

DESCRIPTION

The ST-23 "Money Sentry" is a special purpose digitally coded stationary supervised radio transmitter designed to fit inside a cash drawer. A paper money "bait" bill placed under the money clip keeps the ST-23 turned off and armed (see Figure 1). Removing the money activates a switch, causing the ST-23 to transmit a coded radio *alarm* signal to its associated receiver. This transmitter can be programmed to activate any of Linear's supervised digital receivers that are tuned to the same frequency. The ST-23 is typically used in wireless/hardwire security systems and is powered by two, self-contained, DURACELL Type DL 2032 3-volt lithium batteries (included).

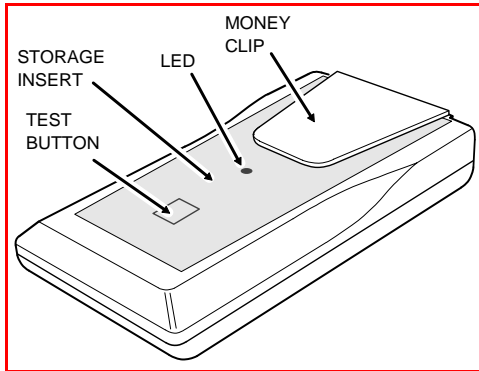


Figure 1. ST-23 Money Clip Transmitter

SUPERVISED FEATURES

The ST-23 continuously monitors its battery voltage. If the voltage is tested low, the transmitter will send a *low battery* transmission to the receiver. Because the radio signal from the transmitter may not reach the receiver when the cash drawer is closed, a motion detector is incorporated into the transmitter to determine the drawer position. Low battery transmissions occur every hour *and* up to once every five minutes whenever the drawer is opened. **This transmitter does not report hourly status transmissions.**

A recessed test button, located on the face of the ST-23, can be used to test the transmitter's operation. Pressing the test button causes the transmitter to send a *test (not alarm)* report. The unit's red LED will light during the test. If the red LED blinks as the test button is pressed, the transmitter's batteries are low and should be replaced. **The red LED does not light during alarm transmissions.**

*** CAUTION! Removal of storage insert or bait bill for long periods of time will cause degradation of battery life.**

OPERATION

The ST-23 transmits a 3-second *alarm* signal when the "bait" money is removed from the retaining clip. An additional 4 3-second *alarm* signals will be sent during the 1-minute period following the initial alarm. The transmitter will send a 2-second *restore* transmission when the bait money is replaced.

CODE SWITCH LOCATION

The digital coding switches are attached to the circuit board inside the case. To access the switches, remove the battery door as shown in Figure 2.

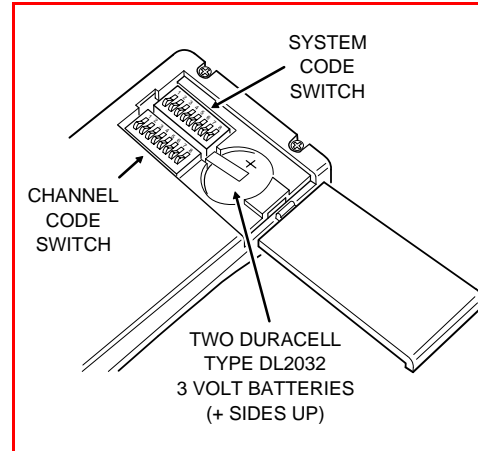


Figure 2. Digital Coding Switch Location

CODE SETTING

*** CAUTION! All transmitters and receivers must be re-coded by installer prior to operation. DO NOT USE THE FACTORY SET CODE!**

System Code

Set the SYSTEM switch to a random code or, if the ST-23 is going to be used in an existing system, set the SYSTEM code to match the other transmitters used in the system.

Among the 256 possible system codes, four codes are considered invalid, and should not be used. They are: all keys ON, all keys OFF, and keys set alternating ON/OFF or OFF/ON combinations.

Use a pointed object (other than a pencil or pen) to set the keys numbered 1 through 8. The ON position is when the top of the switch is down, facing the numbers. The OFF position is when the top of the switch is up and the bottom is down, away from the numbers.

In the example shown in Figure 3, keys 1,4,6 and 8 are ON; keys 2,3,5 and 7 are OFF.

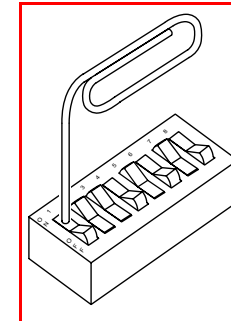


Figure 3. Example Coding Switch

Channel Code

Set the CHANNEL switch to the proper code as defined in the Installation Instructions for the receiver being used. **Different model receivers require unique channel coding.**

Some receivers may require setting of the transmitter's CHANNEL switches or the receiver's OPTION switches to configure the receiver for the ST-23 transmitter. The switches should be set for:

- ❖ ACTIVE TRANSMITTER (Alarm transmissions cause alarms)
- ❖ SILENT ALARM (Receiver triggers communicator with no audible alarm)
- ❖ STATUS REPORT DISABLE (Receiver does not require hourly status reports from the transmitter)

The ST-23 is currently compatible with Linear's:

- ❖ Silent Signal Console
- ❖ SS-32T
- ❖ SSR-32

INSTALLATION

To install the transmitter, proceed as follows:

STEP 1: Remove the paper storage insert and replace it with a "bait" bill.

* **IMPORTANT! Do not place more than one "bait" bill under the money clip.**

STEP 2: Remove the battery protection strip, verify that the system and channel codes are set correctly, then replace the battery door.

* **CAUTION! The storage insert or bait bill must always be installed prior to closing the battery door or an alarm transmission will occur.**

STEP 3: Select a cash drawer slot for the transmitter.

STEP 4: Remove the protective backing from one side of the supplied Velcro™ fastener and stick it in the center of the cash drawer slot.

STEP 5: Remove the other protective backing strip and stick the ST-23 transmitter to the Velcro™ fastener.

STEP 6: Place the receiver into a "enter" or "program" mode.

STEP 7: Press the transmitter's test button to enter the transmitter into the receiver's memory. Verify that the signal was properly received.

CHECKOUT AND TEST

After installation, the transmitter and receiver should be checked out as a system.

Place the receiver in a "test" mode or disconnect the communicator's phone line. Activate the transmitter by removing the "bait" bill. Receiver activation indicates that the transmitter is operating properly, and that the transmitter's digital code is correctly matched to the code set in the receiver. Replace the "bait" bill and verify that the *restore* signal was received.

Pressing the test button with the "bait" bill installed causes the LED to light (or blink if the batteries are low) and a *test* transmission to be sent.

* **NOTE: The test button is disabled for approximately 90-seconds after the bait bill is removed.**

CAUSES FOR NON-OPERATION

If the transmitter fails to activate the receiver, first check the coding switches to see that the switch keys in the transmitter and the receiver are correctly set. Next, check the batteries and replace them if they're weak.

If the code is set correctly, the battery is good, and the LED lights when the test button is pressed but the receiver doesn't activate, check for hidden metal obstacles or large metal appliances between the transmitter and receiver that may be blocking the radio signal. Locate the receiver at least 6 feet from transmitter. Re-location of the transmitter or receiver may be necessary.

* **CAUTION: The manufacturer strongly recommends that you test security equipment frequently. From the time of installation, it is absolutely necessary to test the system at least once a week. Although the two 3-volt batteries should last about two years, it is good practice to change the batteries whenever pushing the test button or replacing the "bait" bill causes the transmitter's LED to blink.**

SPECIFICATIONS

Coding Format

Linear S1: 21 bit A1D PPM: 256 system & 256 channel codes possible

Power Requirements

Operational Voltage Range: 6 VDC nominal
Transmit Current Consumption: 8 mA nominal
Low Battery Mode: 15 µA nominal
Standby Current Consumption: 4 µA nominal
Battery Life: 2 year minimum
Low Battery Operational Life: 1 week minimum

Temperature Requirements

Operating Temperature: 32° to 131° F (0° to 55° C)
Storage Temperature: -40° to 167° F (-40° to 75° C)

Dimensions

Width: 2.4" (6.1 cm)
Length: 4.5" (11.4 cm)
Height: 0.8" (2.03 cm)

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
2350 Camino Vida Roble, Ste A
Carlsbad, CA 92009
Attn: Repairs Department

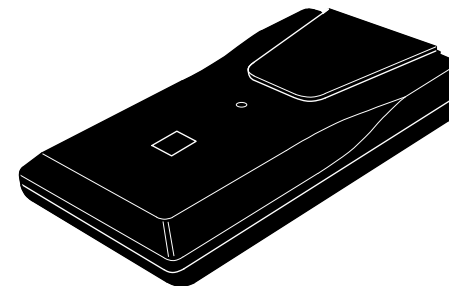
IMPORTANT !!!

Linear radio controls provide a reliable communications link and fill an important need in portable wireless signalling. 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.
- ❖ Receivers may be blocked by radio signals that occur on or near their operating frequencies, regardless of code settings.
- ❖ A receiver cannot respond to more than one transmitted signal at a time.
- ❖ 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.

ST-23

"Money Sentry" Supervised Cash Drawer Transmitter



Code Setting and Installation Instructions

Linear

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