

## Installation Instructions

### 1.0 Description

The D222 Keypad (*Figure 1*) is a low-profile, surface-mount, three-wire unit with four hard-wired expansion points for use with Bosch Security Systems 2000 Series Control/Communicators. The D222 features an illuminated keypad, backlit two-line LCD text display, armed status indicator, three programmable emergency keys, and built-in sounder that emits several distinct tones.

### 1.1 Display

The D222 Keypad continuously displays the latest status conditions of the security system. It takes up to 30 sec. after the program is received for the new text to replace the old text. When a series of events occurs affecting the system, the D222 displays each event by priority. For example, the D222 displays alarms before point faults.

Normally, the LCD display constantly illuminates. You can choose to illuminate the LCD display only after a key is pressed, where the display and backlights extinguish after approximately 18 sec. To turn this feature on or off, press and hold the [CLEAR] key for 5 seconds.

### 1.2 Keys

The D222 Keypad has the following keys: [CLEAR key, [\*] key, three emergency keys (labeled A, B, and C), and numeric keys from zero to nine. These keys are used to enter functions and personal passcodes into the panel.

### 1.3 Response Tones

The D222 Keypad contains a sounder that annunciates several system conditions. You can disable the sounder if you choose.

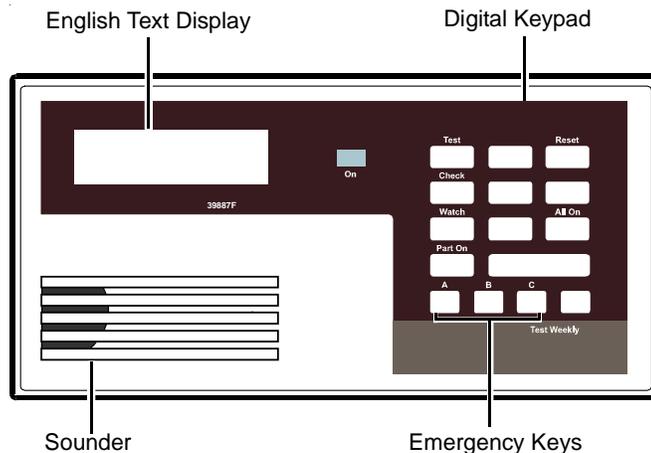


Figure 1: D222 Keypad

The control/communicator supplies all power and data requirements for the D222 using a simple three-wire connection. Depending on the panel's available auxiliary power, you can install up to eight D222 Keypads in one system.

You can program custom text locally using either the D5200 Programmer or keypad programming. If using the D5200, be sure to lock the panel's standby pin down **before** connecting the programmer. You can program text remotely using the D5300, RAM II.



# D222

## Specifications

### 2.0 Specifications

<b>Operating Voltage</b>	Nominal 12 VDC supplied by the control/communicator auxiliary power supply.
<b>Current Requirements</b>	Maximum: 140 mA Normal: 85 mA LCD on. Standby: 30 mA No keypad backlighting.
<b>Enclosure Dimensions (H x W x D)</b>	4.56 in. x 8.15 in. x 0.816 in. (11.6 cm x 20.7 cm x 21 mm)
<b>Color</b>	Off white
<b>Operating Temperature</b>	+32°F to +122°F (0°C to +50°C)
<b>Non-condensing Relative Humidity</b>	5% to 85% at 86°F (30°C)
<b>Command Center Wiring</b>	Three-wire cable supplies data-in, common, and positive voltage.
<b>Point Wiring</b>	Four two-wire loops. Each loop uses a 1 K $\Omega$ EOL resistor for point supervision. Compatible with sensing devices having normally open dry contact output (wired in parallel) and/or normally closed dry contact output (wired in series).
<b>Display</b>	ON indicator: Lights when system is All or Part On. LDC Display: Two-line, 16-character, Liquid Crystal Display (LCD). User can select to have display continually backlit or when a keypad digit is pressed.

### 3.0 Wiring D222 Points

The D222 expands the system with four hard-wired protective point inputs (see *Figure 2*). Each point functions independently and does not interfere with the operation of the others.

Each point is supervised with a 1 k $\Omega$  End-of-Line (EOL) resistor (Bosch Security Systems D105BL, four are supplied with the unit). Connect dry contact sensing devices in series (normally closed) or in parallel (normally open) to any of these points. Each point detects open circuit, closed circuit, and normal circuit conditions.

Program the panel with a point code for each protective point. The point codes determine how each point responds to faults. See *Point Codes* in the *2000 Series Program Entry Guide* (P/N: 35114) for programming details.

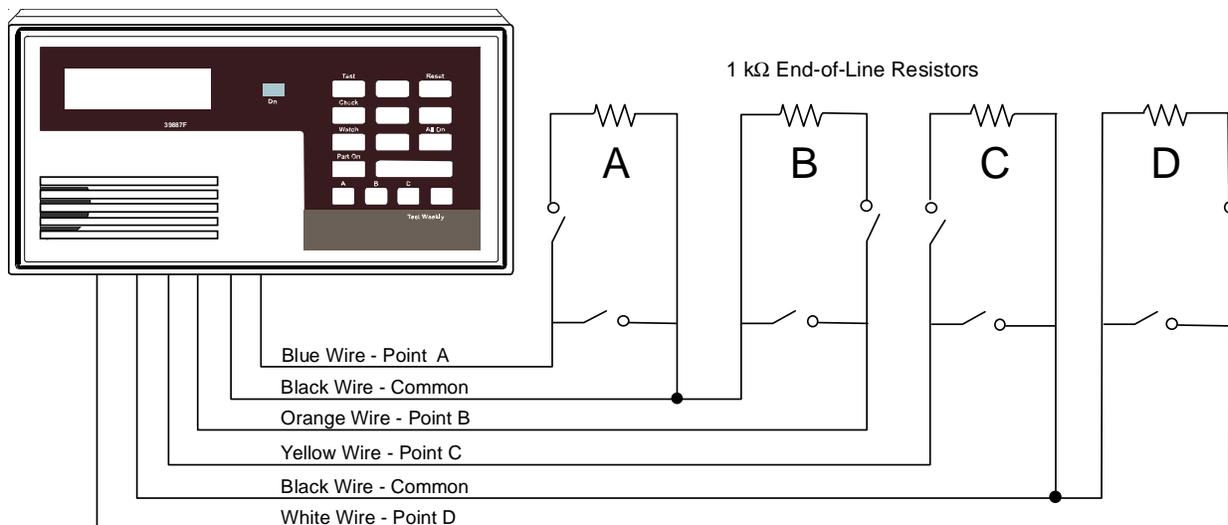


Figure 2: Wiring the D222 Protective Points

## Installation

### 4.0 Installation

1. Select a mounting location.

Do not locate the D222 in areas of extreme cold, such as an uninsulated building, refrigerated areas, outdoors, or in areas where the temperature can drop below +32°F (0°C). Do not mount the keypad in a location exposed to direct sunlight; direct sunlight makes the display less visible and can damage the keypad components.

You can mount the D222 on a flat wall or on the following Bosch Security Systems accessories:

- D54B Brass Flush Mount Kit
- D54C Chrome Flush Mount Kit
- D55 Command Center Desk Stand
- D56 Command Center Conduit Box

2. Route the point expansion wire.

Route the wire from points of protection to the location where you will mount the keypad. See the panel's *Installation Guide* for information about the maximum length of point cables and wire resistance. Route wire runs away from electrical, telephone, and other data wiring.

3. Wire the point connector.

The D222 has two sets of color-coded flying leads attached to connector plugs. The point expansion flying leads are colored blue, orange, yellow, white, and black. This connector plugs into the top plug (J2). When wiring point inputs, the two black wires are the point commons. The blue, orange, yellow, and white wires are the point inputs.

Use solder to splice the connector to the point inputs. Be sure to insulate all exposed splices with tape so they do not short to one another.

4. Route keypad wire.

Route the wire to the keypad location. See the panel's *Installation Guide* for information about the maximum length of keypad cables and wire resistance. Route data wire runs away from electrical, telephone, and other data wiring.

5. Splice connectors to the wires.

Use solder to splice the connectors to the wires. The three-wire cable connects to the panel; the six-wire cable connects to the expanded points. Be sure to insulate all exposed splices with tape so they do not short to one another.

6. Remove front cover.

Remove the front cover from the enclosure base. Use a small flat-bladed screwdriver to gently push the two bottom cover tabs back. As you push back the tabs, lift the bottom of the cover away from the base and then remove the cover.

7. Connect the keypad.

Plug the data wire into the serial data wiring connector (J1) in the keypad. Plug the point expansion wire into J2 (see *Figure 3* on page 5).

8. Mount the enclosure base.

While pushing any excess keypad wire back into the wall or gang box, place the enclosure base on the wall in the desired location. Use a center punch or a pencil to mark the locations of the mounting holes.

You can mount the enclosure base to a recessed single-gang wall box if desired. Secure the enclosure base to the wall or gang box.

9. Connect the keypad wire to the panel.

The maximum length for all wires connected to the panel's data terminal combined is 500 ft. (152 m). Route data wire runs away from electrical, telephone, and other data wiring.

Figure 3 shows a typical installation using one D222 Keypad. Use parallel connections for additional keypads or expanders. For more information refer to the *D2212 Installation Guide* (P/N: 74-07361-000).

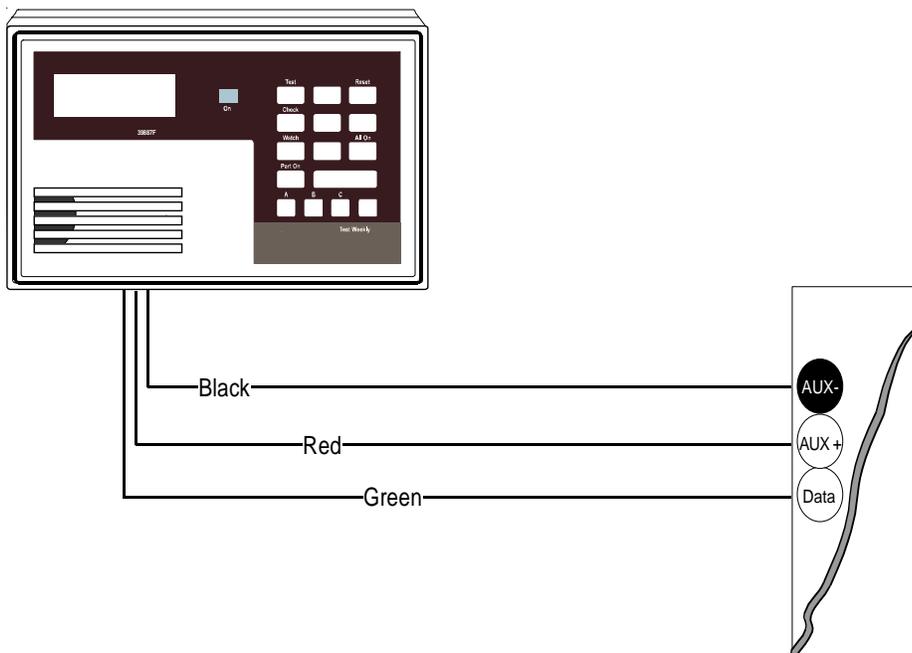


Figure 3: Wiring the D222 to the D2212

10. Assign the D222 to a device address.

Before you begin, make sure that the panel's standby pin is locked down to prevent sending missing point reports. To set the D222 keypad address:

- Turn DIP switch #1 to the ON position.

The display shows:

SET ADDRESS MODE

ADDRESS IS ##

- Use only address numbers one to eight to enter address with a leading zero (e.g., set 01 for Address 1).
- Set dip switch #1 back to the OFF position.
- If you use a D222 Keypad, at least one D222 must be set to Address 1.

**The panel's program affect the keypad's address.** Choose the keypad address in the panel's program. Select **Text Keypad** or **Text Keypad with Points** for the device type of the chosen address. For more information, see *Address Configuration* in the *2000 Series Program Entry Guide* (P/N: 35114).

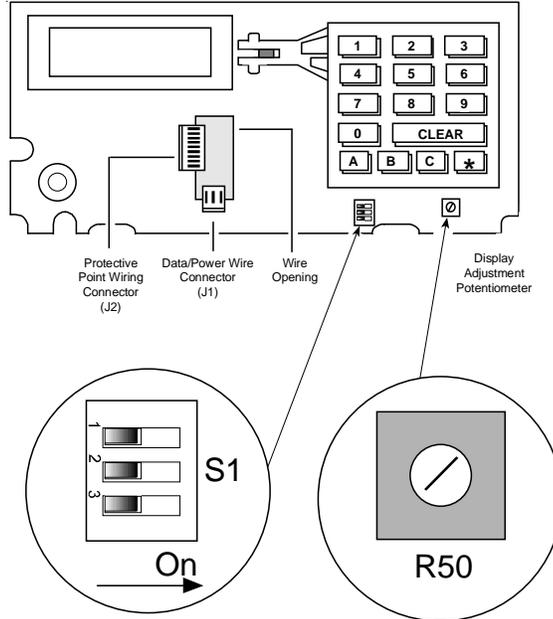
If a D222 at Address 1 is replaced and the system has custom text, preserve the custom text by:

- Copying the panel's program using a D5200.
- Attaching a new D222 at Address 1.
- Reprogramming the panel using the copied program.

## Installation

11. Disable the sounder by turning DIP Switch #3 OFF (see *Figure 4*).

Fire Points need the trouble sounder. Disabling the sounder with switch #3 stops the D222 from annunciating fire point trouble. If fire points are installed as part of this system, contact the local Authority Having Jurisdiction (AHJ) to verify code requirements for fire trouble sounders before disabling the D222 sounder.



**Figure 4: Inside the D222**

12. Enable the sounder for UL systems.

For UL installations, the sounder on at least one keypad in the system must remain connected.

13. Adjust the D222 display.

With the D222 mounted to the desired surface, view the display from the approximate angle for the user. If the display requires adjustment for clarity, use the Display Adjustment Potentiometer (R50) in the lower right-hand corner of the D222 circuit board.

14. Replace the front cover.

Align the top two tabs of the enclosure cover with the top two tab slots in the enclosure base. Slide the top of the cover into the base. Then gently push the bottom of the cover down on the base until it snaps into place.

15. Adjust the Keys.

Push each key on the keypad towards the top of the enclosure to ensure proper mating with the openings in the top cover.

## 5.0 D222 Switch Settings

*Table 1* identifies the switch settings of the D222.

Switch #	ON	OFF
1	Set Address	Normal Operation
2	Not Used	Not Used
3	Enable Sounder	Disable Sounder

**Table 1: D222 Switch Settings**

