AP-1
Wireless Access Control Receiver
Installation Instructions

Introduction
The AP-1 is designed for a broad range of access control applications. Its wireless design, small size and dual relay outputs make it easily adaptable for a variety of access control requirements. Typically, the AP-1 is used to control a door strike, barrier gate, automatic gate or automatic door operator.

The AP-1 contains a high-gain UHF receiver which uses an external antenna to pick up signals from up to 250 feet away. Up to 169 Linear Megacode Format transmitters and one Model MGT safety edge transmitter can easily be programmed into the AP-1’s memory. The AP-1 will retain its memory, even without power.

Two dry contact relay outputs are standard. One relay is the ACCESS RELAY, which triggers for two seconds each time a programmed transmitter is activated. This relay output connects to the pushbutton or radio input of the access device. The second relay is the OBSTACLE RELAY, which triggers for two seconds when an obstacle signal is sent from a Model MGT safety edge transmitter. This relay output connects to the obstacle input of the access device. An OPEN REQUEST input terminal is supplied for hardware activation of the access device with an external pushbutton.

The AP-1 can be powered from 12-24 Volts AC or DC. The Form C relay outputs can switch up to 1 Amp each. An EARTH GROUND terminal is provided as an optional connection for maximum lightning and static protection.

AP-1 FEATURES
- **DISPLAY**
  - For entering memory location numbers and utility function numbers.
  - Adds 1 to the displayed number. Also press # then 1-5 for utility functions:
    - #1 Displays MGT supervisory status.
    - #2 Displays number of empty memory locations.
    - #3 Displays number of occupied memory locations.
    - #4 Displays first available memory location.
    - #5 Displays firmware version number.

- **SEND BUTTON**
  - Press after entering transmitter number to start learn cycle. To complete the cycle, activate a transmitter while occupied light is blinking.

- **RECEIVE BUTTON**
  - Push after entering transmitter number to start learn cycle. To complete the cycle, activate a transmitter while occupied light is blinking.

- **RADIO INDICATOR**
  - Lights when a signal is detected on the frequency to which the receiver is tuned.

- **SUSPEND INDICATOR**
  - Lights when a transmitter that has been suspended from use.

- **ACCESS DENIED**
  - Lights when the access or obstacle relay is energized.

- **TEMPERATURE**
  - For connection of earth ground, power and open request inputs plus access and obstacle relay outputs.

- **ACCESS PRO MODEL AP-1 RECEIVER**
  - Adds 1 to the displayed number. Also press # then 1-5 for utility functions:
    - #1 Displays MGT supervisory status.
    - #2 Displays number of empty memory locations.
    - #3 Displays number of occupied memory locations.
    - #4 Displays first available memory location.
    - #5 Displays firmware version number.

- **REMOTE ANTENNA**
  - Push once after entering the transmitter number to delete. Press again while the occupied light is blinking to delete selected transmitter from memory.

- **BEGIN**
  - For direct connection to the local whip antenna or, with coax cable, to the remote antenna.

- **EXA-1000 ANTENNA**
  - For connection of earth ground, power and open request inputs plus access and obstacle relay outputs.

Receiver Installation
1. Mount receiver in an area protected from the elements.
2. If using the local whip antenna, the higher the receiver is mounted, the better the radio range will be.
3. Optionally, mount the receiver in a metal cabinet and use an external antenna.

Antenna Installation
1. Attach local whip antenna directly to receiver. Bend whip to point antenna up.
2. Mount F-81 connector on surface using lockwasher and nut. Connect to receiver with coax cable and screw whip antenna to connector.
3. Use the optional EXA-1000 antenna mounted as high as possible for best radio range. Connect to receiver with RG-59 coax cable.
4. Optional connection provides an external method to activate access device.
5. Connect to access device. Select normally open or normally closed terminals to match access device.

Electrical Connections
- Connect to access device. Select normally open or normally closed terminals to match access device.
- Optional connection provides an external method to activate access device.
- Use the optional EXA-1000 antenna mounted as high as possible for best radio range. Connect to receiver with RG-59 coax cable.
- Ground stake, cold water pipe or unified earth ground.
- Low voltage plug-in transformer or power from access device.
LEARNING TRANSMITTERS

- Enter the number (1 to 169) of an empty memory location
- Press Learn button
- Occupied light will blink for 2 seconds if memory location is empty
- Activate the transmitter while occupied light is blinking
- Occupied light will light steady when transmitter is learned

DELETING TRANSMITTERS

- Enter the number (1 to 169) of the memory location to clear
- Press Delete button
- Occupied light will blink for 2 seconds if memory location is occupied
- Press Delete again while occupied light is blinking to erase transmitter from memory
- Occupied light will go out when transmitter has been deleted

SUSPENDING TRANSMITTERS

- Enter the number (1 to 169) of an occupied memory location
- Occupied light will light steady for 2 seconds if memory location is occupied
- Press Suspend button
- Suspended and occupied lights will light steady when the transmitter has been suspended
- Note: To “unsuspend” the transmitter, enter suspended transmitter number and press suspend.

LEARNING MGT TRANSMITTERS

- Enter memory location number 999 to learn MGT transmitter
- Press Learn button
- Occupied light will blink for 2 seconds if memory location is empty
- Activate the MGT transmitter while occupied light is blinking
- Occupied light will light steady when transmitter is learned

MGT TRANSMITTER SUPERVISION

- Note: If receiver is beeping every five seconds, press #1 to display the MGT supervisory codes (multiple codes can be displayed)
- “L” indicates a low MGT transmitter battery
- “F” indicates an MGT tamper or loop fault condition
- “S” indicates that hourly status reports have not been received from the MGT for four hours
- After servicing fault, press open to silence beeper and reset the receiver displays

SYSTEM TESTING

- Activate a learned transmitter and verify that the access device operates
- If MGT obstacle transmitter is used, run access device and trigger obstacle sensor. Verify that access device reverses
- IF an open request pushbutton is installed, press it and verify that the access device operates

# KEY UTILITIES

- These handy utility functions can speed system programming and maintenance
- #1 displays the MGT supervisory codes
- #2 displays the number of empty memory locations
- #3 displays the number of occupied memory locations
- #4 displays the first available empty memory location
- #5 displays the version number of the AP-1 firmware

SPECIFICATIONS

- Size: 10.5”W x 4.5”H x 2”D
- Weight: 1.5 Lbs.
- Supply Voltage: 12-24 Volts AC or DC
- Operating Current: 250 Ma Maximum
- Operating Temperature Range: +22° to +158° F (-30° to +70° C)
- Sensitivity: -94 dBm Minimum
- Bandwidth (3 db): 4 MHz Typical
- Frequency: 318 MHz
- Relay Contact Rating: 1 AMP @ 24 Volts AC or DC

LINEAR LIMITED WARRANTY

This Linear product is warranted against defects in material and workmanship for twelve (12) months. The Warranty Expiration Date is labeled on the product. This warranty extends only to wholesale customers who buy direct from Linear or through Linear’s normal distribution channels. Linear does not warrant this product to consumers. Consumers should inquire from their selling dealer as to the nature of the dealer’s warranty, if any. There are no obligations or liabilities on the part of Linear corporation for consequential damages arising out of or in connection with use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation, or reinstallation. All implied warranties, including implied warranties for merchantability and implied warranties for fitness, are valid only until Warranty Expiration Date as labeled on the product. This Linear Corporation Warranty is in lieu of all other warranties express or implied. For warranty service on Linear equipment return product, at sender’s expense to: Linear Corporation Service Department 2580 Pioneer Avenue, Suite C Vista, CA 92083

IMPORTANT !!!

Linear radio controls provide a reliable communications link and fill an important need in portable wireless signaling. However, there are some limitations which must be observed.
- For U.S. installations only; the radios are required to comply with FCC Rules and Regulations as Part 15 devices. As such, they have limited transmitter power and therefore limited range.
- A receiver cannot respond to more than one transmitted signal at a time and may be blocked by radio signals that occur on or near their operating frequencies, regardless of code settings.
- Changes or modifications to the device may void FCC compliance.
- Infrequently used radio links should be tested regularly to protect against undetected interference or fault.
- A general knowledge of radio and its vagaries should be gained prior to acting as a wholesale distributor or dealer; and these facts should be communicated to the ultimate users.

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