

# Conettix D6600/D6100i



**EN**

Installation and Operation Guide  
Communications  
Receiver/Gateway



**BOSCH**

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## 1.0 Introduction

The Conettix D6600/D6100i Communications Receiver/Gateway offers several unique features:

- Modular construction with plug-in circuit boards for quick, easy service
- Open structure PC platform for future development
- Programmable formatting for receiving data from most major brands of digital communicators
- Easy and inexpensive updating using modular cards (D6600 only)
- Convenient software downloads
- Superior digital signal processing to reduce noise and signal loss
- User interface module with LED indicators
- Front panel keypad
- Alphanumeric liquid crystal display (LCD)

The D6600 metal enclosure contains several modular cards:

- Conettix D6610 Central Processing Unit (CPU) Card
  - Conettix D6615 CPU Terminator Card
  - Conettix D6640 or D6641 Telephone Line Card that supports four telephone line interfaces
  - Conettix D6645 Telephone Line Terminator Card
- Up to seven additional telephone line cards along with seven additional line terminator cards can be installed in the D6600 to expand the receiver's capacity to 32 receiving lines.

**Table 1: D6600/D6100i Supported Communication Formats**

Acron Super Fast	ROBOFON*
Ademco® Slow	Scantronics Scancom*
Ademco Express	Series FSK/DTMF*
Ademco High Speed	Sescoa Super Speed
Ademco Contact ID	SIA 8/20/300
CFSK Bell/V.21*	SIA ADT*
FBI Superfast	SIA V.21*
Franklin/Sescoa	Silent Knight Fast
ITI*	Silent Knight FSK
Radionics BFSK	Standard Pulse Formats
Radionics Hex	Sur-Gard DTMF
Radionics Modem II	Telim*
Radionics Modem IIe/IIIa <sup>2</sup>	Veritech FSK
RB2000 (D6641 only)*	VONK (D6641 only)*

\* Not investigated by UL.

Use a printer to permanently record date, time, group number or transmission format and line number, account number, receiver number, and event by area, zone, and point. The printer tape and the D6600/D6100i LCD display show other receiver status messages such as software revision levels of the CPU Card.

Program the D6600/D6100i using the front panel keypad or through the COM4 port with the D6200 Programming Software package.

The Conettix D6600 and D6100i support data network communications including an account database capacity of up to 3200 accounts with the optional Conettix D6201 IP Security Key. Refer to *Section 11.0 Network Communications* on page 26 for more detailed information.

The D6600/D6100i works with the following Bosch Security Systems, Inc. control panels (referred to throughout this manual as "Bosch control panels"):

- D9412GV2
- D7412GV2
- D7212GV2
- D9412G
- D7412G
- D7212G
- D9412
- D7412
- D7212
- D9112

## 2.0 Emergency Procedures

Section 17.0 Service Information on page 36 of this guide contains a Service Information form. Keep this form current and accessible to central station personnel at all times in case of emergency.

If your D6600/D6100i becomes inoperable or experiences trouble receiving signals:

1. Notify your supervisor.
2. Refer to Section 15.0 Troubleshooting Guide on page 31.
3. Contact Bosch Security Systems, Inc. at (800) 289-0096 for assistance if you have a receiver spares package and need to replace a circuit card or module.



The AC/DC Power Supply Module and DC/DC Power Supply Module for the D6600 are not field serviceable. Contact Bosch Security Systems, Inc. for service.



Disconnect power to the receiver before removing the CPU or CPU terminator card.

### Before Calling

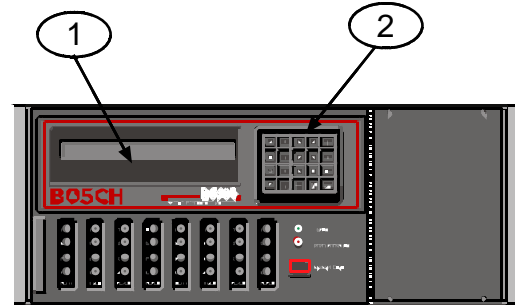
1. Have this guide nearby and opened to Section 15.0 Troubleshooting Guide on page 31.
2. Have your spares package, the D6200 Programming Software, and the D6600/D6100i Program Entry Guide (P/N: 4998122702) nearby.
3. Know the location of the telephone line jacks for the receiver.
4. Know the telephone numbers to the receiver's telephone line cards.
5. Know the exact nature of the problem you are experiencing such as reports received, LEDs lit, or Operator Alert Buzzer sounded.
6. Have the Service Information form nearby (page 36).

## 3.0 Card Functions and Locations

### 3.1 D6600

#### 3.1.1 Front Panel

**Figure 1: D6600 Communications Receiver/Gateway (Front View)**






- 1 – **LCD** - Shows up to 80 characters of information (two lines of up to 40 characters each)
- 2 – **Keypad** - The D6600 has a 20-button keypad.

Table 2 and Table 3 on page 7 show and define the D6600/D6100i POWER and SYSTEM TROUBLE LEDs.

**Table 2: Power LED Indications**

	Present		Power LED Status		
	AC	Battery	Green		Clear
			Solid	Blinking	
On	X	X			
	X				
		X			
Off	X	X			
	X				
		X			

**Table 3: System Trouble LED**

<b>System Trouble LED Status</b>		
	<b>Solid Red</b>	<b>Clear</b>
No System Trouble		
Any System Trouble*		

\* Refer to *Appendix B: D6600/D6100i Internal Messages* in the *D6600/D6100i Computer Interface Manual* (P/N: 4998122703). The following items cause system trouble. Depending on the supervision setting, the items indicated by \*\* might cause system trouble.

Battery Missing**	External Printing Error**
UPS AC Fail	Line Fault**
Battery Bad**	COM# Error**
UPS Battery Low	Line Card Trouble**
AC Fail	COM3 Trouble**
System Temperature High	

**3.1.2 Line Cards and Modules**

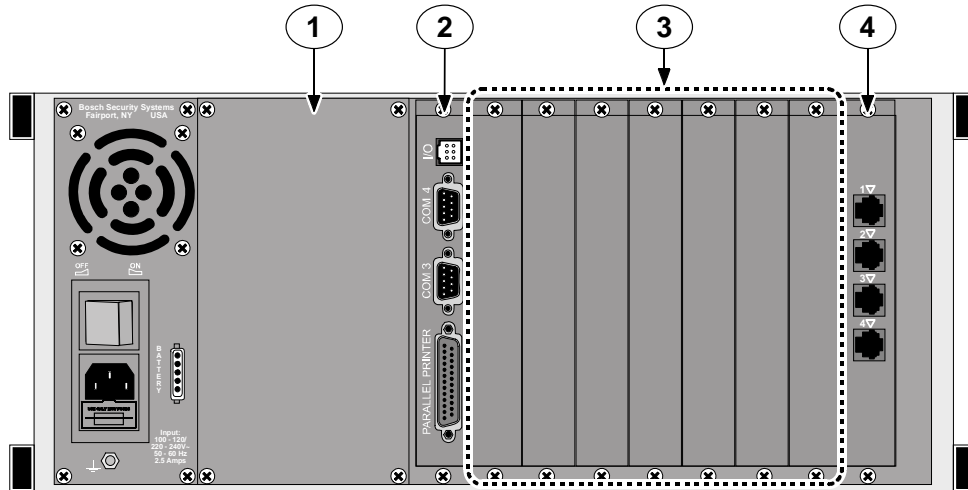
**Table 4: D6600 Line Cards and Modules**

Name	Model	Description
Telephone line card	D6640	Up to eight line cards can be installed in one D6600 Receiver, for up to 32 telephone line connections.
Telephone line card	D6641	Functions like the D6640. Includes improved Public Switched Telephone Network (PSTN) processing, additional memory for future enhancements, and single firmware upgrade package.
CPU card	D6610	The D6600 uses one CPU card. The CPU card takes the incoming information from the line card and routes the information to an automation port, the LCD on the front of the receiver, and an external printer.
Power supply modules	D6630 and D6631	The power supply modules regulate the power used by the D6600. These are not field serviceable.
Telephone line terminator card	D6645	Located behind the line card, the tele-phone line terminator card isolates and protects the line card against out-side voltage surges that might come over the telephone line. Each line card must have a line terminator card.
CPU terminator card	D6615	Located behind the CPU card, the CPU terminator card provides the D6600 with two serial ports (COM3 and COM4), a parallel port (parallel printer), and a general I/O port (I/O). The serial ports can be used for computer automation, PC connection for programming, or a network connection with a D6680.

### 3.1.3 Rear View

The D6600 has input and output pin connector sockets for up to eight line cards, network option (if installed), and one CPU card. It also has slots for connecting these cards to their corresponding terminator cards.

**Figure 2: D6600 Communications Receiver/Gateway (Rear View)**

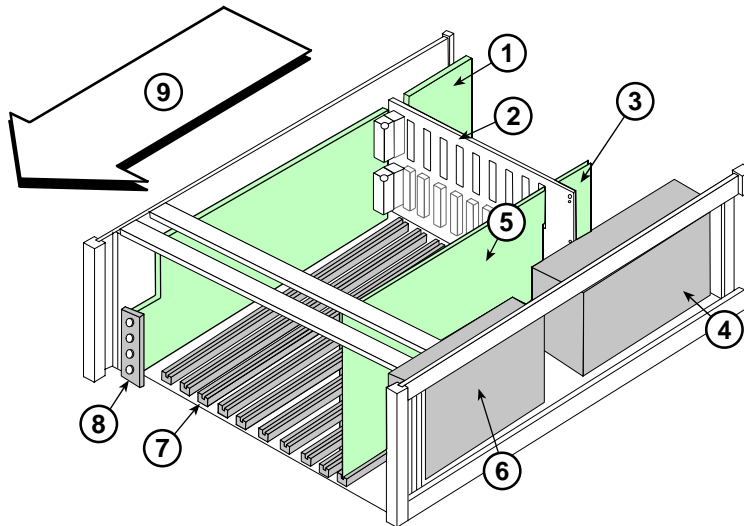


- 1 – Blank plate and location of optional installed Conettix D6672 COM1 Expansion Kit
- 2 – Conettix D6615 CPU Terminator Card

- 3 – Card slot covers
- 4 – Conettix D6645 Line Terminator Card

### 3.1.4 Internal View

**Figure 3: Receiver Card Placement**



- 1 – Conettix D6645 Telephone Line Terminator Card
- 2 – Back plate
- 3 – Conettix D6615 CPU Terminator Card
- 4 – D6630 AC/DC Power Supply (not serviceable)

- 5 – Conettix D6610 CPU Card
- 6 – D6631 DC/DC Power Supply (not serviceable)
- 7 – Card guides
- 8 – Conettix D6640/D6641 Telephone Line Card
- 9 – Direction of receiver front



### 3.2 D6100i



The difference between the D6100 and the D6100i is the D6100i has a built in Ethernet connection.

#### 3.2.1 Front Panel

**Figure 4: D6100i Communications Receiver/Gateway (Front View)**



- 1 – Liquid crystal display (LCD) - Displays up to 80 characters of information (two lines of up to 40 characters each)
- 2 – 23-button keypad

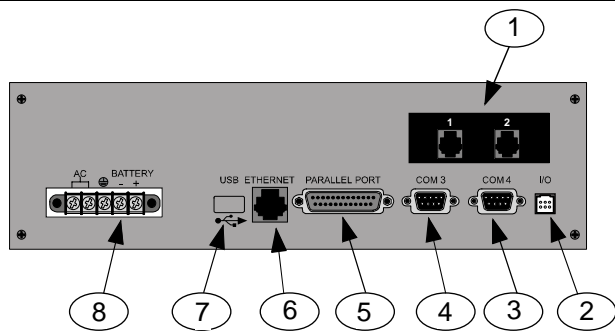
Table 2 on page 6 and Table 3 on page 7 define the D6600/D6100i POWER and SYSTEM TROUBLE LEDs.

#### 3.2.2 Line Cards and Modules

The D6100i does not use the same line cards and modules as the D6600. These functions are built in.

#### 3.2.3 Back Plate

**Figure 5: D6100i Communications Receiver/Gateway (Rear View)**

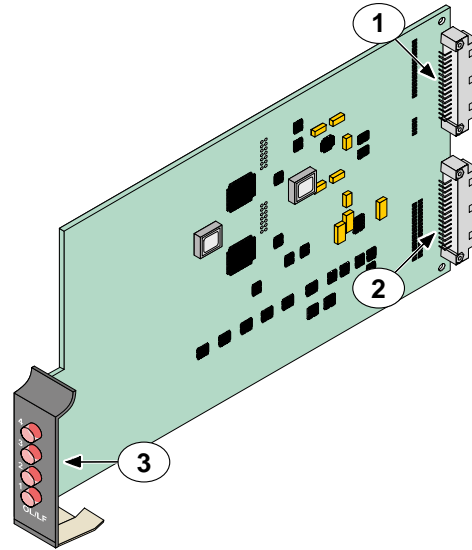


- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1 – Telephone line connections</li> <li>2 – Input/output ports</li> <li>3 – COM4 RS-232 port</li> <li>4 – COM3 auxiliary RS-232 port</li> </ul> | <ul style="list-style-type: none"> <li>5 – Parallel port connection</li> <li>6 – Ethernet port (D6100i only)</li> <li>7 – USB port</li> <li>8 – Power connection terminal block</li> </ul> |
|--|--|

## 4.0 D6600 Specific Cards

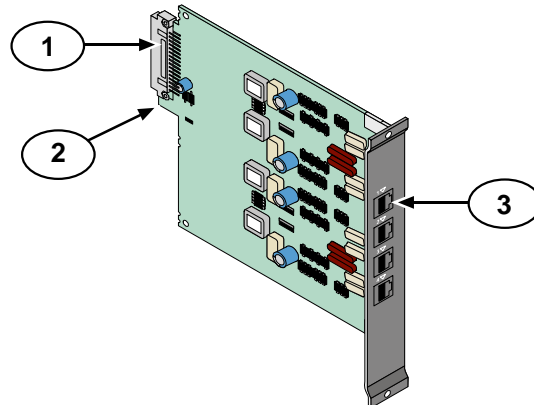
### 4.1 D6640/D6641 Line Cards and D6645 Line Terminator Card

**Figure 6: D6640/D6641 Line Card**



- 1 – 48-pin connection to D6645 Line Termination Card
- 2 – 40-pin connection to D6600 Back Plate
- 3 – LEDs (refer to Figure 8 on page 10)

**Figure 7: D6645 Line Terminator Card**

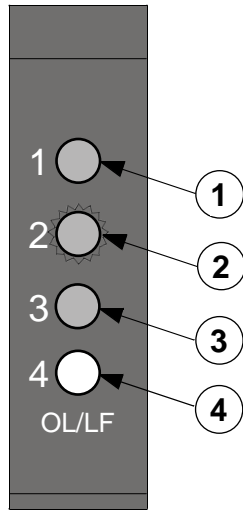


- 1 – 48-pin connection to D6640/D6641 Line Card
- 2 – Alignment Guide - Stabilizes the connection and acts as a guide for connecting the terminator card to the line card.
- 3 – Telco Line Jacks - Standard telephone lines connect to the RJ11C jacks.

### 4.1.1 D6640/D6641 LED Descriptions

The LED is active until the system acknowledges the entire transmission and the telephone line is ready to receive signals.

**Figure 8: D6640/D6641 LED Descriptions**



- 1 – Flashes green when an incoming call rings.
- 2 – Glows green when the receiver is online with an incoming call.
- 3 – Glows red when the line card detects a line fault condition.
- 4 – LED is off and ready to receive signals or is disabled in the software.

### 4.1.2 Card Installation



Discharge static electricity from your body by touching the receiver's internal frame (unpainted section) before handling any circuit card.

#### Installing Terminator Cards

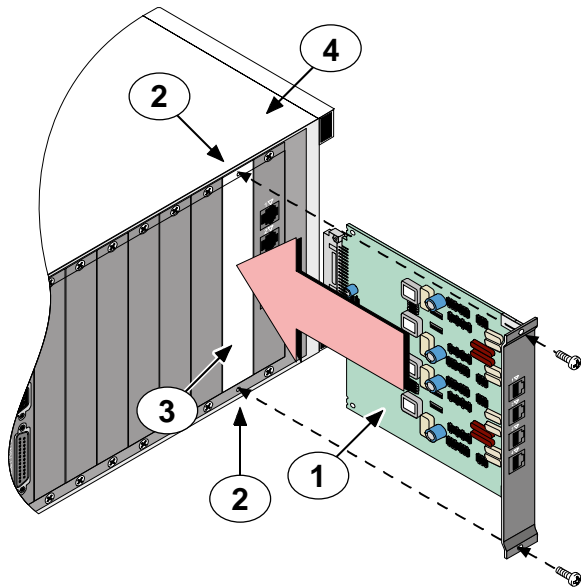
Refer to *Figure 9* on page 11 when performing the following steps:

1. Remove the two bracket screws that secure the terminator card (or card slot cover, if this is a new terminator card installation) to the back of the D6600 chassis.
2. If you are removing an existing terminator card, open the display door on the front of the D6600 and pull the line card slightly out, then re-insert. This will push the existing terminator card out the back of the D6600 chassis.
3. Remove the existing terminator card.
4. Insert the new terminator card in the same slot by aligning the top and bottom of the terminator card with the card guides in the D6600 chassis.
5. Slide the card into the D6600 chassis, wiggling the card as you push until the card is flush with the back of the chassis.
6. Secure the bracket screws at the top and bottom of the terminator card. Ensure that the screws are tight.
7. Repeat this process for all additional terminator cards.
8. Connect appropriate telephone line cords to the telephone line jack on the terminator cards.
9. Continue with *Installing Line Cards* on page 11.



Even if you are replacing an existing terminator card, you must proceed to *Installing Line Cards* on page 11.

**Figure 9: Removing and Installing Terminator Card**



- 1 – Terminator Card (D6645 shown)
- 2 – Bracket screws (top and bottom)
- 3 – Empty slot
- 4 – D6600 chassis

**Installing Line Cards**

1. Install the terminator card(s) (refer to *Installing Terminator Cards* on page 10).
2. Open the display door on the D6600.  
One telephone line card is installed in the D6600 when shipped from the factory.
3. Insert the new line card into the slot by aligning the top and bottom of the line card with the card guides in the D6600 chassis. Firmly push the card to make sure it is fully connected.
4. If you are installing a new telephone line card, remove the appropriate snap-in covers from the front of the panel.
5. Close the front panel.
6. Program the line card if necessary.  
When the line card is initialized (as indicated by a printer report), the settings in the line card programming section automatically load into the card.
7. Connect communication lines to the line card.

**4.1.3 D6640/D6641 Telephone Line Monitoring Voltage**

The line card continuously monitors the telephone line voltage. Normal operating voltage ranges from 1.8 VDC to 2.5 VDC. Any voltage above 2.5 VDC causes the line to appear good (restoral) and an indication appears if any voltage is below 1.8 VDC.

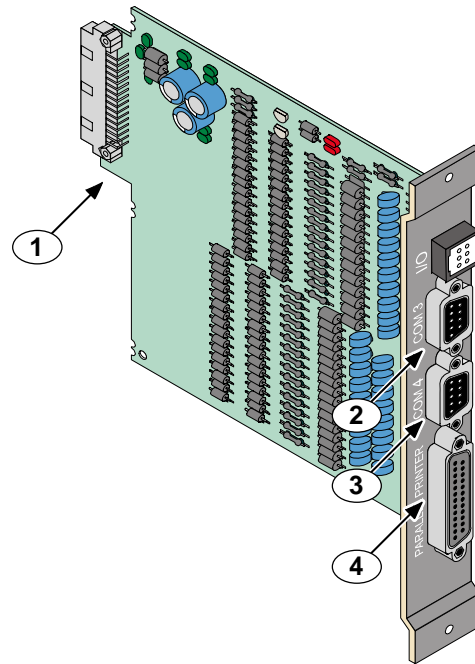
**4.2 D6610 CPU Card and D6615 CPU Terminator Card**

**4.2.1 D6610 CPU Card Connection**

The CPU card connects to the user interface on the front of the D6600 using a 50-pin ribbon cable socket.

**4.2.2 D6615 CPU Terminator Card**

**Figure 10: D6615 CPU Terminator Card**



- 1 – Alignment Guide - Stabilizes the connection and acts as a guide for connecting the terminator card to the CPU card.
- 2 – COM3 Automation Computer Port - An auxiliary RS-232 port for connecting to a computer terminal or an automation computer for SIA/6500 Mode Automation Format reporting use a null-modem cable to connect to a computer.
- 3 – COM4 RS-232 Port - Connection to a computer running the D6200 programming software.\*
- 4 – Parallel Printer Port

\* Use a null-modem cable to connect directly to the computer. You can also connect this port to a D6680 for communicating over a network.

**4.2.3 Card Removal and Replacement**



Remove power to the D6600 before removing, replacing, or installing the CPU card (D6610) or CPU terminator card (D6615).

### Removing the CPU Card

1. Remove power to the receiver (refer to *Section 7.7 Removing Power to the Receiver* on page 14).
2. Carefully grasp the plastic grip on the CPU card. Slide it 2 in. to 3 in. (50 mm to 75 mm) out of the enclosure.
3. Unplug the 50-pin ribbon cable connecting the user interface card to the CPU card. Be careful not to bend the board when disconnecting this cable. Grasp the plastic plug connected to the CPU board at the end of the cable and gently pull it away from the circuit board.
4. Pull the CPU card straight out of the card guide.

### Replacing the CPU Card

1. Remove power to the receiver (refer to *Section 7.7 Removing Power to the Receiver* on page 14).
2. Remove the defective CPU card from the enclosure.
3. Align the top and bottom of the CPU card with the card guides. Slide the card into the enclosure, leaving 2 to 3 in. (50 mm to 75 mm) out to connect the ribbon cable.
4. Connect the ribbon cable to the CPU card. Orient the cable so the red stripe is up and slide the card the remaining distance into the enclosure.
5. Restore power to the receiver.

## 5.0 Power Supply Modules (D6600 Only)



The AC/DC (D6630) and DC/DC (D6631) Power Supply Modules are not field serviceable.

Contact the Bosch Security Systems, Inc. National Repair Center at (800) 289-0096 for repair or replacement.

## 6.0 Printer Specifications

Parallel printer connection: Use the DB25 port on the back of the D6600/D6100i rear panel to connect to a standard parallel text printer.

**Models:** Safecom SC9002 (Star 300) requires 82.6 mm. (3.25 in) wide paper.

## 7.0 Installation

### 7.1 All Installations

Install the D6600/D6100i Communications Receiver/Gateway according to the National Electrical Code (NEC), NFPA 70, the National Fire Alarm Code, NFPA 72, and the local Authority Having Jurisdiction (AHJ).

### 7.2 UL Installations



UL Standard 827 requires that any central station listed for NFPA 72, Central Station Protective Signaling, UL Central Station Burglary or Police Station Connect Service must have a redundant receiver on the premises to use if the primary receiver malfunctions.



The D6640 is not intended for new installations, but is suitable for existing or retrofit sites.



A UPS is required for UL Fire Applications when using the D6600.



For UL installations of the D6100i, the GlobeTek, Inc. Modem DA-42-18L transformer shall be used.



The D6100i must be used with an UL Listed PSDN compatible automation system.



A "COMM FAIL" message may indicate a compromise attempt.



To meet requirement UL 1610, Section 63.1: The number of separate signals on a single channel are limited to 1000. Exception: There is no limit to the number of signals if the central-station equipment is completely duplicated by standby equipment and a switchover can be accomplished in not more than 90 seconds without loss of signals during this period.

Network Communication - The model D6100i receiver has been evaluated for communication over a Third Party Data Networks for the following Services when used with a compatible control unit:

1. Standard Line Security for Central Station Burglar Alarm Systems per UL 1610 and UL 365.

2. Level III Line Security for ULC-S303 and ULC-S304.
3. Phone lines have not been evaluated for line security.

In order to implement the Standard or Encrypted Line Security over the private or public IP networks, the firmware version must be 1.8.2.1. The firmware was evaluated for 128-bit encryption.

Supervision signals between premises alarm equipment and supervising station alarm receiver equipment shall be managed by the supervising station receiving equipment and not an intermediary network agent, device or service.

UL Standard 827 also states that you must be able to switch from one receiver to a standby receiver within 30 sec, and repair the faulty receiver and return it to service within 30 min.

NFPA 72 requires that if more than eight telephone lines are used, the receiving equipment must be completely duplicated so switchover can be accomplished in 30 sec (per NFPA 72-1996 4-5.3.2.2.1.1).

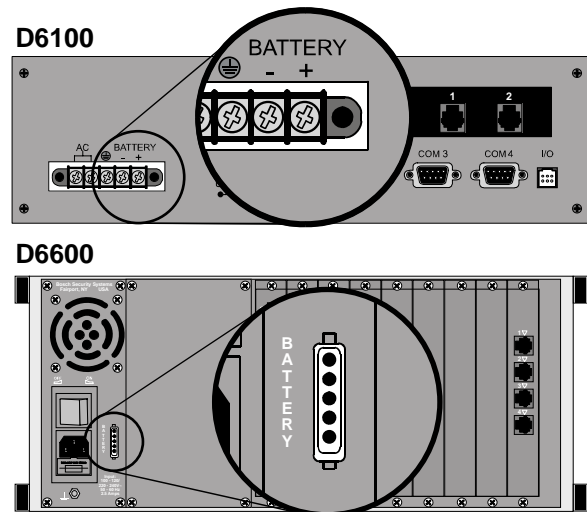
Table 5: Parameters to be set		
Programming Item (location in Prog. Manual)	Parameter to be Set	Location in Operation & Inst. Manual
2.2.21 Buzzer	Set to "1" to sound on all events. May be set to "3" when used with an automation system to sound only when the automation link fails.	Page 19, section 10.1.6
2.2.33 External Parallel Printer	Set to "1" to print all events. May be set to "3" when used with an automation system.	Page 19, 10.1.7
2.2.34 Battery Supervision	Set to "1" to activate.	Page 14, 8.0
3.1.2.1 Phone Supervision	Set to "1" to enable.	Page 11, 4.1.3

### 7.3 Burglar Alarm Applications



For commercial fire and burglary, proprietary and central station application that are using BIS, the BIS application shall be installed on the Listed Bosch model B-010 computer with Bosch model B-008 monitor and SC9002 printer connected.

**Figure 11: Location of D6100i Battery Terminals and D6600 Battery Connector**



Receivers are not shown to scale.

Install the D6600/D6100i according to UL Standard 827 for Central Station Burglar Alarm Systems. Use in a central station that has backup AC power (per UL 827) to supervise certificated accounts.

Terminals for connection of external batteries are on the rear of the receiver (Figure 11).

### 7.4 Fire Alarm Applications

The D6600/D6100i can be used for Central Station Protective Signaling when it is installed and used in compliance with NFPA 72 and ANSI/NFPA 70. Installation limits for digital alarm communicator receivers (DACR) are under the local AHJ.

### 7.5 Installation Check List

1. Check each receiver card to see that it is correctly positioned in the card guides at the top and bottom of the enclosure. Also confirm that connections did not loosen during shipment (D6600 only).
2. Ensure that the earth ground is connected and grounded through the AC inlet.
3. If you are installing additional line cards, install the terminator cards now (D6600 only).

4. After installing additional line terminator cards, install the line cards (refer to *Section 4.1.2 Card Installation* on page 10).
5. You might also want to install the line terminator card(s) from your spares package(s). If there is a malfunction, you can quickly switch over to the replacement card (refer to *Section 4.1.2 Card Installation* on page 10).



You can install spare line terminator cards. Do not install spare line cards.

6. Connect four or six conductor telephone cord(s) to the RJ11C jack(s) of the desired telephone line(s). Plug the other end of the modular telephone cord(s) into the telephone jack on the appropriate line terminator card(s).
7. Connect the appropriate country-specific AC transformer wiring leads to the AC terminals on the rear of the D6100.



The D6100i was tested by UL at 120Vac, 60 Hz.

8. Plug the AC cord (D6600 only) into a correctly wired 120 VAC, 60 Hz or 220 VAC, 50 Hz outlet (standard AC outlet).
9. Plug the AC transformer into the correctly wired wall receptacle that matches the voltage of the transformer.



Ensure that a switch does not control the outlet.

10. Turn the D6600 power switch on. The D6100i starts as soon as you plug in the AC Transformer.
11. Set the calendar and clock to the correct date and time and program the necessary options.
12. Ensure that the communication formats are correct by having communicators send test reports to each line connected to the receiver.

## 7.6 Rack Mount Instructions

Rack mounting hardware is included with the D6600, and is available as an option with the D6100i (D6100i RMK). When mounted in a rack, plug the D6600 AC cord or the D6100i AC transformer into an outlet inside the rack only if the outlet is wired according to Article 760 of the NEC. Rack mounting is required (per NFPA 72, 1-5.2.5.2) to meet the mechanical protection requirement when using the type of AC cord provided with the D6600. It is also required that a UL Listed rack for fire protective service be provided when used in UL Listed central stations.



UL requires rack mounting of the D6100i to meet grounding requirements.



Do not connect the D6600/D6100i to an outlet controlled by a switch.

## 7.7 Removing Power to the Receiver

1. Remove the battery power connection.
2. Turn off the AC power on the D6600 or unplug the D6100i AC transformer.
3. Unplug the AC cord from the outlet.



Do not try to restart the D6600/D6100i with a fully discharged battery. Reconnect after you apply power. To prevent deep battery discharge, use a D135A Low Battery Cutoff Module. Refer to the *D135A Installation Guide* (P/N: 74-06499-000) for more information.



If programmable Output 1 or 2 is activated by automation failure, you cannot clear Output 1 or 2 by pressing the [ACKNOWLEDGE] key.

## 8.0 Standby Power

During a loss of AC power, the receiver automatically switches to standby power. External batteries or an uninterruptible power supply (UPS) provides standby power. As long as there is adequate standby power, the receiver's operation is not interrupted, even if the power loss occurs during signal processing. When power supervision is enabled and a loss of AC power occurs, the primary reporting devices (such as printers and computers) show AC FAIL and the D6600/D6100i power indicator starts blinking. When AC power restores, the power indicator stops blinking and reporting devices show AC RESTORE.

### 8.1 Connecting External Batteries



Do not connect an external battery charger to the D6600/D6100i or its battery.

Use the terminal on the rear panel to connect an external DC power source. During AC power outages, the external DC source supplies power to the receiver. Use a 12 VDC lead-acid battery for external backup power.

Only use approved stationary standby batteries for UL applications. Battery wiring must run from the receiver through the UL Listed rack, exit the rack through a conduit connection, and terminate at a UL Listed battery enclosure suitable for the size and number of batteries used for UL applications.

**Table 6: Battery Voltage Display**

Battery Voltage	Display during AC power outage	Display if no battery when AC power is restored
Above 11.5 V	Battery OK	
11.5 V to 10.2 V	Battery Low	
Below 10.2 V	Battery Bad	Battery Missing

**Table 7: Calculating Standby Current for the D6600**

Device	Qty	12 V Battery Standby Current		UPS AC Standby Current	
D6600 (one D6640/ D6641/D6645 Card)	1	800 mA	800 mA	350 mA	350 mA
Additional D6640/ D6641/D6645 Cards		210 mA x Qty (2 to 7)		35 mA x Qty (2 to 7)	
Additional D6650/D6655 Cards		300 mA x Qty (1 to 8)		50 mA x Qty (1 to 8)	
D6672 COM1 Adapter		10 mA (if installed)		2 mA (if installed)	
		Total Standby Current:		Total UPS Current:	

The standby current required for the D6600 depends on the number of optional cards installed in the receiver. Use *Table 7* to calculate the D6600 standby current. The standby current required by the D6100i is listed in *Table 8*.

**Table 8: Standby Current for the D6100i**

12 V Battery Standby Current	UPS AC Standby Current
330 mA	180 mA

Capacity			
4 Ah	800	400	130
7 Ah	1400	700	230
8 Ah	1600	800	265
10 Ah	2000	1000	330
12 Ah	2400	1200	400
14 Ah	2800	1400	465
18 Ah	3600	1800	600

Includes 20% battery derating storage factor



18 Ah batteries are required to meet 24 hour standby requirements.



18 Ah batteries are required to meet 24 hour standby requirements.

**8.1.1 Minimum Standby Battery**

*Table 9* shows the maximum standby current for common rechargeable battery capacities at 4-hour, 8-hour, and 24-hour standby periods. If the standby current is larger than the value listed, you must use the next larger capacity battery.

**Table 9: Minimum Standby Battery Chart**

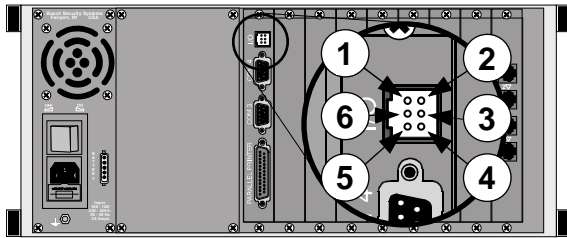
Rechargeable Battery	Maximum Standby Current (mA)		
	4 hr	8 hr	24 hr

**8.1.2 Minimum Standby UPS Power**

The minimum UPS power required (in watts) = Total UPS current x 120 (voltage) x required hours of standby + 20% (storage).

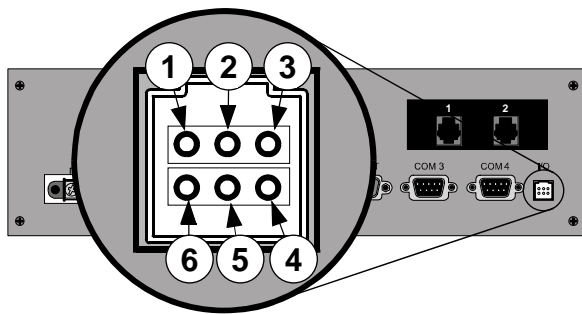
## 9.0 Input and Output Ports

**Figure 12: D6600 Back Panel Showing Input/Output Ports**



- |              |              |
|--------------|--------------|
| 1 – Output 1 | 4 – Ground 1 |
| 2 – Output 2 | 5 – Ground 2 |
| 3 – Input 2  | 6 – Input 1  |

**Figure 13: D6100i Back Panel Showing Input/Output Ports**



- |              |              |
|--------------|--------------|
| 1 – Ground 1 | 4 – Output 2 |
| 2 – Input 1  | 5 – Input 2  |
| 3 – Output 1 | 6 – Ground 2 |

### 9.1 UPS Monitoring through CPU Programmable Input Ports

Use the CPU programmable input port to connect the external UPS to the D6600/D6100i for power monitoring. Connect the monitoring port from the UPS to matching pins on the D6600/D6100i CPU Programmable Input/Output port (Figure 12). Wiring must run from the receiver through the UL Listed rack, exit the rack through a conduit connection, and terminate at the external UPS for UL applications. Set up the D6600/D6100i from **Menu 2.2.27 CPU Programmable Input 1** for Input 1; **Menu 2.2.28 CPU Programmable Input 2** for Input 2. Refer to the *D6600/D6100i Program Entry Guide* (P/N: 4998122702) for more information.

#### 9.1.1 Input Default Connection Configuration

- The I/O ports work with dry contact outputs.
- The open circuit input voltage on the input measures between 9 V and 12 V.

- UPS Battery OK (restore) – contacts closed
- UPS Battery Low input – contacts open

You can apply other output sources to the input wiring as long as you follow these guidelines:

- The maximum input voltage allowed without causing damage to the input is 24 VDC.
- For UPS “Battery OK” (restore), the input range must be between 0 V and 1 V.
- For UPS “Battery Low,” the input range must be between 3 V and 24 V.



The programmable input voltage range is undefined for input voltages between 1 V and 3 V. This might cause unexpected results such as toggling between “Battery Low” and “Battery OK.” The input should be connected to logic level outputs.

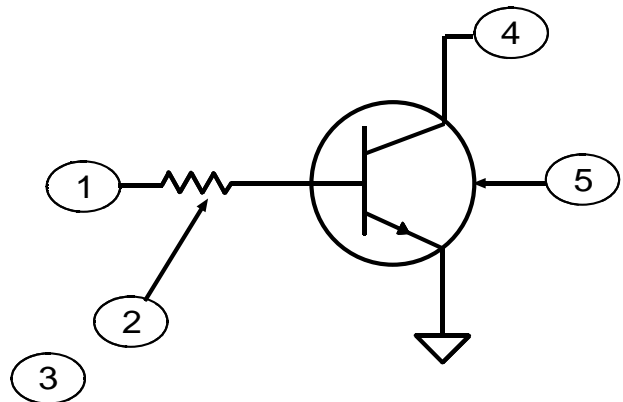
#### 9.1.2 Input Reverse Connection Configuration

If the input must be the opposite polarity for correct operation, place an external transistor circuit between the UPS output signal and the D6600 I/O input (Figure 14).

Follow these guidelines for correct operation:

- The maximum input voltage allowed without damaging the input is 24 V.
- UPS Battery OK (restore) input range from the UPS operates between 5 V and 24 V.
- UPS Battery Low input range operates between 0 V and 0.5 V

**Figure 14: Input Wiring for Reverse Configuration**



- |  |
|--|
| 1 – From UPS Battery OK signal 5 to 24 V |
| 2 – 22 k to 39 k                         |
| 3 – Battery Low signal 0 to 0.6V         |
| 4 – To I/O input                         |
| 5 – Any general purpose NPN transistor   |





Operating the input as an analog input between 0.5 V and 5 V might cause abnormal results. This input state is not defined and might change expected results



Reverse configuration is not for use in UL Listed applications.

## 9.2 Automation Link Monitoring (COM3) through CPU Programmable Output Ports

The output connections on the I/O port have an open collector transistor output that can activate an external sounder or light if the automation system fails.



Configure external devices using the specifications listed in *Table 10*. Outputs are not verified by UL.

**Table 10: Terminator Card Configuration**

Radionics D6615 CPU Terminator Card	Bosch D6615 CPU Terminator Card
Solid state output provides a current sink to common (-)	Solid State output provides a current sink to common (-)
Maximum load is 20 mA	Maximum load is 75 mA
Vsat @ 1 mA = 0.5 VDC	Vsat @ 10 mA = 0.5 VDC
Vsat @ 10 mA = 3.0 VDC	Vsat @ 25 mA = 1.0 VDC
Maximum voltage = 30 VDC	Vsat @ 50 mA = 2.5 VDC
	Maximum voltage = 30 VDC

## 10.0 D6600/D6100i Operation

### 10.1 Process Flow

#### 10.1.1 Receiver Handshake and Kiss-Off

The telephone line dialed by the communicator connects to a line card in the D6600/D6100i. The line card detects ringing voltage, answers the incoming call, and sends a programmed series of handshake tones. The communicator detects the expected handshake and transmits its message. The receiver sends the kiss-off after the receiver receives and understands the communicator's message.

Program the receiver for up to eight handshake attempts, using any combination of the available handshake tones.

With Handshake Optimization enabled, the D6600 can send the appropriate Handshake Tone (associated with the Caller ID number in the Caller ID database) to the control panel or a Dialed Number Identification Service (DNIS) database can be created to optimize the handshake outputs and other line card parameters.



The D6600 can use only one database (DNIS or Caller ID) at a time.

The D6100i does not have this feature.

#### 10.1.2 Message Verification

The D6600/D6100i checks each message for errors. If the receiver receives the data correctly, it sends the kiss-off acknowledgment tone to the communicator. The communicator hangs up and returns the subscriber's telephone line to normal.

If the data is not correct, the receiver withholds the kiss-off tone and prints an error message (refer to *Section 12.0 No Data Received Reports* on page 27), causing the communicator to retransmit the information. If the receiver still does not receive the data correctly after the communicator's set number of retransmissions, the communicator hangs up. The communicator restarts the signal process and attempts to transmit another message. The communicator repeats this process until the receiver receives the kiss-off tone or until the maximum number of dialing attempts is depleted.

#### 10.1.3 Handshake Tone Compatibility

When the D6600/D6100i answers an incoming line, it waits for a programmed time before transmitting the handshake tone(s).



Some communicators wait approximately 30 sec for the proper handshake tone. Others hang up immediately if they hear an improper handshake tone. Others have a very short handshake wait time.

To eliminate waiting through a sequence of handshake tones, program the line card so the first handshake tone transmitted is compatible with existing equipment.

The D6600/D6100i can receive incoming signals while transmitting handshakes.

#### 10.1.4 Message is Received

The receiver can process messages from all 32 telephone lines simultaneously. The messages print and appear one by one, as the previous message clears from the display.

Many control panels can transmit multiple messages in the same telephone call. Program the receiver to print all multiple message transmissions as a group, or print each message on arrival. Refer to *Report Grouping* in the *D6600/D6100i Program Entry Guide* (P/N: 4998122702) for more information.

As the receiver receives each message and checks the accuracy, it sends the kiss-off tone so the communicator can hang up. This allows the receiver to process new incoming calls on the line. As reporting devices (such as printers, computers) become available to receive additional signals, the D6600/D6100i retrieves the stored messages from memory and sends the messages to the reporting devices.

#### 10.1.5 How Call Groups Work

The D6600/D6100i allows each line to report and print as part of a call group. The receiver assigns telephone lines, which operate in rotary, to the same call group. A call group can include any combination of incoming lines, regardless of the physical location of the line card in the receiver or the geographical location of the accounts that report to the various lines in the group. When the receiver assigns a line to a call group, the group number (such as G01) can identify all reports on that line, with the exception of telephone line or line card trouble reports. If the receiver does not assign a line to a group, the line number (such as L01) identifies all reports. Refer to the *D6600/D6100i Program Entry Guide* (P/N: 4998122702) for more details on call groups.

### 10.1.6 Buzzer Operation

In the Manual Mode, an Operator Alert Buzzer sounds when a message is received until you press the [ACKNOWLEDGE] key. The buzzer operation is programmable and can be disabled when the receiver is programmed for the Automatic Mode.

#### 10.1.7 Reporting Devices: Primary and Secondary

A reporting device is any device that can print or display messages from the D6600/D6100. This includes the central station automation computer or an external printer. You can enable the external printer and designate it as the primary or secondary device. The automation computer is always a primary device unless disabled. Primary reporting devices receive all reports generated by the D6600/D6100i. Secondary reporting devices only receive input from the D6600/D6100i when all primary devices fail.



UL 1981 allows the receiver to suppress printing during normal automation system operation if the printer starts printing upon automation system failure.

If the receiver is in the Automatic Mode and all of the primary reporting devices (such as printers and computers) fail, the receiver re-routes the messages to the secondary reporting device(s). If you program the receiver for no secondary reporting devices or if all secondary reporting devices fail, the D6600/D6100i automatically switches to Manual Mode. When the receiver restores automation to normal operation, the D6600/D6100i returns to the Automatic Mode if the user manually acknowledges the last buffered signal.

## 10.2 Normal Operation Mode

In Normal Operation Mode, the D6600/D6100i sends messages immediately or in blocks to reporting devices (such as printers and computers) as soon as the devices are ready to receive the information. Signals do not remain visible in the display. If all reporting devices fail, the D6600/D6100i reverts to Manual Mode until a device returns to service. Normally, the D6600/D6100i sounds the Operator Alert Buzzer for new events received when the automation link fails.

### Typical Alarm Receiving Sequence

1. An alarm occurs on Zone 3 at subscriber location 456. The user programs Account 456 to report to Line 01 and does not assign Line 01 to report to a call group.
2. The OL LED glows green when the receiver answers the call and receives data.
3. The primary reporting device(s) (such as external printer or automation computer) activates.

If the external printer is a primary reporting device and Line 01 is not assigned to Group Reporting, it prints:

```
11/11 14:10 L01 ACCT 456 ALARM ZN 3
```

If Line 01 is assigned to Group 1 Reporting, the receiver's external printer prints:

```
11/11 14:10 G01 ACCT 456 ALARM ZN 3
```

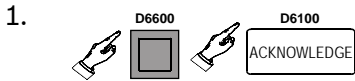
4. Line 01 hangs up

### 10.3 Operating in Manual Mode

If all reporting devices (such as printers and computers) fail, the D6600/D6100i reverts to Manual Mode until a device returns to service.

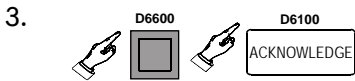
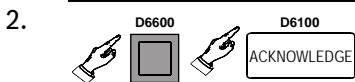
When the D6600/D6100i receives signals while in Manual Mode:

The Operator Alert Buzzer sounds.

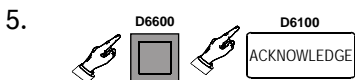
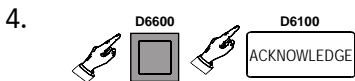


Shuts off the operator alert buzzer

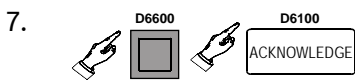
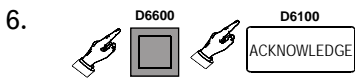
Compare the display to the printout to confirm you read the data correctly.



Sends the message to a connected printer

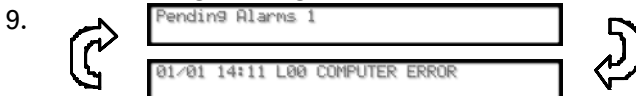


Sends the message to a connected printer



Sends the message to a connected printer

8. Repeat until the reporting device(s) record(s) all outstanding messages and the display clears.

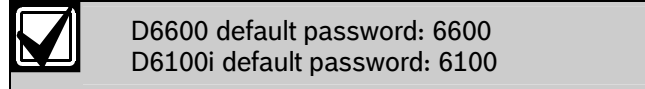


### 10.4 Keypad Menu Operation

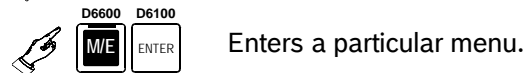
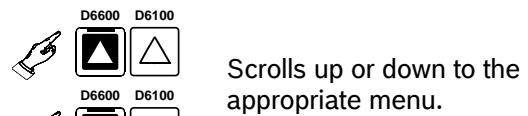
#### 10.4.1 Log In



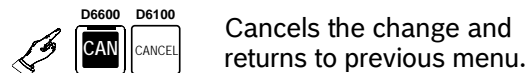
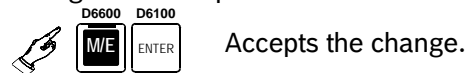
2. Enter password.



#### 10.4.2 Using the Keypad

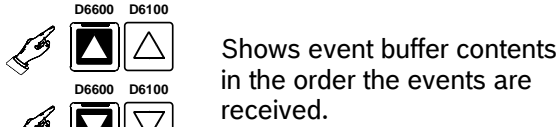


Continue making changes to options until all changes are complete.

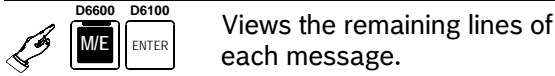


The new data takes affect upon exiting the menu.

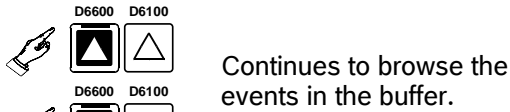
### 10.4.3 Event Buffer Display



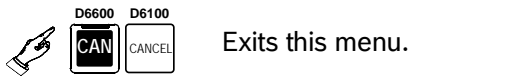
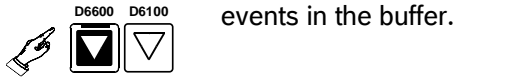
If multiple lines of text are received,



Views the remaining lines of each message.

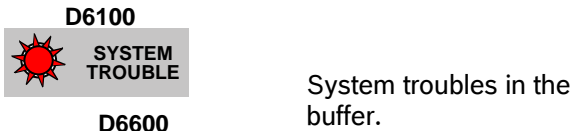


Continues to browse the events in the buffer.

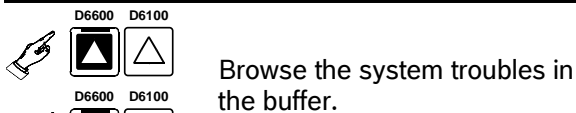
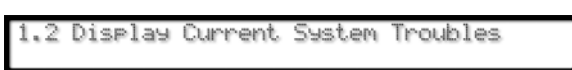


Exits this menu.

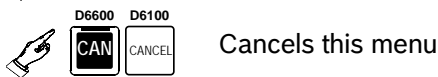
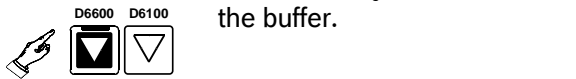
### 10.4.4 Current System Trouble Display



System troubles in the buffer.

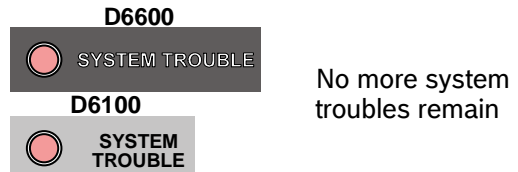


Browse the system troubles in the buffer.

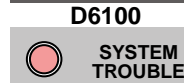


Cancels this menu

As you correct system troubles, the receiver removes them from this list.



No more system troubles remain



Refer to *Section 15.0 Troubleshooting Guide* on page 31 for more information.

### 10.4.5 Software Version Display



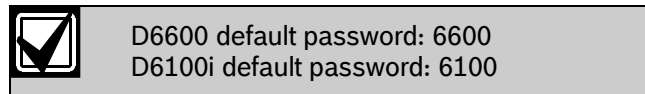
Shows the current software versions of the CPU and each line card.

### 10.4.6 Keypad Functions

Use this option to test the communication links to the automation firmware and printer.



2. Enter password.




**Table 11: Communication Links Test Outputs**

Table 11: Communication Links Test Outputs		
<b>Printer</b>	DD/DDsTT:TTsL08sACCTs888sss[TEST] sZNsss8	
<b>Automation</b>	D6500 Mode	h1rr8sssssss888s[sss8t
	SIA Mode	<header>[NVX]

### 10.4.7 Skip Current Automation Event


Use this option to skip the current Automation event.

04/06/2004 14:25:00

- 
- Enter Password: \_

Enter Password: \*\*\*\*

D6600 default password: 6600  
D6100i default password: 6100

- 

Welcome Manager...

Select the Function# [1..99]: \_


- 

- 

### 10.4.8 Line Test

Use this option to test the line operation.

04/06/2004 14:25:00

- 
- Enter Password: \_

Enter Password: \*\*\*\*

D6600 default password: 6600  
D6100i default password: 6100

- 

Welcome Manager...

Select the Function# [1..99]: \_

- 

Test Line Work Status  
Select the Function# [1..99]: 3\_

- 


Test Line Work Status  
Select the Function# [1..99]: 3\_

D6600:


Test Line Work Status  
Input Line [1..32]: \_

D6100:

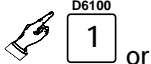
Test Line Work Status  
Input Line [1,2]: \_

- 

to



Selects the line to test.

















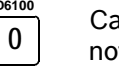

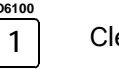
or

- 

The line disconnects, the receiver sends the handshakes, and the line reconnects.

### 10.4.9 Clear Pending Events

Use this option to clear all pending events.

1. 
  -  
2.  Enter password.
  - 
  - D6600 default password: 6600  
D6100i default password: 6100
3.  
  - 
  - 
4.  
  - 
  - 
5.   Cancels the function and does not delete all pending events.
  -   Clears all pending events.

### 10.5 Busy Seconds (Line Busy) Reports

The D6600 software monitors and reports when a call group of receiver lines cannot receive signals. The receiver cannot process signals if its incoming telephone lines are in trouble, if other communicators have the line tied up, or if the line card is inoperative. The receiver interprets these conditions as busy time.

The amount of busy time accumulated during a 10 min period is the basis for a Busy Seconds Reports. The 10 min busy period begins when all lines in a call group become busy, or when a non-programmed single line for a call group becomes busy. The D6600/D6100i totals the accumulated busy time and prints the Busy Seconds Report after the 10 min period ends. After at least 60 sec (10%) of busy time, the receiver generates a report. The D6600/D6100i reports up to 100% busy time.

Program the Busy Seconds Reports option to **No** if Busy Seconds Reports are not wanted for all lines. Setting the Line Sniff option to **2** disables reports for individual lines.

Enable Seconds Reports for UL Listed central stations.

UL inspectors might investigate the amount of time the digital receiver lines cannot receive signals. Ensure lines are available to process emergency signals on a timely basis. Excessive Line Busy Reports can indicate it is necessary to install additional lines in rotary with your primary receiver lines.

Assign each line to a call group. For the group to start accumulating busy time, all lines in the call group must be online, in trouble, or without an operating line card.

Although it is not mandatory, not assigning a line to a call group, or when there is only one line in the group, 1 min of busy time during a 10 min period results in a Busy Seconds Report.

If you do not assign a line to a call group, displays and printer reports identify the line number instead of the Group number. A Line Busy Report shows and prints:

```
11/11 06:20 L01 BUSY SECONDS 23% RCUR01
```

## 10.6 Two-Way Audio

When using the D6600/D6100i for Two-Way Audio (TWA) verification, use the Flash or Hold option according to the central station Private Branch Exchange (PBX) system, taking the D6600/D6100i off line in a short period. If a PBX is not used, connect a regular telephone in parallel with the incoming telephone line. Once the D6600/D6100i is in Two-Way Audio Mode, the operator can pick up the telephone and undertake the two way audio operation. Return the telephone to the receiver after the two-way audio operation finishes.



D6100i two way Audio was not investigated by UL.

The D6600/D6100i verifies the first digit of the account code range 0 to F programmed in the Account Digits option for the following communication formats:

- Pulse (3 or 4 digit account code)
- DTMF
- BFSK
- Modem II/IIIa<sup>2</sup>
- SIA

If the received account code is two-way audio enabled, the line card goes into Two-way Audio Mode. Programming a non-zero number in the Two Way Audio Duration option affects all formats, and the control panels cannot control the two-way audio duration over the D6600/D6100i.

If the qualifying criteria apply, the D6600/D6100i sends a signal to the automation firmware indicating the physical line is in Two-Way Audio Mode. The line remains off-hook for the time programmed in minutes in the Two-Way Audio Duration option.

or

When the flash option is set for 1 to 20 (100 ms to 2 sec), the CPU first sends the two-way audio signal to automation firmware. Then the line is flashed (quickly disconnected and reconnected) for the programmed flash duration. It remains off-hook for another 5 sec then hangs up.

or

When the Hold option is set for 1 to 99 sec, the line card remains off-hook for the programmed hold after sending the audio event signal to the automation firmware, allowing the firmware controlled PBX to pick up the line. Then it hangs up.

### 10.6.1 Enhancements and Changes

- Setting TWA by the selected Alarm Code allows one or multiple Alarm Codes to be selected. TWA works with 10 to 40 baud Pulse formats, DTMF 4/1, 4/2, 4/3 and Contact ID formats
- Setting TWA by the selected zone number allows the selection of one or multiple zone numbers. TWA works with 10 to 40 baud formats and DTMF 4/1, 4/2 and 4/3 formats.



The zone number is the last digit of events that activates the TWA function.

- TWA by combined conditions includes the account number, alarm code, and zone number
- Supports TWA auto-entered by more events and in various protocols, including Contact ID Event Code 606, and SIA control blocks.

When the line card is in Two-Way Audio Mode, it only goes on-hook when the operator presses [CAN] , or the automation firmware issues a Stop Listening Command **!Knn<CR>**, where **nn** is the physical line number.



The maximum on-line time during two audio sessions is disabled.

The line card's listen-in duration settings override the control panel's listen-in duration settings.

When pressing [CAN] during the two-way audio session, the receiver prompts the operator to enter the line number for stopping the two-way audio. Ensure the D6600 is not in Menu Mode during this operation.

The OL/LF LED flashes green during the audio session.

The D6600/D6100i prints the audio status on the printer with the physical line number and sends the audio status to the automation firmware with the physical line number.

The D6600/D6100i decodes the first digit of the account number to determine when to start two-way audio operation. If the first digit of the account number matches the selection, two-way audio activates.



### 10.6.2 Two-Way Audio Modes of Operation

- **Transfer:** D6600/D6100i transfers the incoming line to another line; a flash operation occurs at the end of the alarm signal. The receiver dials the line programmed at Transfer Phone Number (refer to *Menu Items 3.1.4.18 Flash [x 100ms]* and *3.1.4.19 Transfer Phone Number* in the *D6600/D6100i Program Entry Guide* [P/N: 4998122702]).
- **Hold:** The D6600/D6100i remains off-hook as programmed so another device can take over the line before hold time expires. Refer to *Menu Item 3.1.4.20 Hold* in the *D6600/D6100i Program Entry Guide* (P/N: 4998122702) for programming information.
- **Duration:** The D6600/D6100i remains off-hook as programmed or until terminated by a Stop command. Connect a regular telephone in parallel with the incoming telephone line. Refer to *Menu Item 3.1.4.1 Duration* in the *D6600/D6100i Program Entry Guide* (P/N: 4998122702) for programming information.



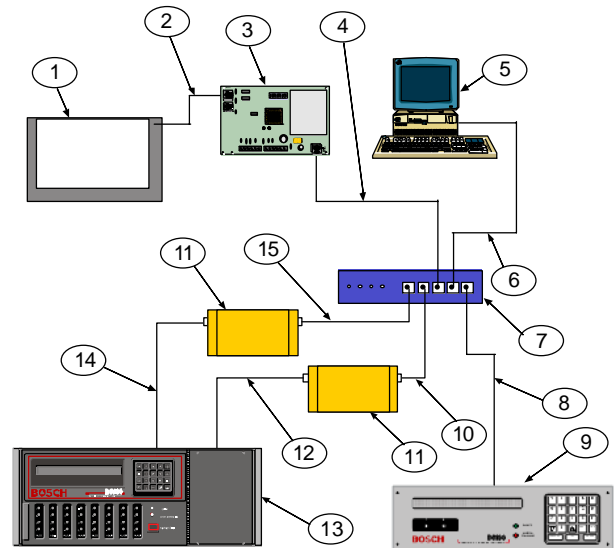
The D6600/D6100i can perform only one of these operations at a time. If there is more than one, the sequence is Transfer, Hold, and Duration.

## 11.0 Network Communications

The Conettix D6600 and D6100i Communications Receiver/Gateway systems support data network communications. This allows the receiver to connect to Ethernet networks, and process messages to and from most networks in user datagram protocol (UDP) or internet protocol (IP). Use a COM4 or a COM1 connection from the D6600 to connect the D6680 to the network. The D6100i has a built-in Ethernet module that can connect directly to the network. Refer to *Conettix D6600/D6100i Network System Guide* (P/N: 4998122712) for configuration setup Instructions. Central station automation software, through a local-area network (LAN) or wide-area network (WAN), receives reports from alarm control panels from the PSTN, or other data networks. The automation software also monitors the control panel status and connection over the network. Update or upgrade the receiver through the network connection. Use the D6200 software for remote programming of the receiver. Refer to the following documents about network communications and their installation requirements.

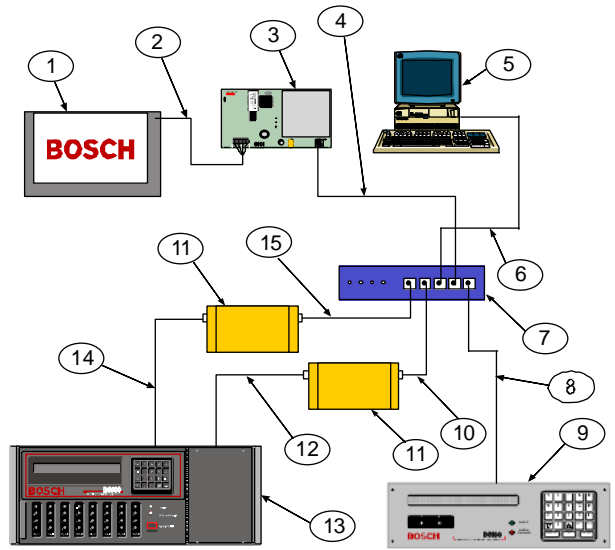
- *Conettix D6600/D6100i Network System Guide* (P/N: 4998122712)
- *D9133TTL-E Installation Guide* (P/N: 4998122717)
- *C900V2 Installation Guide* (P/N F01U003472)
- *C900TTL-E Installation Guide* (P/N: 4998122718)
- *DX4020 Installation Guide* (P/N: F01U045288)
- *D6680 Ethernet Network Adapter Installation Guide* (P/N: 4998138732)
- *DeviceInstaller Operation and Installation Guide* (P/N: 4998138688)

**Figure 15: Conettix Network System Connection Diagram - C900TTL-E/C900V2 and Any Control Panel**



- 1 – Any manufacturer's control panel
- 2 – Connection - Control panel telco jack to C900TTL-E jack
- 3 – C900TTL-E/C900V2 Dialer Capture Module
- 4 – Connection - C900TTL-E/C900V2 Ethernet jack to Ethernet hub
- 5 – Host PC running D6200 Programming Administrative Software
- 6 – Connection - Host PC network interface card (NIC) to Ethernet hub
- 7 – Ethernet hub
- 8 – Connection – Ethernet hub to D6100i
- 9 - D6100i
- 10 – Connection – Ethernet hub to D6680
- 11 – D6680
- 12 – Connection – D6680 to D6600 COM4 port
- 13 – D6600
- 14 – Connection – Second D6680 to D6600 COM 1 port (optional)
- 15 – Connection – Ethernet hub to second D6680

**Figure 16: Conettix Network System Connection Diagram - D9133TTL-E/DX4020 and Bosch Control Panels**



- 1 – Bosch Control Panels
- 2 – Connection – Control panel serial device interface (SDI) bus to D9133TTL-E or DX4020 SDI Terminals
- 3 – D9133TTL-E or DX4020 Network Interface Module
- 4 – Connection – D9133TTL-E or DX4020 Ethernet port to Ethernet hub
- 5 – Host PC running D6200 Programming Administrative Software
- 6 – Connection – Ethernet hub to Host PC NIC
- 7 – Ethernet hub
- 8 – Connection – Ethernet hub to D6100i
- 9 – D6100i
- 10 – Connection – Ethernet hub to D6680
- 11 – D6680
- 12 – Connection – D6680 to D6600 COM4 port
- 13 – D6600
- 14 – Connection – Second D6680 to D6600 COM1 port (optional)
- 15 – Connection – Ethernet hub to second D6680

## 12.0 No Data Received Reports

### 12.1 Description

If a message is garbled (incorrect checksum or inconsistent message rounds) due to a noisy telephone line or other difficulty, the receiver withholds the kiss-off tone. This causes the control panel to retransmit the same message up to four times.

### 12.2 No Data Received

The D6600/D6100i generates the message shown in *Figure 17* if one or more of the following occur:

- Telephone line noise causes the data to be unrecognized.
- A control panel sends the data in a format not recognized by the D6600/D6100i.
- A control panel transmitted nothing.

**Figure 17: NO DATA RECEIVED Message**

```
10/13 09:28 L01 NO DATA RECEIVED
```

### 12.3 Data Error

Data Error is a function of PSTN. It is an error condition when the D6600/D6100i receives partial data, appears on the LCD, and sends the error to a connected printer.

This occurs when telephone line noise causes data to be unrecognizable.

### 12.4 Wrong Data

Wrong Data is a function of the CPU where the PSTN software sends an invalid signal to the CPU. It only sends output to the LCD and any connected printer.

## 13.0 Using the Central Station Automation System with the Receiver

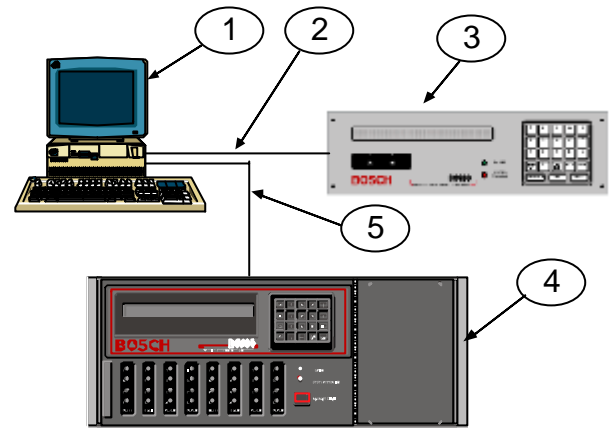
If using a Bosch Security Systems, Inc. receiver, connect a central station automation system computer to the COM3 port (automation computer port) on the rear of the receiver with a null-modem cable. Refer to the *D6600/D6100i Computer Interface Manual* (P/N: 4998122703) for additional information.

Standard automation reporting usually sends RS-232 serial data from the receiver COM3 port to a COM port of a separate automation PC (refer to *COM3 Automation Configuration* in the *D6600/D6100i Program Entry Guide* [P/N: 4998122702]). With no additional programming required at the D6600, you can use the same serial communication across a network connection by using D6680s at both ends of the automation communication path. The D6600 still sends the standard serial data, but the D6680s communicate with each other, convert the data back to the standard RS-232 that the automation computer can interpret, and transmit that data back over the network.



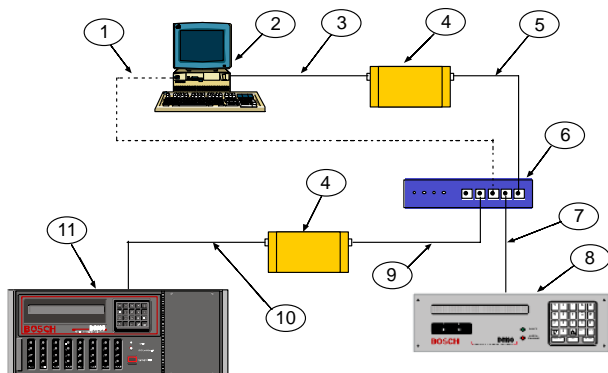
Some messages might go unacknowledged (NACK) due to increased network activities. This forces the D6600 to resend these messages. Refer to the *Conettix D6600 Network System Guide* (P/N: 4998122712) for complete details on network communications and programming.

Figure 18: Receiver System – Direct Connect



- 1 – Host PC
- 2 – Connection – Host PC COM1 port to D6100i
- 3 – D6100i
- 4 – D6600 Receiver
- 5 – Connection - Host PC COM1 Port to D6600 COM3 Port

**Figure 19: Receiver System – Standard/Network Automation**



- 1 – Connection - Host PC Network Interface Card to Hub
- 2 – Automation PC
- 3 – Connection - PC COM1 to D6680
- 4 – D6680
- 5 – Connection - D6680 to hub
- 6 – Hub
- 7 – Connection – Ethernet hub to D6100i
- 8 – D6100i
- 9 – Connection – Ethernet hub to D6680
- 10 – Connection - D6680 to D6600 COM4
- 11 – D6600



For automation packages with network capabilities: The packet format received from the receiver is the same as for RS-232 reporting, except an internet protocol (IP) and user datagram protocol (UDP) header is stamped on the packet as the data transmitted by either standard IP or UDP structure over the network. Automation software can easily support the network communication by calling Socket functions, both provided in Windows and UNIX. Using the built-in IP connections (or sockets) available in Windows and Unix.

## 14.0 Central Station Tips

### 14.1 Back-up Receiver

Spare circuit boards and receivers should be available at the central station. Keep a spare kit on hand. UL Listed central stations monitoring burglary or fire alarms must have a spare receiver available for activation within 30 sec.

### 14.2 Computer Interface



Keep spare cards for all receiver components.

Keep a spare CPU terminator card in the central station.

### 14.3 D6200 Programming Software



Keep D6200 Programming Software in the central station at all times.

### 14.4 Telephone Lines

#### 14.4.1 Emergency Ringers

Extension ringers for incoming receiver telephone lines are available from telephone equipment supply companies. They ring briefly to indicate an incoming call. If they continue to ring, your receiver is out-of-service. The ringer has a volume control, but in a high traffic central station, you might prefer to use beehive lights instead of ringers.

#### 14.4.2 Rotary Lines



Use rotary receiver lines (hunt groups) to prevent delay in alarm signals during periods of busy central station traffic.

Rotary lines are also important for providing alternate paths when a line is out of service. To use this feature have your dispatcher dial the out-of-service line and leave the calling telephone off the hook. This creates a busy signal on the line to all incoming communicators. The communicators automatically switch to an unused line. The telephone company provides rotary service when ordered.



UL and Factory Mutual central station service standards require constant monitoring of telephone lines.

## 14.5 Proper Ground

Connect the receivers to an **earth ground**, not a chassis or electrical ground. Measure the resistance of the receiver ground to another ground. If the meter reads above 2  $\Omega$ , check your receiver ground against a third ground. If the difference is still greater than 2  $\Omega$ , ground your receiver to a different earth ground. Cold water pipes or a grounding rod usually make a good earth ground. The grounding wire should be heavy copper with as short and straight a run as possible. Avoid sharp bends in the ground wire because a large power surge might arc across the bend.

The terminator cards and their connection to the receiver cabinet provide the ground source for the receiver's circuit boards. Firmly tighten all the screws used to secure the terminator cards to the back of the receiver cabinet.



If the mounting bracket screws are not tight, the receiver's operation can be erratic. A short circuit or foreign voltage induced into the system can cause the receiver to fail.

Put an anti-static mat in front of the receiver to prevent electrostatic discharge from the operator to the equipment.

## 14.6 Radio Frequency Interference

The D6600/D6100i is microprocessor based. All microprocessors are susceptible to radio frequency interference (RFI), especially at the 480 MHz and 950 MHz bandwidths used by walkie-talkies. Do not operate a walkie-talkie near a receiver.

## 14.7 Test Communicator

Periodically check your receiver and its telephone lines by using a digital communicator triggered by an interval timer. If you have more than one data line, use a communicator for each line or use a multiple number communicator.

## 15.0 Troubleshooting Guide

The D6600 consists of several plug-in assemblies that you can easily replace in the field (components and controls on individual assemblies are shown starting in *Section 3.0 Card Functions and Locations* on page 6).




Do not attempt to repair individual assemblies. Return any failed assemblies to Bosch Security Systems, Inc. for testing and repair. Use this Troubleshooting Guide to identify failed modular components.

**Table 12: Hardware Troubleshooting Guide**

Problem	Symptom	Solution
Line Card OL/LF LED steadily glows red.	Telephone line, telephone connecting cord, line card, or telco terminator is defective.	<ul style="list-style-type: none"> <li>• Pull the line card out of the receiver, and re-insert it to ensure the card is properly connected.</li> <li>• Exchange the connecting cord with a telephone line that operates. If the original OL/LF LED remains a steady red, the problem is with a plug-in card. Replace the line card with a spare. If the OL/LF LED for the new card is a steady red, change the line terminator card.</li> <li>• If the OL/LF LED on the original troubled card goes out and the OL/LF indicator on the previously untroubled card lights when you swap connecting cords, the trouble is with the telephone line. Replace the telco line connecting cord.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">                      If the OL/LF LED is still on, the trouble might be in the telephone line. Report the trouble to the telephone company.                 </div>
<div style="border: 1px solid black; padding: 10px;"> <p>Take immediate action if a telephone line is out of order and is the first line in a rotary or hunt group. Ask the telephone company to create a busy signal on the defective line at the telephone exchange.</p> <p>If emergency service is not available, call the troubled line and leave the calling handset off the hook. Do not hang up. Incoming alarm signals see a busy signal and rotor (hunt) to another line in the hunt group. This procedure does not work for Wide Area Telephone Service (WATS) lines.</p> </div>		
Menus cannot be accessed.	<ul style="list-style-type: none"> <li>• Incorrect password</li> <li>• Defective keypad panel</li> <li>• Defective CPU card</li> </ul>	<ul style="list-style-type: none"> <li>• D6600 default password: 6600.</li> <li>• D6100i default password: 6100.</li> <li>• Ensure that the ribbon cable connection between the CPU and the front panel is secure.</li> </ul>
Printer works but no display.	<ul style="list-style-type: none"> <li>• Defective or loose cable between the CPU card and display panel or user interface card</li> <li>• Defective user interface card</li> <li>• Defective CPU</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that the ribbon cable connection between the CPU and the front panel is secure.</li> <li>• Exchange the CPU Card with a known good card.</li> </ul>

**Table 12: Hardware Troubleshooting Guide (continued)**

Problem	Symptom	Solution
Operator alert buzzer cannot be silenced.	<ul style="list-style-type: none"> <li>• System stalled</li> <li>• Defective [Acknowledge] key</li> <li>• Defective user interface card</li> </ul>	<ul style="list-style-type: none"> <li>• Check watchdog LED on the inside of the door behind the keypad. LED must flash for a running system. A solid light indicates a faulty system. Reset power cycle of the D6600 if stalled.</li> <li>• Order replacement part P6603.</li> <li>• Return the D6600 for repair.</li> </ul>
D6200 cannot connect to the D6600/D6100.	D6200 serial connection is defective, missing, or incorrect serial cable.	<ul style="list-style-type: none"> <li>• Ensure that the cable between the PC and the D6600/D6100i is null-modem. Also ensure the cable is not damaged. Inspect all pins on the D6600/D6100i, PC, and serial cable.</li> <li>• Ensure that the null-modem cable is connected to the correct COM port of the PC (as per the D6200 COM setting; COM1 through COM8).</li> <li>• COM settings do not match. In the D6200, under the Settings Menu, select COM SETTINGS. Confirm that all settings match the configuration of the D6600 Host Programming Parameters (Menu Item 4.5 Parameters).</li> <li>• On the D6600, ensure Menu Item 4.5.9 RS-232 Direct Access Permission is set to 1.</li> <li>• If upgrading software, ensure that Menu Item 4.5.7 Software Programming Enable (on the D6600/D6100i) is set to 1.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">  <p>If Software Programming Enable is set to zero (0), communication between the D6200 and the D6600 is successful but the upgrades fail.</p> </div> <ul style="list-style-type: none"> <li>• If using COM4 through a direct connection, check that Menu Item 6.1.5 COM4 Network Adapter is set to 0.</li> <li>• If using COM1 through a direct connection, check that Menu Item 6.2.5 COM1 Network Adapter is set to 0.</li> <li>• Port conflicts with other applications on the host PC.</li> <li>• Reboot the PC and restart the D6200 with no other applications running.</li> <li>• Defective CPU terminator card.</li> <li>• Defective CPU card.</li> <li>• Defective PC COM port.</li> </ul>



**Table 12: Hardware Troubleshooting Guide (continued)**

<b>Problem</b>	<b>Symptom</b>	<b>Solution</b>
D6200 cannot connect to the receiver through a network connection.	D6200 network connection is defective, missing, or has incorrect network cable.	<ul style="list-style-type: none"> <li>• Ensure that the Ethernet connection light on the network interface module for the PC running D6200 Software is on. This indicates a good network connection.</li> <li>• Ensure that the Ethernet connection light on the D6680 for the PC running D6200 Software is on. This indicates a good network connection.</li> <li>• If using the D6600's COM4 to connect to the D6680, ensure that Menu Item 6.1.4 COM4 Network Adapter in the D6600 is set to 1.</li> <li>• If using the D6600's COM1 to connect to the D6680, ensure that Menu Item 6.2.5 COM1 Network Adapter in the D6600 is set to 1.</li> <li>• If using the D6100i's Ethernet connection, ensure that Menu item 6.2.5 Network Adapter is set to 1.</li> </ul>
D6200 cannot connect to the receiver through a network connection.	D6200 network connection is defective, missing, or has incorrect network cable.	<ul style="list-style-type: none"> <li>• If communicating within the same LAN, the IP address of the PC running the D6200 software must be entered into the receiver Menu Items 6.4.1 IP Address 1, 6.4.2 IP Address 2, or 6.4.3 IP Address 3.</li> <li>• If communicating over a WAN, the external IP address of the LAN with the PC running the D6200 software must be entered into the receiver's Menu Items 6.4.1 IP Address 1, 6.4.2 IP Address 2, or 6.4.3 IP Address 3.</li> <li>• Ensure that Menu Item 6.4.5 Network Programming Enable in the receiver is set to 1.</li> <li>• Ensure that the D6200 programming software is set up for TCP/IP network connection (select Administration → Connection Settings). <ul style="list-style-type: none"> <li>— If communicating on the same LAN, ensure that the IP address of the D6680 or D6100i is entered correctly.</li> <li>— If communicating over a WAN, ensure that the external IP address of the LAN with the D6680 or D6100i is entered.</li> <li>— Both port numbers match (valid ports are from 2001 to 9998).</li> </ul> </li> <li>• If encryption is enabled on the D6200, <ul style="list-style-type: none"> <li>— it must also be enabled on the D6680 or D6100i.</li> <li>— the 16-byte key must be the same in the D6680 or D6100i and the D6200 software.</li> </ul> </li> </ul>
D6200 cannot connect to the D6600 through a network connection.	D6200 network connection is defective, missing, or has incorrect network cable.	<ul style="list-style-type: none"> <li>• If communicating over a WAN, the firewalls of the LANs must be configured correctly. For example, the D6680 resides on one LAN while the D6200 software resides in another LAN. A WAN connects them both but the firewalls at either LAN need to allow TCP and UDP packets through.</li> <li>• Firewalls must allow your selected ports to pass through.</li> <li>• Contact your IT administrator.</li> </ul>

## 16.0 Specifications

**Table 13: D6600/D6100i Specifications**

Table 13: D6600/D6100i Specifications				
<b>Dimensions (H x W x D)</b>	D6600	Rack mount (4U)	18 cm x 48.3 cm x 49.5 cm (7.0 in. x 19.0 in. x 19.5 in.)	
		Standalone	18 cm x 45.0 cm x 49.5 cm (7.0 in. x 17.75 in. x 19.5 in.)	
	D6100i	Rack mount (2U)	9.0 cm. x 37.5 cm. x 25.5 cm (3.5 in. x 19 in. x 10 in.)	
		Standalone	9.0 cm. x 30.5 cm. x 25.5 cm (3.5 in. x 12.0 in. x 10 in.)	
<b>Weight</b>	D6600	8.7 kg (19 lb)		
	D6100i	3 kg (7 lb)		
<b>D6600 Power Input</b>	AC Nominal Operating Range		120 V or 230 V	
	AC Maximum Operating Range		100 VAC to 120 VAC, 220 VAC to 230 VAC, 50 - 60 Hz 2.5 A maximum	
<b>D6100i Power Input</b>	AC Nominal Operating Range		18 VAC, 40 - 50 VA Transformer	
<b>Current Required</b>	D6600 with one line card installed	Required battery current		800 mA
		Required UPS AC standby current		350 mA
	For each additional line card or terminal card pair	Required additional battery current		210 mA
		Required additional UPS AC standby current		35 mA
	For network communications card	Required additional battery current		10 mA
		Required additional UPS AC standby current		10 mA
D6100i	Required battery current		330 mA	
	Required UPS AC standby current		180 mA	
<b>Standby Power</b>	The receiver includes an external battery connection and battery harness. Use 12 V rechargeable sealed lead-acid batteries. A 4-hour minimum standby power supply (UPS or battery) is required for UL Certification (refer to <i>Section 8.1 Connecting External Batteries</i> on page 14 for battery size).			
<b>Telephone</b>	RJ11C modular jacks, with 26 AWG or larger wire diameter.			
<b>FCC Registration</b>	D6600 ESVUSA-25328-AL-N D6100i ESVAL04BD6100 The D6600 Receiver is Federal Communications Commission (FCC) registered under Part No. 68 using the RJ11C Interconnect that can be ordered from your local telephone company.  Notice: This equipment has been tested and found to comply with the limits for a Class A (D6600) or Class B (D6100i) digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: <ul style="list-style-type: none"> <li>• Reorient or relocate the receiving antenna.</li> <li>• Increase the separation between the equipment and receiver.</li> <li>• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.</li> <li>• Consult the dealer or an experienced radio/TV technician for help.</li> </ul> Any modifications made to this device that are not approved by Bosch Security Systems, Inc. may void the authority granted to the user by the FCC to operate this equipment.			
<b>Ringer Equivalence</b>	0.4 B			

<p><b>Industry Canada</b></p> <p><b>Ringer Equivalence</b></p>	<p>D6600 1249A-8925A</p> <p>D6100i 1249A-6100</p> <p>This product meets the applicable Industry Canada technical specifications.</p> <p>The Ringer Equivalence Number is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five (5.0).</p>	
<p><b>Display</b></p>	<p>Screen size: (H x W)</p> <p>LED</p>	<p>0.7 in. x 6.0 in. (1.8 cm x 15.2 cm) dot matrix LCD (5 x 7 dots per character). Shows two separate lines of 40-characters each.</p> <p>LED display section indicates receiver status and power.</p>
<p><b>Inputs and Outputs</b></p>	<ul style="list-style-type: none"> <li>• One RS-232 interface port COM3 (middle connector on the CPU terminator card) for connection to an automation computer.</li> <li>• One RS-232 interface port COM4 (upper connector of CPU terminator card) for connection to an external serial printer, a PC, a modem, or a network.</li> <li>• One parallel printer port for connection to a parallel printer</li> <li>• Two programmable inputs (wire harness included)</li> <li>• Two programmable outputs (wire harness included)</li> <li>• Optional: One RS-232 port (COM1) for the Network Communications expansion option (D6600 only).</li> </ul>	
<p><b>D6600/D6100i Listings and Approvals</b></p>	<p><b>D6600 Listings and Approvals</b></p> <ul style="list-style-type: none"> <li>• UL Central Station Fire (UL864)</li> <li>• UL Central Station Burglary (UL1610)</li> <li>• UL Police Station Connect (UL365)</li> <li>• UL Proprietary 1076</li> <li>• Approved for use for Encrypted Line Security when communicating via a Packet Switched Data Network (PSDN)</li> <li>• ULC S527 Central Station Fire</li> <li>• cUL S304-M88, Central and Monitoring Station Burglar Alarm Units, C1076, Proprietary Burglar Alarm Units and Systems</li> <li>• Approved for use for Level 3 Line Security when communicating via PSDN</li> <li>• NIST AES Certification (D6680)</li> </ul>	<p><b>D6600 and D6100i Listings and Approvals</b></p> <ul style="list-style-type: none"> <li>• Austel Approved</li> <li>• CE Approved                         <ul style="list-style-type: none"> <li>- CTR-21</li> <li>- EN60950 Safety</li> <li>- EN55022 Radiated/Conducted Emissions</li> </ul> </li> <li>• FCC Part 15 Radiated/Conducted Emissions</li> <li>• FCC Part 68 Telecom</li> <li>• Industry Canada</li> </ul>

## 17.0 Service Information

(EMERGENCY DATA SHEET)

In a central station emergency, use this information to contact the necessary people and enable Bosch Security Systems, Inc. Customer Service Personnel to help you with your emergency. Ask your supervisor to provide the following information:

Supervisor's Name:	
Emergency Telephone #:	
Telephone Co. Repair Service Telephone #:	
Contact:	
Power & Light Co. Repair Service Telephone #:	
Contact:	

Bosch Security Systems, Inc. Customer Service: (800) 289-0096 (press [2] for Technical Support).  
When calling for emergency central station service, please tell the operator "Receiver Problem."

**Receiver Software Version #**      CPU: \_\_\_\_\_      Line: \_\_\_\_\_      D6200: \_\_\_\_\_

**Line Card Model Numbers Installed (D6600 only)**

Slot 1: _____	Slot 5: _____
Slot 2: _____	Slot 6: _____
Slot 3: _____	Slot 7: _____
Slot 4: _____	Slot 8: _____

**Incoming Receiver Telephone Line Numbers:**

Line 1: _____	Line 17: _____
Line 2: _____	Line 18: _____
Line 3: _____	Line 19: _____
Line 4: _____	Line 20: _____
Line 5: _____	Line 21: _____
Line 6: _____	Line 22: _____
Line 7: _____	Line 23: _____
Line 8: _____	Line 24: _____
Line 9: _____	Line 25: _____
Line 10: _____	Line 26: _____
Line 11: _____	Line 27: _____
Line 12: _____	Line 28: _____
Line 13: _____	Line 29: _____
Line 14: _____	Line 30: _____
Line 15: _____	Line 31: _____
Line 16: _____	Line 32: _____

Are Lines in Rotary?    Yes: \_\_\_\_\_    No: \_\_\_\_\_

Type of WATS Lines?    Local: \_\_\_\_\_    Statewide: \_\_\_\_\_    National: \_\_\_\_\_

Other: \_\_\_\_\_

Location of Receiver Spares Package: \_\_\_\_\_

\_\_\_\_\_

Location of Receiver Ground Wire Connection:

-----

-----  
Location of AC Power for Receiver:

-----

-----  
Location of Telephone Line Jacks:

-----

-----  
Receiver Connected to Computer System?:    Yes: \_\_\_\_\_    No: \_\_\_\_\_

Automation System Manufacturer:    -----

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Fairport, NY 14450-9199  
(800) 289-0096

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