



NC505ES Remote LCD Receiver Installation & Operating Instructions

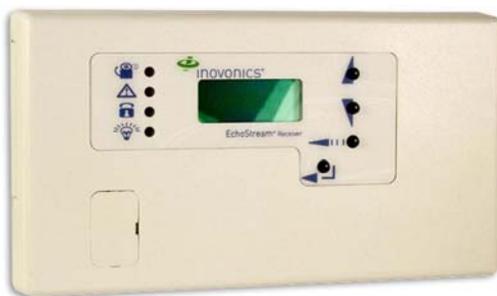
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Figure 1—NC505ES Remote LCD Receiver



Chapter 1—Introduction

The NC505ES Remote LCD Receiver allows users of the Tek-CARE®500 Wireless Emergency Call System to connect external dome lamps and dialers to the system. This provides an alternate annunciation path, in addition to the normal Tek-CARE®500 screen. The NC505ES is not dependent upon the Tek-CARE®500's master station computer. It features 6 separate, dry-contact outputs that can be programmed for activation of up to 16 unit addresses (transmitters) on the Tek-CARE®500 system.

The NC505ES is programmed using its buttons and display, and has an access code to safeguard completed programming. The case has built-in tamper detection outputs for connection to an external alarm system. All dry contact outputs are individually configurable for latching, follower or momentary activation. The NC505ES is designed for indoor use only, and cable access and connections are hidden. The face of the unit features a clean appearance with visual indication of the status of all 6 outputs.

About This Manual

This manual is designed to assist with installation of this TekTone product. Each component of the system is described with step-by-step instructions to facilitate hardware installation and software configuration.



1. Although this is a low voltage unit, take care on wire termination at transformer and mains line outlet.
2. Remove power when installing cabling.
3. Use ESD wrist strap when installing cables.



1. Use proper splicing techniques.
2. Verify proper polarity of wires.
3. Use protective eyewear when clipping leads.

Theory of Operation

In a facility with a Tek-CARE®500 wireless emergency call system, the NC505ES Remote LCD Receiver may be used to activate a local dialer or turn on a corridor dome light in response to a call. **Note:** Central Monitoring is a feature of the Tek-CARE®500 system.

The NC505ES is configured locally to an area covering up to 16 transmitters and 6 relay outputs. Multiple units are used to provide full coverage of a floor or building. The NC505ES accepts transmissions only from transmitters, and does not accept signals that are rebroadcast. Therefore the NC505ES must be near the devices that it is to receive signals from.

Figure 2—Inside the NC505ES

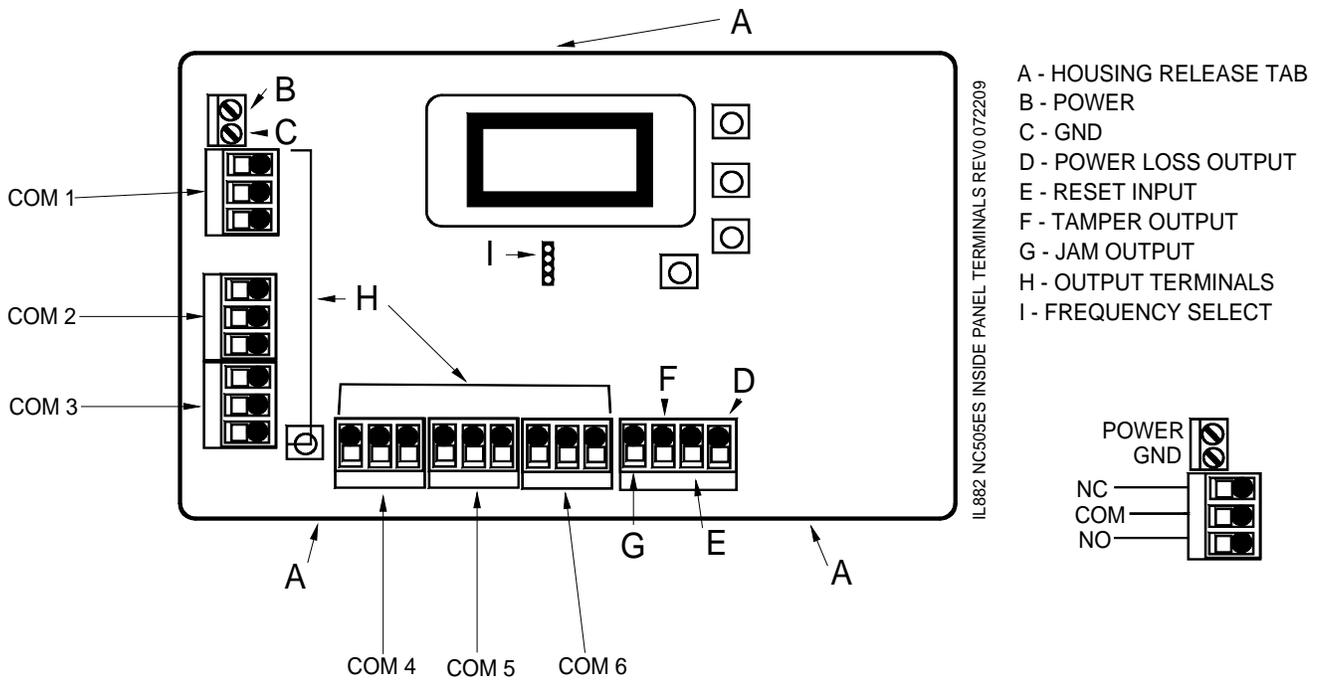


Figure 3—Wiring Examples

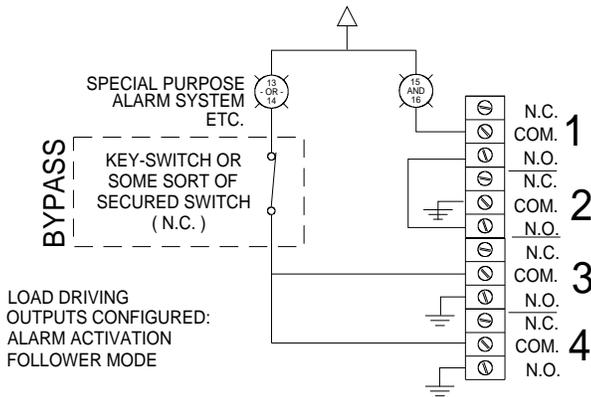


Figure 3a—Normally Closed Switch

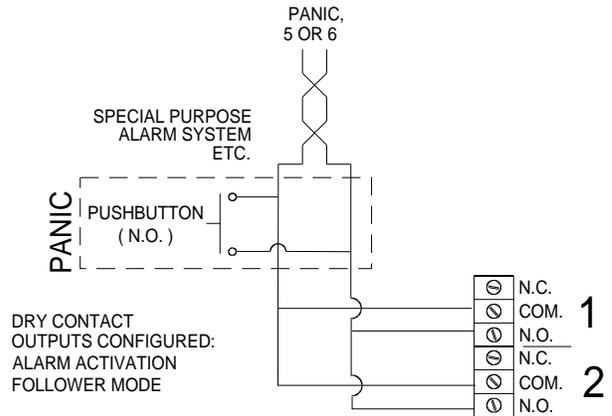


Figure 3b—Normally Open Switch

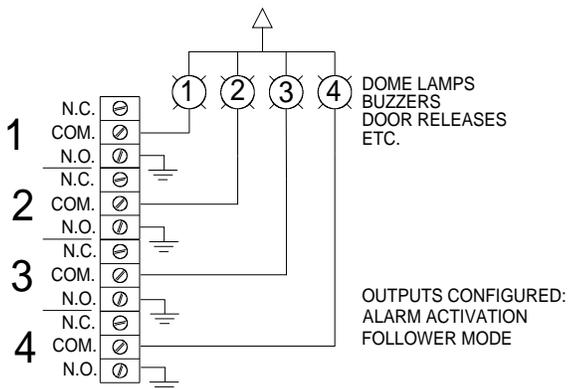


Figure 3c—Corridor Lights

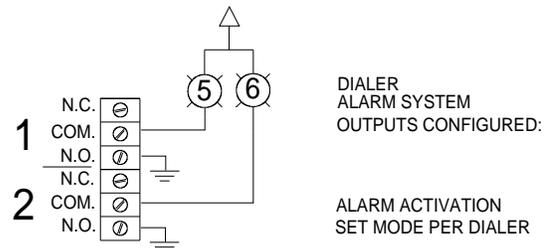


Figure 3d—Output to Dialer

What's in the Box

- 2 pan head screws
- 2 plastic anchors
- 2 squares of two-sided tape
- 1 two-pin jumper
- 1 OEM installation sheet

Please note: The NC505ES requires a PK505 transformer, ordered separately. Please verify that all power supplies are available before installation.

Features

- Six onboard Type C relay outputs for N/O or N/C operation.
- Jam detection monitors all channels for interference.
- A reset terminal is provided in the receiver to allow external receiver resets.
- A tamper terminal is provided in the receiver to allow external tamper monitoring.
- Add up to 16 EchoStream transmitters.
- Two-line text display.

Chapter 2—Installation

Mounting

Use the provided anchors and screws to mount the receiver in a location accessible for future maintenance. Caution: Mount the receiver in a location removed from metal. Metal objects (duct work, wire mesh screens, boxes) will reduce the reception range.

Connections

Connect Power Cabling

Before beginning startup, connect power to the receiver:

1. Use a small screwdriver to press the three housing release tabs on the top or bottom of the receiver and separate the housing.
2. Connect power cabling to the Power (Vs) and GND connections. (See *Figure 2*.)
3. Power source must be 11–14 VDC. Power supply must be unswitched, uninterrupted, and regulated. Use TekTone® part number PK505.

Select the Frequency Band

The NC505ES Remote LCD Receiver can use a range of radio frequencies, and must be configured for your geographic area. To configure the receiver:

1. Place a selection jumper on the appropriate frequency band selection pins. (See *Figure 2*.)
 - Leave the jumper off the pins to set the frequency range to 902–928 MHz for North America. **Note:** North America is also selected when the jumper is attached to only one pin. This prevents the jumper from being lost when selecting North America.
 - Place the jumper on the top two pins, marked AUS, to set the frequency range to 915–928 MHz for Australia.
 - Place the jumper on the bottom two pins, marked NZ, to set the frequency range to 921–928 MHz for New Zealand.
2. Cycle power to reset.

Connect Output and Input Cabling

Refer to *Figure 2* for connection points.

1. Connect cabling to the power loss output. The optional power loss output is a normally closed (N/C) output that reports power loss to an external device.
2. Connect cabling to the tamper output. The optional tamper output is a normally open (N/O) output that reports receiver case tamper to an external device.
3. Connect cabling to the jam output. The optional jam output is a normally closed (N/C) output that opens when noise thresholds on all transmission channels remain above a predetermined value for more than 20 seconds.
4. Connect cabling to the reset input. The optional reset input circuit permits installation of a remote momentary normally open (N/O) switch to clear faults, unlatch relay outputs and reset the receiver to a normal state.
5. Connect cabling to the output terminals. The NC505ES provides six Form C relay outputs.
6. Close the NC505ES receiver housing.

Field Wiring Examples

Figure 3 shows various uses of the relay outputs from the NC505ES. Wire size should be no smaller than 22 gauge and no larger than 18 gauge (due to housing space). Use 18 gauge cable to connect dome lights and the external power supply.

Chapter 3—Programming & Operation

Receiver Menus

There are three main menus (see *Figure 5*):

- Install & Service
- Event Log
- Point Status

Select the *Install & Service* menu to program relay outputs, change the password, view the signal strength, delete points, register transmitters or set up points for any of the programmed transmitters. **Note:** A password is required to access the *Install & Service* menu. The default password is 3446.

Program Relay Outputs

1. From the *Install & Service* menu, press the **ENTER** button at the PROGRAM OUTPUT prompt.
2. PROGRAMOUT01 is displayed.
3. Using the **UP** and **DOWN** buttons to scroll, select OUTPUT 01 for programming, and press the **ENTER** button.
4. OUT 01 FOLLOWER is displayed. Use the **UP** and **DOWN** buttons to select one of the following four options, and then press the **ENTER** button to select the appropriate output type:

Follower—The relay output reflects the transmitter's alarm status. Press the **ENTER** button to select this option.

Latching—The relay output turns on when activated and remains on until the receiver is reset. Press the **ENTER** button to select this option.

Toggle—The relay output changes state each time the device sends a new activation. A minimum of five seconds must elapse before the relay output can send a new activation.

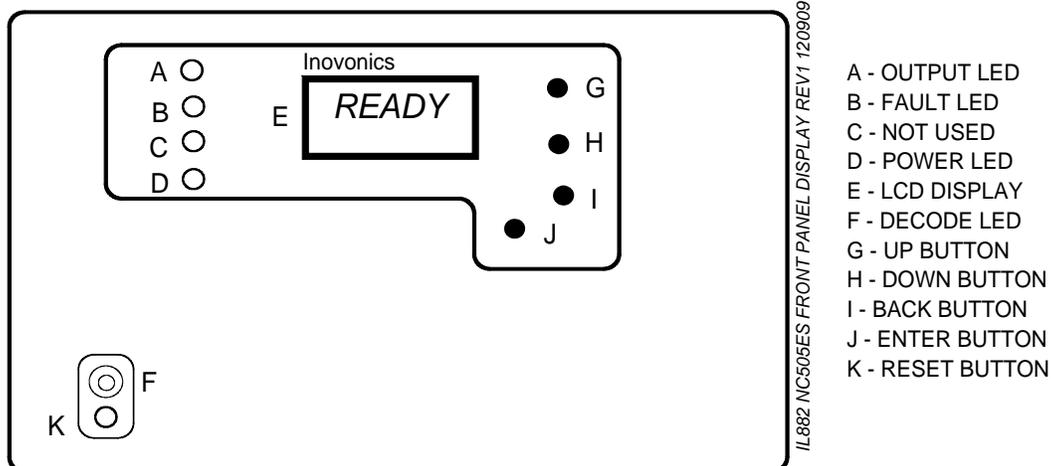
- Press the **ENTER** button to select this option. The display shows **INACTIVE**. Inactive time prevents output chatter. The default is 4.0 seconds. The valid range is 2.0 to 99.5 seconds, in half-second increments.
- Use the **UP** and **DOWN** buttons to scroll through the digits; press the **ENTER** button to select and advance to the next digit.
- When finished, press the **ENTER** button again to complete the setting.

Momentary—The relay output turns on for a programmed number of seconds, then turns off, regardless of the device status.

- **MOMENT** displays when selected. This sets the number of seconds that the output will remain activated. The default is 4.0 seconds. The valid range is 0.5 to 99.5 seconds, in half-second increments.
- Use the **UP** and **DOWN** buttons to scroll through the digits; press the **ENTER** button to select and advance to the next digit.
- When finished, press the **ENTER** button again to complete the setting.

5. The display shows **PGM DONE**. Press the **ENTER** button to program another relay output, or press the **BACK** button to return to the *Install & Service* menu.
6. Repeat steps 1–5 for relay outputs 02–06.

Figure 4—NC505ES Indicators & Function Buttons



Change Password

Passwords can be up to eight digits long. The default password is 3446. To change the password:

1. From the *Install & Service* menu, press the **ENTER** button at the **CHANGE PASSWORD** prompt.
2. Use the **UP** and **DOWN** buttons to scroll through the digits; press the **ENTER** button to select and advance to the next digit. To select a space, press the **ENTER** button without selecting a digit.
3. When finished, press the **ENTER** button again to complete the setting.
4. When **PASSWORD CHANGED** displays, press the **UP** or **DOWN** button to return to the menu.

Monitor Signal Strength

The *Signal Strength* option is used to measure signal strength and troubleshoot installation problems.

1. At the **SIGNAL STRENGTH** prompt, press the **ENTER** button. **POINT 01** is displayed, along with a signal quality of **GOOD**, **WEAK** or **NO SIG**.
2. Use the **UP** and **DOWN** buttons to scroll through the registered transmitters.
3. Press the **ENTER** button again to view *level (LV)* and *margin (MA)*. **LV** indicates the overall signal strength; **MA** indicates the signal strength minus the background noise.
4. To reset signal data, use the **UP** and **DOWN** buttons to leave and return to the transmitter you are monitoring.
5. Press the **BACK** button to return to the menu.

Set up Transmitter Points 1–16

Caution: When programming points, be careful not to map faults to the same output as alarms.

1. From the *Install & Service* menu, press the **ENTER** button at the **SETUP POINT** prompt.
2. Use the **UP** and **DOWN** buttons to scroll through the points; press the **ENTER** button to select the point to be set up. **TX REGISTRD** displays if a transmitter is currently registered to this point; **TX NOT REGISTRD** displays if no transmitter is registered to this point.
3. Press the **ENTER** button to set up the point. The following eight setup options are available:

Supervision Time—Sets time limit on reporting of missing transmitters. **Caution:** Turning off supervision is not recommended. The valid range is 0 to 99 hours. The default is 60 minutes. Selecting 0 turns off supervision.

- Use the **UP** and **DOWN** buttons to adjust the supervision time.
- Use the **UP** and **DOWN** buttons to toggle between **Hrs** (hours) and **Min** (minutes); press the **ENTER** button to select.

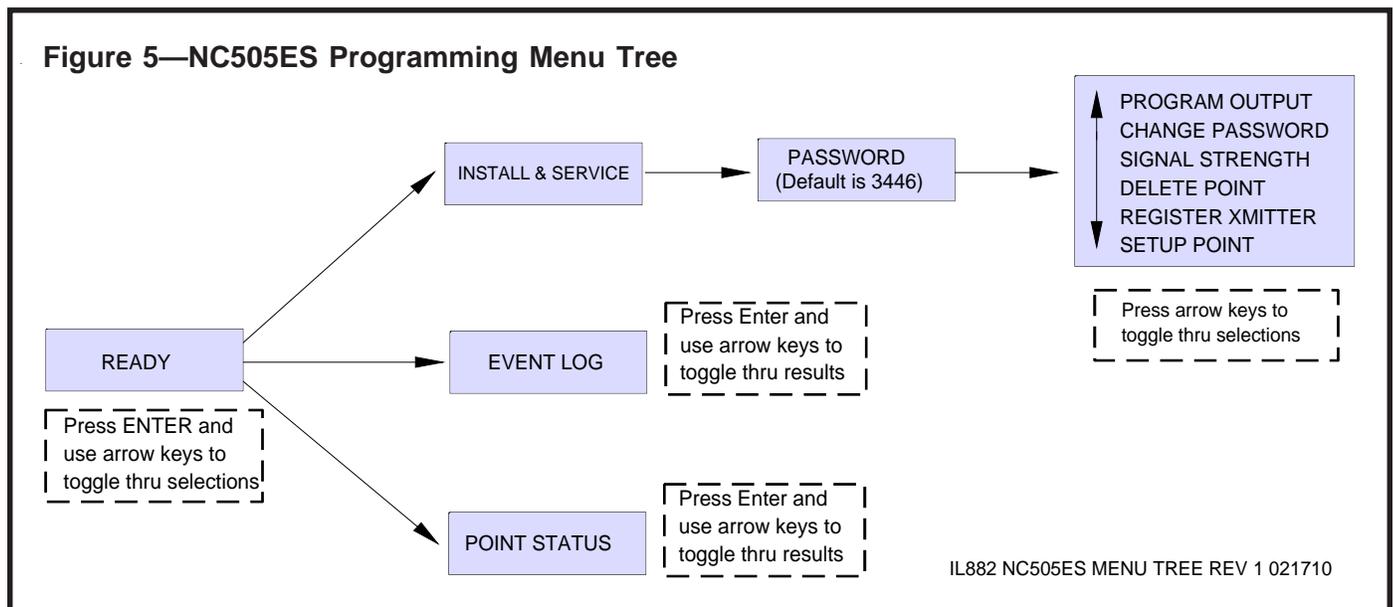
Inactive Out—Maps transmitter/repeater inactivity fault output.

- Use the **UP** and **DOWN** buttons to scroll through the output numbers. Choose - - to disable inactivity reporting.
- Press the **ENTER** button to select the output to use for this transmitter/repeater's inactivity transmission.

Tamper Out—Maps transmitter/repeater tamper fault output.

- Use the **UP** and **DOWN** buttons to scroll through the output numbers. Choose - - to disable tamper output.
- Press the **ENTER** button to select the output to use for this transmitter/repeater's tamper transmission.

Figure 5—NC505ES Programming Menu Tree



Low Bat Out—Maps transmitter/repeater low battery fault output.

- Use the **UP** and **DOWN** buttons to scroll through the output numbers. Choose - - to disable low battery output.
- Press the **ENTER** button to select the output to use for this transmitter/repeater's low battery transmission.

Alarm Out—Maps transmitter alarm output.

- Use the **UP** and **DOWN** buttons to scroll through the output numbers. Choose - - to disable alarm output.
- Press the **ENTER** button to select the output to use for this transmitter's alarm transmission.

AC Loss Out—Maps repeater AC loss output.

- Use the **UP** and **DOWN** buttons to scroll through the output numbers. Choose - - to disable AC loss output.
- Press the **ENTER** button to select the output to use for this repeater's AC loss transmission.

Text—Enter an eight-character descriptive text label for the transmitter/repeater.

- Use the **UP** and **DOWN** buttons to scroll through the alphanumeric characters; press the **ENTER** button to select and advance to the next character. To select a space, press the **ENTER** button without selecting a digit.
- **Note:** If you do not use all eight characters, you must enter spaces to the end of the line.
- When finished, press the **ENTER** button again to complete the setting.
- **REGISTER TXN** is displayed. If you do not wish to register the transmitter/repeater at this time, press the **ENTER** button to return to the *Install & Service* menu.

Register Transmitter—Register transmitter/repeater.

- Use the **UP** and **DOWN** buttons to toggle between N and Y; press the **ENTER** button to select.
- At the **RESET XMITTER** prompt, press the transmitter/repeater's reset button.
- When **TX REGD** is displayed, press the **ENTER** button to finish and advance to the next point.

Point Status

1. From the **READY**, **ALARM** or **FAULT** prompts, press the **ENTER** button.
2. When **POINT STATUS** is displayed, press the **ENTER** button to display the point's status details.
3. Use the **UP** and **DOWN** buttons to scroll through the points; press the **ENTER** button again to view the outputs that the displayed condition is mapped to. **Note:** If - - is displayed, the displayed condition has been mapped to a null output.
4. Point status flags are defined as follows:
 - A = Alarm (transmitter only)
 - T = Tamper
 - B = Low Battery
 - L = AC loss (repeater only)
 - I = Inactive

Event Log

1. From the **READY**, **ALARM** or **FAULT** prompts, press the **ENTER** button.
2. When **POINT STATUS** displays, press the **UP** button to advance to **EVENT LOG**, and press the **ENTER** button to select.
3. Use the **UP** and **DOWN** buttons to scroll through events.
4. When viewing transmitter events, press the **ENTER** button to see the output that the events map to. **Note:** No output will be displayed if the event is mapped to a null output.

Alarms and Faults

Points in alarm are immediately displayed as **ALARM**, with the point number. If more than one point is in alarm, the display scrolls to each point. Fault conditions are indicated by LEDs, and by **FAULT** in the LCD display if there is no **ALARM** already displayed; point numbers are not displayed. **POINT STATUS** or **EVENT LOG** can be used to determine exact fault data.

Appendix—Device Specifications

- Housing: 162 mm × 92 mm × 28 mm (6.38" × 3.6" × 1.1").
- Operating environment: 0°C–60°C (32°F–140°F); 90% relative humidity, non-condensing.
- Current consumption: Approximately 400mA (with all six relays energized).
- Output specifications:
 - Form C relay 1A @ 28 VDC, 0.5A @ 30 VAC resistive load.
 - N/O receiver case tamper contact closure.
 - N/O receiver jam input indication.
- Input specifications: A low is less than 0.5 V; a high is greater than 2.5V.
- Reset input: Contact closure, momentary low.
- Receiver type: Frequency-hopping spread spectrum.
- Operating frequency: 902–928 MHz (USA).
- Number of points/transmitters: 16.
- Number of outputs: six Form C relay outputs.
- Event history log capacity: 50 events (first-in, first-out replacement).