case. Two screws each for power, relay output, and command.
<b>Power Supply</b>	24 V AC/DC or 12 V DC.
<b>Output Control Circuit</b>	Relay switching controlled by radio transmitters, or GRANT ACCESS button on control panel, or external push-button.
<b>Output Control Rating</b>	Relay Switches Up to 3 Amps at 37 VAC max.
<b>Case</b>	The ACRx2000 is mounted in an 11" x 13" x 6" fiberglass enclosure, with an integrated hinged lid. All electrical connections can be made through a conduit hole; a type-F connector is available externally for antenna mounting.
<b>Display</b>	16 Character non-backlit, LCD display
<b>Time Clock</b>	Time and date are maintained by a real time clock with battery backup. Expected battery life is 10 years.
<b>RS-232 Interface</b>	An RS-232 interface is provided. This interface is 1200-9600 Baud, 8 bits, no parity, 1 stop bit. This allows use of a computer or printer to record access transactions. This interface can also be used to back up code memory to a computer with the use of Microsoft Windows-compatible software available from Lift-Master.

### INTRODUCTION

The ACRx2000 is a radio receiver which controls a gate or door opener. It can recognize as many as 1,000 different transmitters. It assigns a unique identification code to the user of each transmitter, and can produce a record of when each one is used to gain access. The ACRx2000 can be easily programmed by any authorized person to add new users, remove users, suspend users temporarily, or open the gate or door by pushing one button. It can be connected to a computer for additional control and recordkeeping functions.

Once the ACRx2000 is installed, it may be programmed by the installer or by the custodian of the gate. The same procedures are used to make changes at a later time.

### INSTALLATION

Mechanical and electrical installation must be performed by qualified, professional service personnel. Knowledge of electrical codes may be necessary when wiring AC power and certain door actuators. If in doubt, consult with Lift-Master commercial product service at 1-800-588-2806.

# ACRx2000 & ANTENNA MOUNTING INSTRUCTIONS

## Mounting the Box

Choose a location for the ACRx2000 control box which is:

- Protected from tampering
- As close to the approaching vehicles as possible for best reception.
- Suitable for permanent attachment by mounting screws.
- Accessible to necessary wiring.

Hold the ACRx2000 control box in its intended mounting location. Make sure the cover opens freely, with the display and controls at a comfortable height and angle for viewing and use. Use the holes in the ACRx2000 box for marking and drilling attachment holes.

## Antenna Placement

For best range, placement of the antenna is crucial. Follow these guidelines for best results.

• Make sure there is no interfering signal on the same channel as the ACRx2000. You can monitor channel activity with the Liftmaster M-18 Test Set. On-channel interference is not only due to transmitters, but can also be caused by computing devices, security systems, and other nearby electronic devices. Power invertors and battery chargers are known sources of interference.

• The ACRx2000 antenna system can be configured in several ways. Each installation is different, so there is no best antenna system. Try the different configurations of antenna placement until the best range is encountered. Do this BEFORE hard-mounting the antenna and permanently routing the cable.

The typical antenna configurations are as follows on page 3:

- The antenna must not be next to, or enclosed in, metal.
- Place the antenna outside of any housing, box, or building, even if the housing is not made of metal. Non-metallic structures can contain conduit, metallic-foil insulation, or be painted with metallic paint.
- Place the antenna as high as possible, in sight of the expected location of the transmitters. This is very important.
- Consider the direction from which the transmitters will be used. Place the antenna so that there are no structures or metal obstructions between the transmitters and receiving antenna.
- If longer coaxial cable is needed, do not splice cables together. Instead, purchase a ready-made cable of the desired length from a radio/tv store. Use 75-ohm cable with CATV connectors (also called type "F" connectors).


# WIRING INSTRUCTIONS

## Wiring requirements

Power can be provided with an 85LM wall mount transformer or Radio Power from a gate operator (17 to 37 V AC/DC at 150 mA or 12 VDC at 200 mA minimum.)

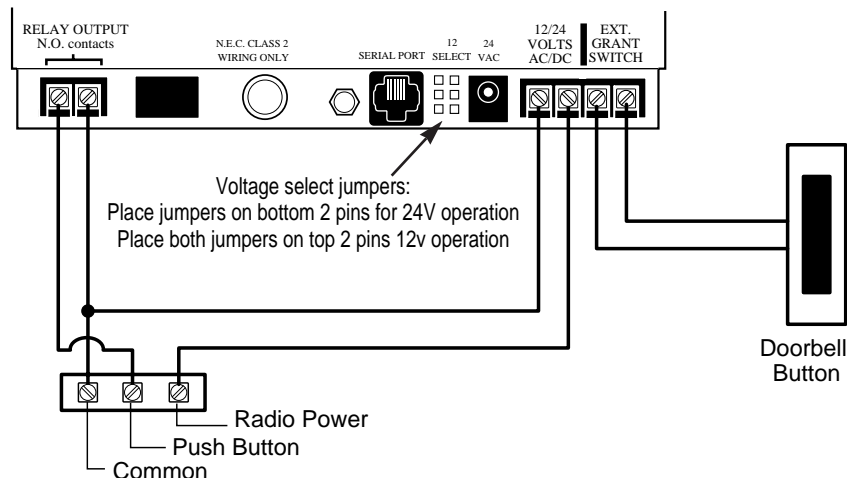
**Using an 85LM wall mount transformer:** Install the voltage select jumpers (J4 & J6) in the 24v position and plug the transformer jack into the receptacle to the right of the voltage jumper. Wire the relay contacts to Push Button and Common as shown in the wiring diagram

**Using gate/door operator power:** Install the voltage select jumpers (J4 & J6) in the position that matches the power supplied by the operator. Wire ACRx2000 to the operator as shown in the wiring diagram.

**WARNING**

The ACRx2000 uses low voltage wiring only. Attach the ACRx2000 only to circuits or devices that are NEC Class 2 (less than 37VAC). Do not run wires to or from the ACRx2000 in any conduit or box where there are AC supply (120VAC) circuits. Failure to follow this warning could result in electrical shock or fire and damage to the ACRx2000.

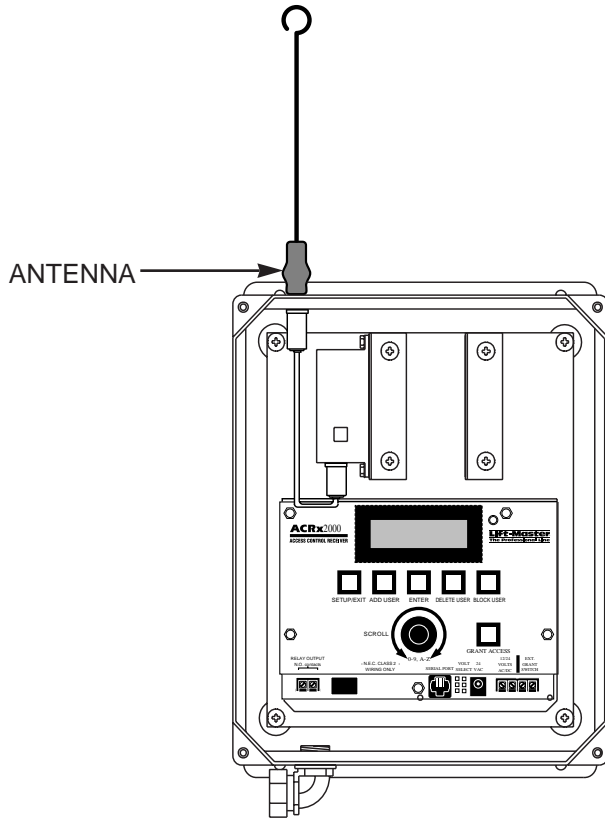
## WIRING DIAGRAM



## ANTENNA CONFIGURATIONS

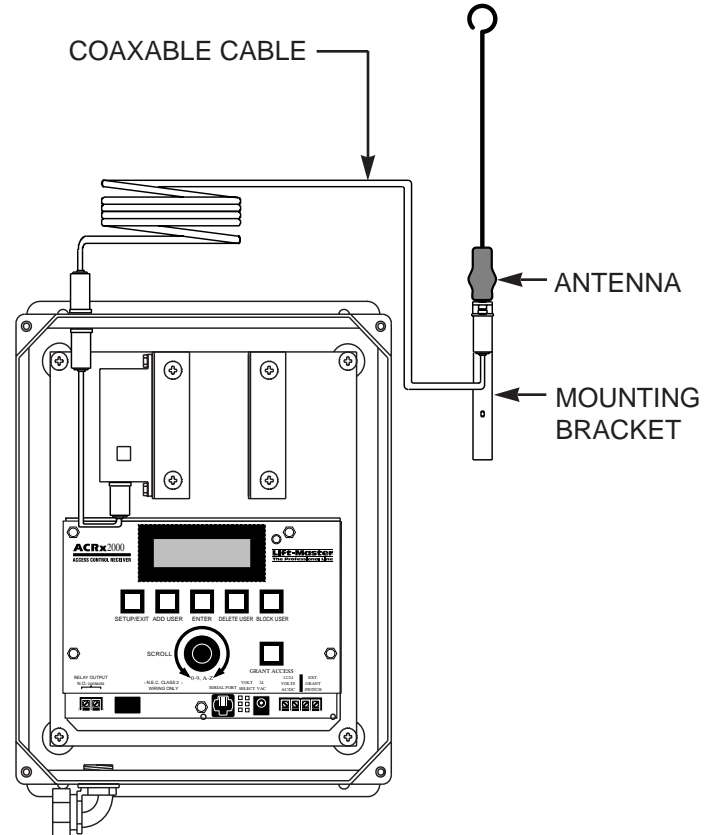
### A. Direct Mount (Intermediate Radio Range)

Antenna is mounted direct to outside of ACRx2000 enclosure.



### B. Remote Mount (Maximum Radio Range)

Antenna is mounted away from the ACRx2000 at the end of the 15ft coax cable.



## OPERATION

The controls and display on the ACRx2000 panel are very simple for ease of operation. Most programming tasks require pushing one button for the desired operation, then completing the displayed instructions. A summary of these procedures is printed inside the ACRx2000 panel door.

Before use, each transmitter must be programmed into the system by the *Add Users* function. This “learns” the unique radio code of that transmitter, and assigns it a User ID code chosen by the programmer; this User ID may be the user’s name, unit number, or any combination up to five letters and numbers. Once programmed, the transmitter can be used to control access. The ACRx2000 can output the date, time, and User ID for each access. User IDs can be *Deleted* when no longer allowed, or *Blocked* from access temporarily. A *Setup* function is used to set the time, date, and other details of ACRx2000 operation.

## Setup

Basic settings on the ACRx2000 are changed through the *Setup* routine. These include the time, date, and other optional settings. To change any of the following items, press the SETUP/EXIT button. The message “scroll for MENU” will appear; turn the dial to choose the item that you want to change, then press the ENTER button.

If you wish to leave the *Setup* mode without doing anything, press SETUP/EXIT again to return to the regular display, which shows the date and time alternately.

**Change PASSWORD:** A password may be used to protect the ACRx2000 against unauthorized access. The unit is shipped with the *Password* function disabled. To enable this feature, select a four digit password composed of letters and/or numbers. Once a password has been entered no changes can be made to the ACRx2000 memory without supplying the password. *If you forget your password, it cannot be retrieved.*

To disable the *Password* function, change the password to all spaces.

**Set the TIME:** When “Set the TIME” is displayed and you press ENTER, the current time will be displayed in hour/minute/second/AM-PM format. The first digit will be underlined. Turn the dial until that digit is set, then press ENTER. Repeat until all digits are correct. Press ENTER one more time and the time is set. “Set the TIME” will be displayed again. Press SETUP/EXIT to return to the regular display.

**Set the DATE:** When “Set the DATE” is displayed and you press ENTER, the current date will be displayed in month/day/year format. The first digit will be underlined. Turn the dial until that digit is set, then press ENTER. Repeat until all digits are correct. Press ENTER one more time and the date is set. “Set the DATE” will be displayed again. Press SETUP/EXIT to return to the regular display.

**Set RELAY Mode:** The method of relay operation depends on the type of gate or door opener the ACRx2000 is controlling. The three types of operating modes are described as follows:

- **Momentary Close:** The relay contacts will close for 1/3 seconds each time a valid user’s transmitter code is received. This is the factory default state of the ACRx2000, and the most commonly used.
- **On When Receiving:** The relay contacts will close when a valid transmitter code is received, and remain closed until the user releases his transmitter button.
- **Toggle ON/OFF:** The relay contacts will close when a valid transmitter code is received, and remain closed until the next one is received. The relay will continue to toggle ON/OFF in this manner for each valid code received. This mode is useful when the relay must stay on after the user releases his transmitter button.

**Set BAUD RATE:** When “set BAUD RATE” is displayed and you press enter, a message appears which instructs you to scroll for the baud rate selections. Turn the scroll knob until the desired rate appears, and the press ENTER. Selectable baud rates are 1200, 2400, 4800, and 9600 baud. This is only applicable to the RS232 port of the ACRx2000. If you are not using the ACRx2000 with an external printer or a computer, then you do not have to be concerned with this setting.

**NOTE:** once a new baud rate is selected, it does not take affect until the ACRx2000 is turned off and re-powered.

## Add User

Each 80 series “Billion Code” or 90 series “SECURITY PLUS” transmitter is uniquely coded at the factory; no two transmitters have the same code. When adding a user there is no need to program the transmitter or set code switches. If using 60 series (or older) transmitters, each transmitter should have a different code setting.

Press the ADD USER button to choose the *Add User* mode. The display will show “USER ID = \_\_\_\_”. Turn the dial until the first letter of the desired User ID is shown, then press ENTER. Repeat until all the letters or numbers (up to five) are displayed. Press ENTER twice to confirm that User ID.

Instead of selecting a custom User ID yourself, the ACRx2000 can choose a number for you. Simply press ENTER 5 times when “USER ID \_” is displayed (enter a User ID of all blanks), and the next ID number in sequence will be automatically assigned. This will be a numerical only ID.

The display will now show “TRANSMIT NOW!” and the green light next to the display will stay on. Press the button on the transmitter for that User ID. The display will show “Add User COMPLETE”. That transmitter is now an authorized user; when pressed, it will grant access for that User ID.

If there is a mistake or a problem at any time, press SETUP/EXIT to start over. These steps can be repeated to add more users.

## Delete User

Press the DELETE USER button. The display will show “USER ID = \_\_\_\_”. Turn the knob until the first letter of the User ID is shown, then press ENTER. Repeat until the entire User ID is displayed.

The display will show “DELETE <USER ID>?” Press ENTER to delete that User ID, or EXIT to cancel and start over.

After ENTER is pressed, the display will flash “Del User COMPLETE”. When a User ID is deleted, the ACRx2000 will no longer respond to that transmitter and all record of that user is deleted from the ACRx2000.

## Block and Unblock Users

Press the BLOCK USER button. The display will show "USER ID = \_\_\_\_". Turn the knob until the first letter of the User ID is shown, then press ENTER. Repeat until the entire User ID is displayed.

The display will show "BLOCK <USER ID>?" Press ENTER to temporarily block that User ID, or EXIT to cancel and start over.

When a User ID is blocked, the ACRx2000 will display the attempted entry as "BLOCKED: \_\_\_\_", and will not open the gate. Time and date of the attempted entry is available at the computer serial port.

To unblock a user, press the BLOCK USER button and repeat the steps used to choose the User ID. The display will show "UNBLOCK <USER ID>?" Press ENTER to unblock that user, or EXIT to cancel and leave the user blocked.

## TRANSMITTER/WIRELESS OPERATION

Whenever the ACRx2000 is displaying the date and time, it is ready to respond to a transmitter. If a transmitter button is pushed, the green light next to the display will flash. If the code matches a valid User ID which is not blocked, access will be granted and the display will show "Access OK: <User ID>". If the code matches a blocked User ID, access will not be granted and the display will show "Blocked: <User ID>".

## MANUAL OPERATION

The gate or door can be manually operated by pressing the GRANT ACCESS button on the panel, or by closing any contacts connected to the External Grant Switch terminals. If Operator *Password* is enabled, the ACRx2000 will ask for the correct 4-digit password before closing the contacts.

## SERIAL PORT

The ACRx2000 includes a computer connection which can be used to attach a computer or printer. This is a standard RS-232 serial port, although a special adapter cable is required to connect to the ACRx2000.

When attached to a serial interface computer printer, the ACRx2000 will print a log of all activities as they occur. Line messages include:

*"self-test PASSED at <time/date>".* This is printed when the ACRx2000 is turned on or reset.

*"Access OK: <User ID> at <time/date>".* This prints each time a valid transmitter code is received and access is granted. The User ID of the transmitter and the date and time of access are recorded. (Transmitter digital code is **not** printed.)

*"Blocked: <User ID> at <time/date>".* This prints each time a transmitter code is received which is blocked. Access is not granted. The User ID of the transmitter and the date and time of the attempt are recorded.

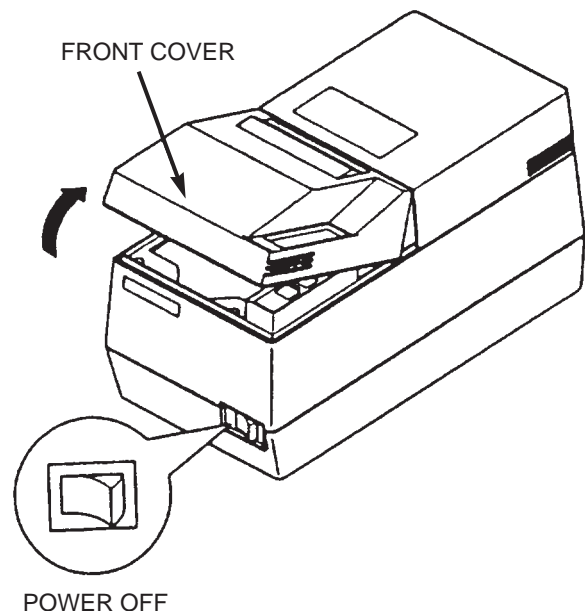
(In all these cases the date and time recorded depend upon the date and time being correctly set in the ACRx2000. To change the date or time, refer to the **Setup** section of these instructions.)

When attached to a serial interface port of an MS-DOS computer equipped with Microsoft Windows® and LiftMaster's own Total Control software, the ACRx2000 can be remotely programmed and activity recorded. For more information about this feature, call your local Lift-Master dealer.

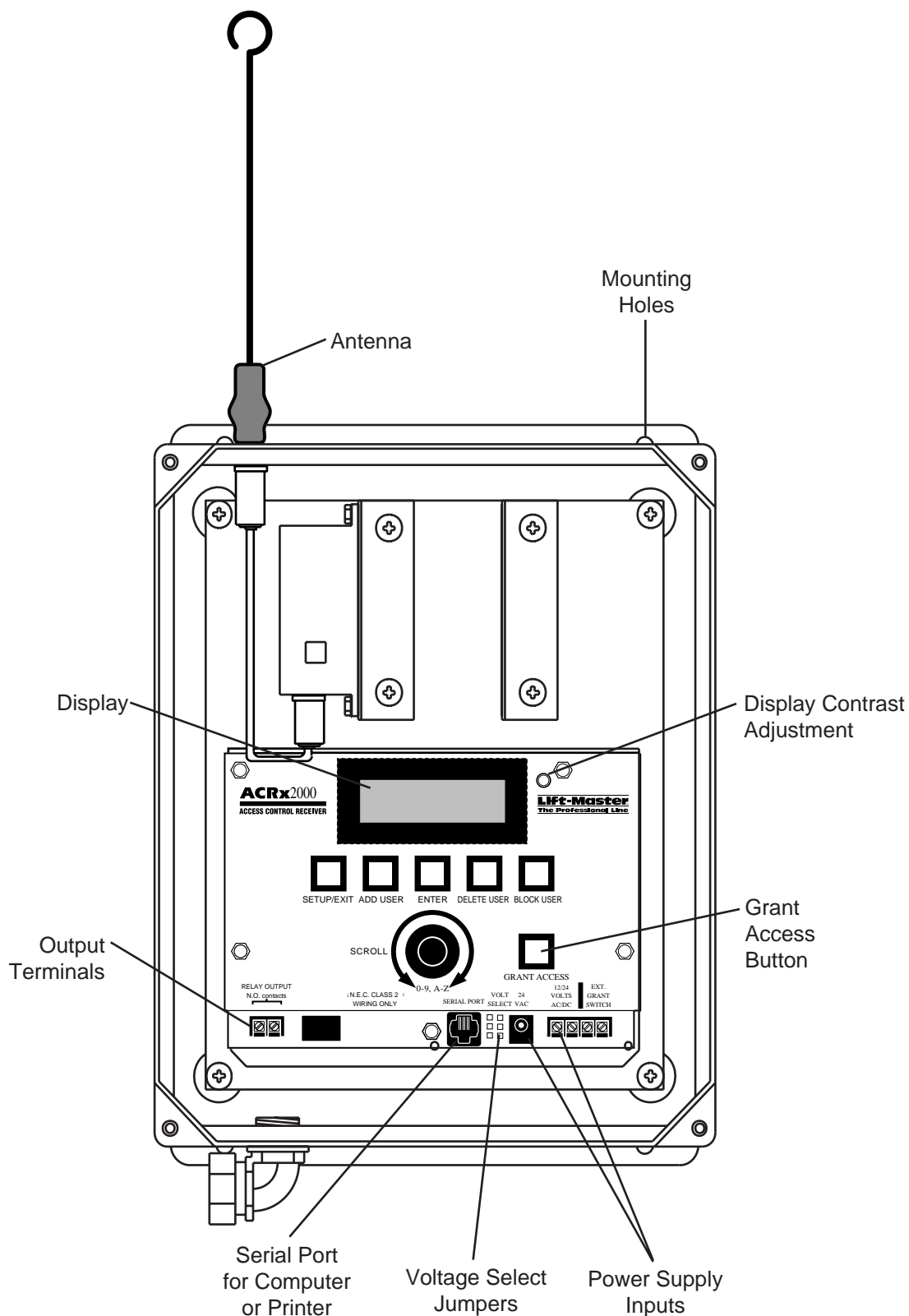
## COMPATIBLE PRINTERS

The ACRx2000 1000 is compatible only with standard RS-232 line printers. If a printer is needed we highly recommend LM Part No. 55-SP312FD40 for compatibility reasons (refer to drawing below).

### PRINTER 55-SP312FD40



# COMPONENT LAYOUT





## TROUBLESHOOTING

Problem	Remedy
<b><i>LCD display is blank.</i></b>	<ul style="list-style-type: none"> <li>• Power not connected; check plug and wires.</li> <li>• ACRx2000 is broken; repair or replace.</li> </ul>
<b><i>LCD display is on but ACRx2000 does not function properly.</i></b> <ul style="list-style-type: none"> <li>• Turn power off, then on again.</li> </ul>	<ul style="list-style-type: none"> <li>• Check 24V/12V jumper.</li> </ul>
<b><i>All users have short radio range, green light is flashing.</i></b> <ul style="list-style-type: none"> <li>• A transmitter is stuck on. Use M-18 test set to locate and disable transmitter.</li> </ul>	
<b><i>All users have short radio range, green light is off.</i></b>	<ul style="list-style-type: none"> <li>• Radio interference; try moving antenna location.</li> </ul>
<b><i>A single user has short radio range.</i></b>	<ul style="list-style-type: none"> <li>• Replace transmitter battery, or move transmitter to a different place in car.</li> </ul>
<b><i>A single user cannot obtain access. Green light on ACRx2000 flashes, LCD message does not change.</i></b>	<ul style="list-style-type: none"> <li>• Repeat the <i>Add User</i> routine.</li> </ul>
<b><i>A single user cannot obtain access. Green light reprogram on ACRx2000 does not flash.</i></b>	<ul style="list-style-type: none"> <li>• Replace transmitter battery, or replace and transmitter.</li> </ul>
<b><i>When Grant Access button is pushed, ACRx2000 relay clicks but door/gate does not open.</i></b>	<ul style="list-style-type: none"> <li>• Check door operator and wiring.</li> </ul>
<b><i>ACRx2000 prints incorrect time/date.</i></b> routine.	<ul style="list-style-type: none"> <li>• Time or date is wrong. Do <i>Set Time</i> or <i>Set Date</i></li> <li>• Clock backup battery needs replacement.</li> </ul>
<b><i>No users can access ACRx2000, LCD display is on.</i></b>	<ul style="list-style-type: none"> <li>• ACRx2000 must be in the idle state, with time and date displayed. Press SETUP/EXIT, or cycle power to ACRx2000.</li> </ul>

## REPLACEMENT KITS

Part Number	Description
K79-15418	Main Printed Circuit Board Assembly
K75-15665	Radio Enclosure & PCB Assembly
K74-16018	Antenna and Mt'g Bracket Kit

**SERVICE INFORMATION TOLL FREE NUMBER (U.S.A.): 1-800-588-2806**  
**IN CANADA: 1-800-654-4736**

