PC1616/PC1832/PC1864 STANDARD INSTALLATION GUIDE

This Installation Guide provides the basic installation, wiring and programming information required to program the PowerSeries PC1616, PC1832 and PC1864 control panels. This guide shall be used in conjunction with the *PowerSeries PC1616/1832/1864 Reference Manual* which can be obtained from your local dealer or downloaded from the DSC web site at www.dsc.com.

NOTE: All necessary information required to meet UL Listing requirements is contained in this document.

Read the complete guide, then work through each step as indicated.

OUT Of THE BOX

Qty 1 ❑ Cabinet
Qty 1 ❑ PC Module
Qty 1 ❑ Installation guide
Qty 1 ❑ User manual
Qty 2 ❑ Cabinet Label
Qty 1 ❑ Cabinet Door Plug
Qty 4 ❑ Standoffs
Qty 16 ❑ 5.6KΩ Resistors
Qty 1 ❑ 2.2KΩ Resistors
Qty 1 ❑ 1.0KΩ Resistors
Qty 1 ❑ 10Ω Resistors
Qty 1 ❑ Grounding Kit

SPECIFICATIONS

Temp Range .... 0°C-49°C (32°F-120°F)
Humidity (Max)............................ 93%R.H.
Power Supply........ 16.5VAC/40VA @60Hz
Current Draw (Panel) ....110mA (nom.)
Aux+ Output............11.1-12.6VDC/700mA
Bell Output..............11.1-12.6VDC/700mA

FEATURES	PC1616	PC1832	PC1864
On-board Zones	6	8	8
Hardwired Zones	16 (1xPC5108)	32(3xPC5108)	64 (7xPC5108)
Wireless Zones	16	32	32
Keypad Zone Support	✔	✔	✔
On-board PGM Outputs	PGM 1 - 50mA PGM 2 - 300mA	PGM 1 - 50mA PGM 2 - 300mA	PGM 1, 3, 4 - 50mA PGM 2 - 300mA
PGM Expansion	8x50mA (PC5208) 4x500 mA (PC5204)	8x50mA (PC5208) 4x500 mA (PC5204)	8x50mA (PC5208) 4x500 mA (PC5204)
Keypads	8	8	8
Partitions	2	4	8
User Codes	32 + Master Codes	32 + Master Codes	32 + Master Codes
Event Buffer	500 Events	500 Events	500 Events
Transformer Required	16.5VAC/40VA	16.5VAC/40VA	16.5VAC/40VA
Battery Required	4Ah / 7Ah/14AHr	4Ah / 7Ah/14AHr	4Ah / 7Ah/14AHr
Bell Output	12V/700 mA (cont)	12V/700 mA (cont)	12V/700 mA (cont)

COMPATIBLE DEVICES

Keypads (*Backward compatible with all PowerSeries keypads*)

PK5500 Keypad...125mA (max.)
PK5501 Keypad...125mA (max.)
PK5508 LED Keypad..125mA (max.)
PK5516 LED Keypad..125mA (max.)
PC5532Z LED Keypad ....125mA (max.)
LCD5511 Fixed Message LCD Keypad........................ 85mA (max.)
LED5511Z 8-zone LED Keypad ....100mA (max.)

Cabinets

PC5003C 222x298x78mm (11.3x11.7x3.0in)
PC500C 213x235x78mm (8.4x9.25x3.0in)
Refer to the Reference Manual for alternate control cabinets

Modules

T-Link TL-250/TL300 ....275/350mA
PC5100 2-wire Interface .... 40mA plus devices to 170mA max.
PC5132-433 Wireless Receiver 125mA
RF5108-433 Wireless Receiver 125mA
PC5108 Zone Expander 30mA
PC5204 Power Supply with 4 Programmable Outputs 30mA
PC5208 Low Current Programmable Output Module 50mA
PC5400 Printer/DVAC Module 65mA
PC5401 Bi-Directional RS232 Module (Not UL Listed) 65mA
Escort5580 Telephone Interface Module 130mA
Refer to the Reference Manual for additional devices.

Classified in Accordance with ANSI/SIA CP-01-2000 (SIA-FAR)

DSC®

PowerSeries™

S E C U R I T Y   S Y S T E M

(UL) (ULC)

Hardware Installation

Begin the installation by mounting the cabinet in a dry protected area with access to unswitched AC power.
Install Hardware in the sequence indicated below. Do **NOT** apply power until installation is complete.

NOTE: All wiring entry points are designated by arrows. All circuits are classified UL power limited except for the battery leads. Minimum 1/4" (6.4mm) separation must be maintained at all points between power limited and non-power limited wiring and connections.

1. Keybus Wiring

The 4-wire KEYBUS (red, black, yellow and green) is the communication connection between the control panel and all modules. The 4 KEYBUS terminals of all modules must be connected to the 4 KEYBUS terminals of the main control panel.

The following rules must be followed when wiring the Keybus:

- Minimum 22 AWG wire, maximum 18 AWG (2-wire twisted preferred
- Do **NOT** use shielded wire
- Modules can be home run, connected in series or can be T-tapped provided that the maximum wire distance from the control panel to any module does not exceed 1,000 feet (305m)
- No more than 3,000 feet (915m) of wire can be used in total
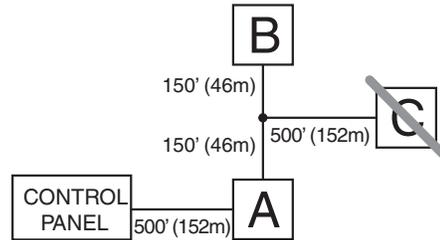
2. Zone Wiring

Zones can be wired for Normally Open, Normally Closed Contacts with Single-end-of-line (SEOL) resistors or Double End-of-Line (DEOL) resistors. Observe the following guidelines
- **For UL Listed Installations use SEOL or DEOL only.**
- Minimum 22 AWG wire, maximum 18 AWG
- Do **NOT** use shielded wire
- Wire run resistance shall not exceed 100Ω. Refer to the chart below.

Burglary Zone Wiring Chart

Wire Gauge	Maximum wire length to End of Line Resistor (feet/meters)
24	1900 / 579
22	3000 / 914
20	4900 / 1493
19	6200 / 1889
18	7800 / 2377

Figures are based on maximum wiring resistance of 100 ohms.

- Section [001-004] Selects Zone Definition
- Section [013] Opt [1] Selects Normally Closed or EOL resistors
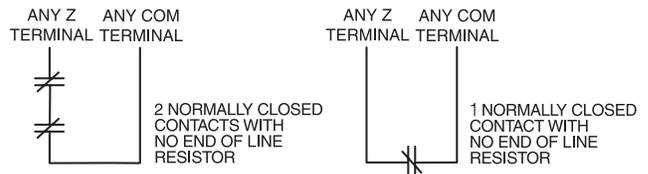- Section [013] Opt [2] Selects Single EOL or Double EOL resistors.

Zone Status

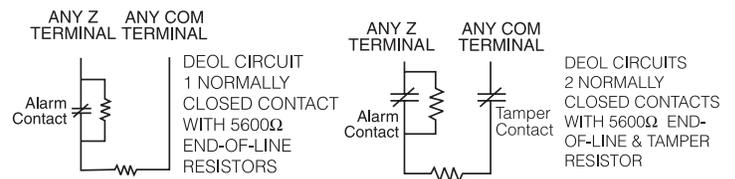| **Loop Resistance**	**Loop Status**
- 0Ω (shorted wire/loop)	Fault
- 5600Ω (contact closed)	Secure
- infinite (broken wire, open)	Tamper
- 11,200Ω (contact open)	Violated

Normally Closed Loops - Do NOT use for UL Installations

Single End-of-Line Resistor Wiring
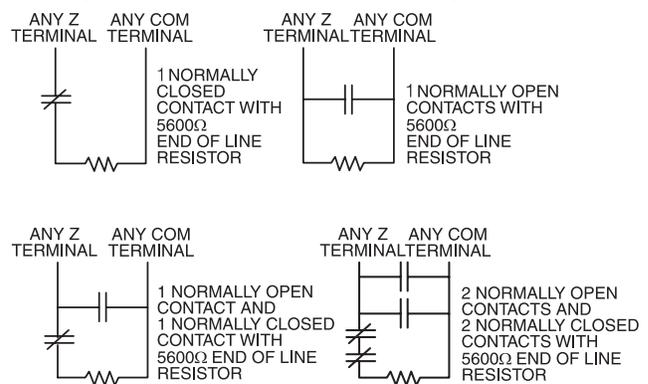

Double End-of-Line Resistor Wiring

3. Bell Wiring

These terminals supply 700mA of current at 12V$_{DC}$ for commercial installations and 11.1-12.6 V$_{DC}$ for residential installations (e.g.DSC SD-15 WULF). To comply with NFPA 72 Temporal Three Pattern requirements:

Program **Section [013] Opt [8] ON**.

The Bell output is supervised and power limited. If unused, connect a 1000Ω resistor across Bell+ and Bell- to prevent the panel from displaying a trouble. See **[✱][2].**
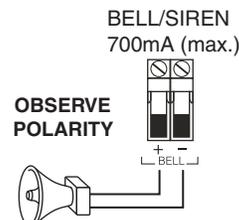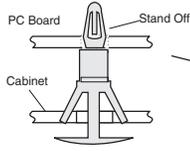

NOTE: Bell output is current limited by 2A PTC

NOTE: Steady, Pulsed and Temporal Three Pattern alarms are supported.

1. Insert Stand off into cabinet mounting hole in the desired location. Snap-in-place.

2. Position circuit board mounting holes over standoffs. Press firmly on board to snap-in-place.

PC Board
Stand Off
Cabinet

Primary:120VAC/60Hz.
Secondary: 16.5VDC 40VA
DSCPTD 1640U
Class II Transformer

NOTE: Do not connect transformer to receptacle controlled by a switch

North America Only

POWER LIMITED

Cable Tie (not supplied) recommended

UA503   DSC

PC1616/1832/1864

WARNING:
High Voltage. Disconnect AC Power and telephone lines before servicing

PC1864 Only   PC1864 PC1832 Only   TB-2

See Section 9 for ground wiring details

12V / 7 AHr   12V / 7 AHr

BLACK —

RED +

NON-POWER LIMITED

DSC Model BD7-12 or equivalent

Battery StandbyTime: 24Hrs min.

230 VAC/50 Hz International

To EGND Terminal

16.5VAC/40VA

FUSE
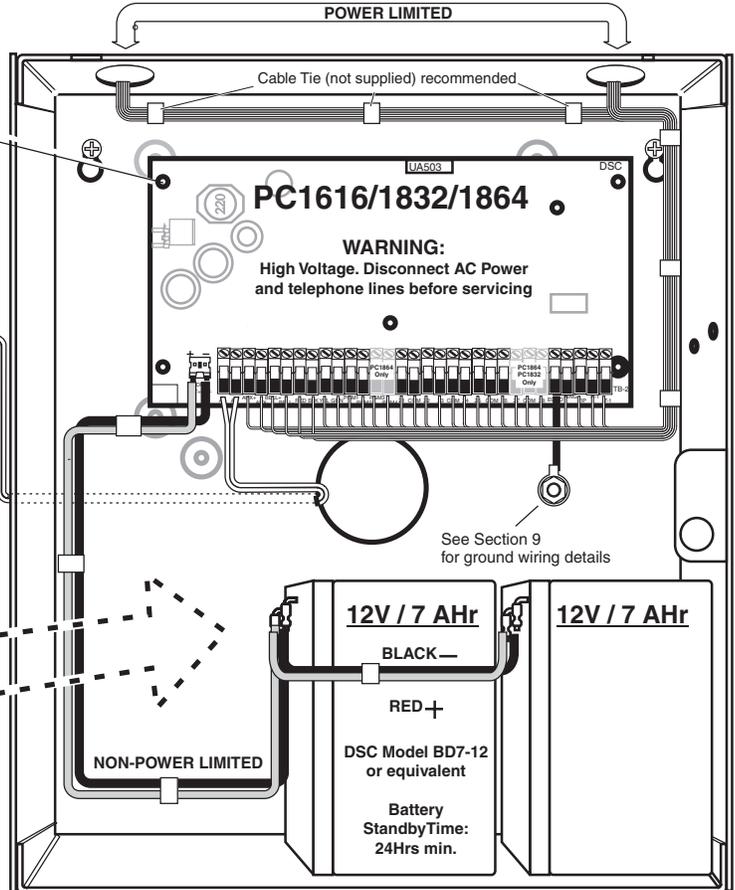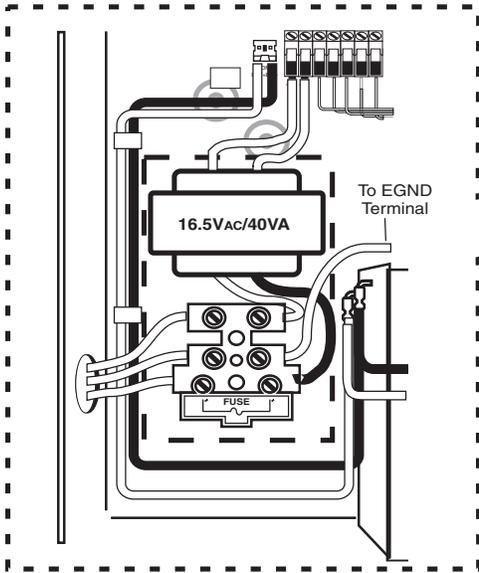
WARNING: Incorrect connections may result in PTC failure or improper operation. Inspect wiring and ensure connections are correct before applying power.

Incorrect connection of batteries may result in battery rupture or Fire Hazard. Do NOT allow metal objects to connect the Positive and Negative Terminals. Ensure that batteries are connected with correct polarity (Red to (+), Black to (-)). Failure to comply wi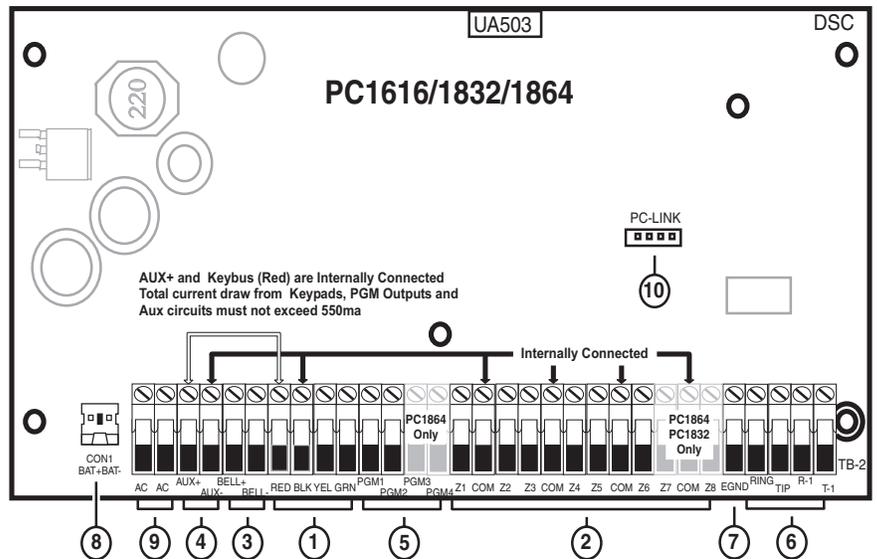th this may result in battery rupture and/or Fire Hazard. All circuits are classified for UL Installations as Power Limited/Class II Power Limited except for battery leads which are not power limited.

Do NOT route any wiring over circuit boards. Maintain at least 1"(25.4mm) separation. A minimum of 1/4" (6.4mm) separation must be maintained at all points between power limited wiring and all other non-power limited wiring.

IMPORTANT:

a)This equipment, Alarm Controller PC1616/1832/1864 shall be installed and used within an environment that provides the pollution degree max 2 and overvoltages category II NON-HAZARDOUS LOCATIONS, indoor only. The equipment is FIXED and PERMANENTLY connected and is designed to be installed by service persons only; [service person is defined as a person having the appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task and of measures to minimize the risks to that person or other persons.]

b)The connection to the mains supply must be made as per the local authorities rules and regulations.
An appropriate disconnect device must be provided as part of the building installation. Where it is not possible to rely on identification of the neutral in the AC Mains supply the disconnecting device must disconnect both poles simultaneously (line and neutral). The device shall disconnect the supply during servicing.

c)The equipment enclosure must be secured to the building structure before operation.

e)Internal wiring must be routed in a manner that prevents:
- Excessive strain on wire and on terminal connections;
- Loosening of terminal; connections;
- Damage of conductor insulation

f) Disposal of the used batteries shall be made according to the waste recovery and recycling regulations applicable to the intended market.

g) Before servicing, DISCONNECT the telephone connection.

WARNING:
High Voltage. Disconnect AC Power and telephone lines before servicing

UA503   DSC

PC1616/1832/1864

PC-LINK

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AUX+ and Keybus (Red) are Internally Connected Total current draw from Keypads, PGM Outputs and Aux circuits must not exceed 550ma

Internally Connected

PC1864 Only   PC1864 PC1832 Only   TB-2

CON1 BAT+BAT-
AC AC   AUX+ AUX-   BELL+ BELL-   RED BLK YEL GRN   PGM1 PGM2 PGM3 PGM4   Z1 COM Z2   Z3 COM Z4   Z5 COM Z6   Z7 COM Z8   EGND   RING TIP   R-1 T-1

8   9   4   3   1   5   2   7   6

See corresponding Section NumberText for wiring details.

4. AUX Power Wiring

The control panel can provide a maximum of 700mA of current for modules, powered detectors, relays, LED's etc.… If the total current required exceeds 700mA an additional power supply is required (e.g.,PC5200, PC5204). See list below.

NOTE: Min/max operating voltages for devices, sensors and modules is 9.5V$_{DC}$ - 14V$_{DC}$

Refer to the list of **Compatible Devices** on the first page for the current draw of individual devices

5. PGM Wiring

PGMs switch to ground when activated by control panel.
Connect the positive side of the device to be activated to the AUX+ Terminal. Connect the negative terminal to the PGM.
current output is as follows
*   PGM 1, 3, 4 .... 50mA
*   PGM 2 .... 300mA
For currents levels greater than 300mA a relay is required.
PGM2 can also be used for 2-wire smoke detectors.
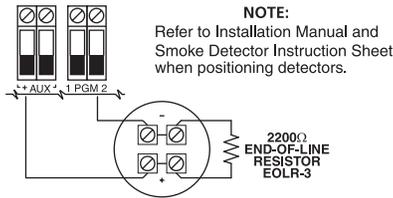   **NOTE:** Use SEOL resistors on Fire Zones **ONLY**.

2-wire Smoke Detectors Initiating Circuit

*   Style B (Class B), Supervised, Power Limited
*   Compatibility Identifier PC18-1
*   DC Output Voltage..9.8-13.8 VDC
*   Detector Load .... 2 mA (MAX)
*   Single-end-of-line (SEOL) Resistor 2200Ω
*   Loop Resistance..24Ω (MAX)
*   Standby Impedance.. 1020Ω (NOM)
*   Alarm Impedance ....570Ω (MAX)
*   Alarm Current .... 89 mA (MAX)

Compatibility ID For FSA-210B Series is: FS200

PGM 1, LED Output with current limiting resistor and Optional Relay driver output

LED INDICATOR   **RELAY OUTPUT**   **AUX INPUT WIRING**
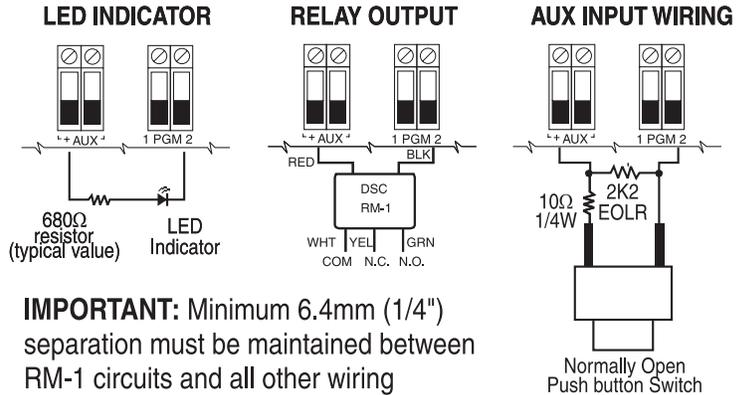
IMPORTANT: Minimum 6.4mm (1/4") separation must be maintained between RM-1 circuits and all other wiring

4-wire Smoke Detectors

Compatible 2-wire Smoke Detector DSC FSA-210B Series

FSA-210B
FSA-210BT
FSA-210BS
FSA-210BST
FSA-210BLST
FSA-210BR
FSA-210BRT
FSA-210BRS
FSA-210BRST
FSA-210BLRST

NOTE: Refer to Installation Manual and Smoke Detector Instruction Sheet when positioning detectors.

NOTE: Do **NOT** combine models from different Manufacturers On the same circuit. Operation may be impaired.
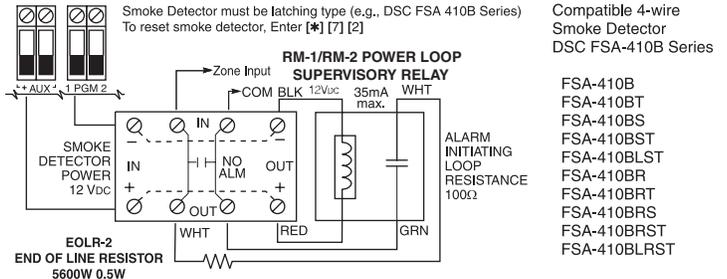
Compatible 4-wire Smoke Detector DSC FSA-410B Series

FSA-410B
FSA-410BT
FSA-410BS
FSA-410BST
FSA-410BLST
FSA-410BR
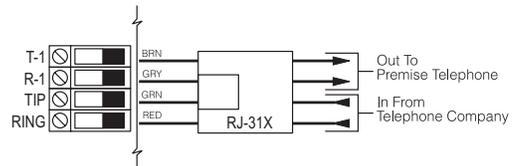FSA-410BRT
FSA-410BRS
FSA-410BRST
FSA-410BLRST

6. Telephone Line Wiring

Wire the telephone connection terminals (TIP, Ring, T-1, R-1) to an RJ-31x Connector as indicated.

For connection of multiple devices to the telephone line, wire in the sequence indicated.
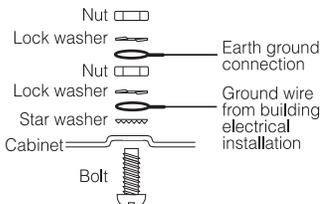Telephone format is programmed in section [350].
Telephone Call Directions are programmed in section [351]-[376].

7. Ground

Ground Installation

Tighten nut to break paint and make good connection to the cabinet

8. Battery

A sealed, rechargeable, lead acid battery or gel type battery is required to meet UL requirements for power standby times.
NOTE: UL Residential/Commercial Burglary installations require 4Hrs Power Standby time.
NOTE: UL/ULC Residential Fire & Home Care installations require 24 Hr power standby. ULC Commercial Burglary and Fire monitoring installations require 24 Hr power standby.

Standby Battery Guide
Battery Charging Current: 400 mA

Batt Size	Standby	
	4Hr	24Hr
4Ahr	700mA	----
7Ahr	700mA	180mA
14Ahr	700mA	470mA

NOTE:

Replace batteries every 3-5 years. Battery capacity will deteriorate with age and number of charge/discharge cycles

9. AC Wiring

AC Wiring

UL Listed Installations
 Primary: 120VAC/60Hz./0.33A
 Secondary: 16.5VAC/40VA
DSCPTD 1640 Plug-in, Class 2 Transformer.

NOTE: Do not connect transformer to a receptacle controlled by a switch. (UL Listed Installations Only)

TESTING & TROUBLESHOOTING

Testing:

- Power up system
- Program options as required (See ***Programming Section*** on reverse side)

    Note: For advanced programming refer to the PC1616/1832/1864 Reference manual

- Violate, then restore zones
- Verify correct ***Reporting Codes*** are sent to the Central Station

Troubleshooting:

LCD5500 LCD Programmable-Message Keypad

- Press **[✱][2]** to view a trouble condition.
- The trouble light will flash and the LCD will display the first trouble condition present.
- Use the arrow keys to scroll through all trouble conditions present.

    NOTE: When additional information is available for a specific trouble condition a **[✱]** will appear on the display. Press the **[✱]** key to view the additional information

LED Keypads, LCD Fixed Message Keypads

- Press **[✱][2]** to view a trouble condition.
- The trouble light will flash.
- Refer to the ***Trouble Summary*** chart below to determine the trouble condition(s) present.

Trouble Summary:

Light [1]✱ Service Required - Press [1] for more information

      [1] Low Battery
      [2] Bell Circuit
      [3] General System Trouble
      [4] General system Tamper
      [5] Module Supervision
      [6] RF Jam Detected
      [7] PC5204 Low Battery
      [8] PC5204 AC Failure

Light [2] AC Trouble

Light [3] Telephone Line Trouble

Light [4] Failure to Communicate

Light [5]✱ Zone Fault -Press [5] for more information

Light [6]✱ Zone Tamper - Press [6] for more information

Light [7]✱ Wireless Device Low Battery - Press [7] for more information

Light [8] Loss of Time or Date

Trouble	Cause	Troubleshooting
Trouble [1] Service Required	**Press [1] to determine specific trouble**	
[1] Low Battery	Main panel battery less than 11 VDC **NOTE:** This trouble condition will not clear until the battery voltage is 12.5VDC min., under load.	**NOTE**: If battery is new allow 1 Hr. for battery to charge. • Verify voltage measured across AC terminals is 16-18 VAC. Replace transformer if required. • Disconnect battery wire leads • Verify battery charging voltage measured across battery leads = 13.70 - 13.80 VDC. • Connect battery, remove AC power • Verify measured voltage across battery terminals is 12.5VDC min.
[2] Bell Circuit	Bell+, Bell-...Open Circuit	• Disconnect Bell-/Bell+ wire leads, measure resistance of wire leads. • Open circuit indicates break in wiring or defective siren/bell • Jumper Bell+, Bell- with 1K resistor (Brown, Black, Red) • Verify trouble clears
[3] General System Trouble	PC5204 Output#1 Open Circuit	• If Output#1 is unused: Ensure that terminals O1, AUX are jumpered with 1K resistor (Brown, Black, Red) • If Output #1 is used: Disconnect wire leads from O1, AUX terminals, measure the resistance of the wire leads • Open circuit indicates a break in the wiring
	PC5204 AUX	• Verify voltage measured across AC input terminals is 16-18VAC. • Disconnect all connections to PC5204 AUX terminal. • Verify AUX voltage is 13.70 - 13.80 VDC.
	Printer connected to PC5400 offline	Verify printer operation (out of paper, paper jam etc.)
	T-Link Network Fault present T-Link Receiver Trouble present T-Link Interface Trouble present	Refer to the T-Link TL250/350 Installation Manual for details.
[4] General System Tamper	Tamper input on module(s) open circuit	Short tamper terminal to COM terminal on unused modules connected to KEYBUS (PC5100, PC5108, PC5200, PC5204, PC5208, PC5320, PC5400, PC5700).
	Wireless Receiver - excessive noise detected	Check for external 433MHZ signal sources To disable RF Jam: enable Option [7] in program section [804] subsection [90].
[5] Module Supervision	Panel does not communicate with module(s) on KEYBUS Keypad assigned to incorrect slot.	Modules are immediately enrolled and supervised when detected on the KEYBUS. If a module has been removed, or if the slot assignment of a keypad has been changed, module supervision must be reset. • View the event buffer (via DLS or LCD5500 keypad) to identify the specific module(s) in trouble • To reset module supervision: • Enter Program Section [902]. • Press **[#]** (wait 1 minute for panel to scan KEYBUS). • Enter Program Section [903] to identify modules connected to KEYBUS.
[6] RF Jam Detected	Wireless Receiver - excessive noise detected.	Check for external 433MHZ signal sources To disable RF Jam: enable Option [7] in program section [804] subsection [90].
[7] PC5204 Low Battery	PC5204 battery less than 11.5VDC **NOTE:** This trouble condition will not clear until the battery voltage is 12.5VDC min., under load.	See **[1] Low Battery** above
[8] PC5204 AC Failure	No AC at PC5204 AC inputs	Verify voltage measured across AC terminals is 16-18VAC. Replace transformer if required.

Trouble	Cause	Troubleshooting
Trouble [2] AC Failure		
	No AC at panel AC input terminals	Verify voltage measured across AC terminals is 16-18VAC. Replace transformer if required.
Trouble [3] Telephone Line Trouble		

	Phone Line Voltage at TIP, RING on main panel less than 3VDC	• Measure the voltage across TIP and RING on the panel:
		  • **No phone off-hook** – 50VDC (approx)
		  • **Any phone off-hook** – 5VDC (approx)
		• Wire incoming line directly to TIP and RING.
		  • If trouble clears, check wiring or the RJ-31 phone jack.

Trouble [4] Failure to Communicate		

	Panel fails to communicate one or more events to central station	Connect a headset to TIP and RING of the control panel. Monitor for the following conditions:
		• **Continuous dial tone**
		  • Reverse TIP and RING
		• **Recorded operator message comes on**
		  • Verify correct phone number is programmed
		  • Dial the number programmed using a regular telephone to determine if a [9] must be dialed or if 800 service is blocked.
		• **Panel does not respond to handshakes.**
		  • Verify the format programmed is supported by the central station.
		• **Panel transmits data multiple times without receiving a handshake**
		  • Verify that the account number and reporting codes are correctly programmed.
		NOTE:
		  Contact ID and Pulse formats
		  • Program a HEX [A] to transmit a digit [0]
		  SIA format
		  • Program a digit [0] to transmit a digit [0]

Trouble [5] Zone Fault	**Press [5] to determine specific zones with a fault trouble**	
	Open circuit is present on one or more fire zones on the main panel or zone expander	• Ensure fire zones have a 5.6K resistor (Green, Blue, Red) connected. • Remove the wire leads from Z and COM terminals and measure the resistance of the wire leads. • An open circuit indicates a break in the wiring or resistor not connected. • Connect a 5.6K resistor (Green, Blue, Red) across the Z and COM terminals. Verify the trouble condition clears.
	An open circuit is present on PGM2 being used as a 2-wire smoke detector input	• Ensure the correct 2.2K end-of-line resistor is connected (Red, Red, Red). • Remove the wire leads from PGM2 and AUX+ terminals and measure the resistance of the wire leads. • An open circuit indicates a break in the wiring or no resistor connected. • Connect a 2.2K resistor (Red, Red, Red) across the PGM2 and AUX+ terminals. Verify the trouble condition clears.

Trouble	Cause	Troubleshooting
Trouble [5] Zone Fault (Cont.)		

	One or more wireless devices have not checked in within the programmed time	• If the trouble occurs immediately, a conflict with a hard wired zone exists:
		  • The zone being used is already assigned to a PC5108 zone expander
		  • The zone being used is assigned as a keypad zone
		• Perform a Module Placement Test – Program Section [904] and verify the wireless device is in a good location.
		  • If bad test results occur, test the wireless device in another location
		  • If the wireless device now tests good, the original mounting location is bad
		  • If the wireless device continues to give bad test results replace the wireless device

	A short circuit is present on one or more zones with double end-of-line resistors enabled	• Remove the wire leads from Z and COM terminals and measure the resistance of the wire leads.
		  • A short circuit indicates a short in the wiring.
		• Connect a 5.6K resistor (Green, Blue, Red) across the Z and COM terminals.
		  • Verify the trouble condition clears.

Trouble [6] Zone Tamper	**Press [6] to determine specific zones with a tamper trouble**	
	A tamper condition is present on one or more wireless devices	• Perform a Module Placement Test –Section [904] • Violate, then restore the tamper: • If no test result then replace wireless device

	An open circuit is present on one or more zones with double end-of-line resistors enabled	• Remove the wire leads from Z and COM terminals.
		• Measure the resistance of the wire leads.
		  • Open circuit indicates a break in the wiring.
		• Connect a 5.6K resistor (Green, Blue, Red) across the Z and COM terminals.
		  • Verify the trouble condition clears.

Trouble [7] Wireless Device Low Battery	**Press [7] to toggle through specific devices with low battery trouble**	
1st press – Wireless Zones 2nd press – Handheld Keypads 3rd press – Wireless Keys	One or more wireless devices has a low battery **NOTE:** The event will not be logged to the event buffer until the wireless device low battery delay time expires • Program Section **[377]** Opt **9**	Replace battery **NOTE:** Replacing batteries will cause a tamper. Replacing cover will restore the tamper causing the associated reporting codes to be sent to the Central Station.
Trouble [8] Loss of Clock/Date		

	The main panel internal clock is not set	**To program the time and date:**
		• Enter [✱][6][Master Code] then Press [1]
		  or Press function key programmed with definition #26
		• Enter the time and date (in military) using the following format: **HH:MM MM/DD/YY**
		Example.
		  For 6:00 pm, June 29, 2005
		Enter: [18] [00] [06] [29] [05]

IMPORTANT!

Ensure you have the following information available before contacting Customer Support

- Control Panel Type and Version, (e.g., PC1864 v4.1)

   NOTE: Version number can be accessed by entering [✱][Installer Code][900] on any system keypad. This information is also located on a sticker on the Printed Circuit Board.

- List of modules connected to Control Panel, (e.g., PC5400, PC5204 etc.)

How to Program:

DSC recommends filling in the Programming Worksheet with the required programming information before programming the system. This will reduce the time required to program and will help eliminate errors.

To enter Installer Programming press **[*][8][5555]**.
The Program light will FLASH (or in the case of the programmable LCD keypad the display will change to 'Enter Section').

An error tone indicates the installer code entered is not correct.
   Press [#] to clear any key presses and try again.

The Armed and Ready lights indicate programming status:

Armed Light ON	Panel waiting for 3-digit section number
Ready Light ON	Panel waiting for data to be entered
Ready Light FLASHING	Panel waiting for HEX data to be entered

NOTE: You cannot enter installer programming while the system is armed or in alarm.

Programming Toggle Options:

Enter the 3-digit programming section number.
• The Armed light will turn OFF and
• The Ready light will turn ON.
• The keypad will display which toggle options are ON or OFF according to the chart below:

Keypad Type	Option ON	Option OFF
LED	Zone Light ON	Zone Light OFF
Fixed-Message LCD	Indicator # ON	Indicator # OFF
Programmable-Message LCD	# Displayed	Dash [-] Displayed

• To toggle an option **ON** or **OFF**, press the corresponding number on the keypad. The display will change accordingly.
• When all the toggle options are configured correctly, press the [#] key to exit the program section.
• The Ready light will turn OFF and the Armed light will turn ON.

NOTE: If the panel is a local system, press [#] to skip this step.

NOTE: In addition to the standard digits 0-9, HEX digits can also be programmed if required.

HEX [A]	Not Supported	
HEX [B]	Simulated [*] key	Press [*][2][*]
HEX [C]	Simulated [#] key	Press [*][3][*]
HEX [D]	Dial tone search	Press [*][4][*]
HEX [E]	Two second pause	Press [*][5][*]

Programming Decimal and Hexadecimal (HEX) Data:

• Enter the 3-digit programming section number.
• The Armed light will turn OFF and The Ready light will turn ON.
• Enter the data written in the boxes.

For sections that require multiple 2 or 3 digit numbers, the keypad will double-beep after each 2 or 3 digit entry and move to the next item in the list. After the last digit in the section is entered, the keypad will beep rapidly 5 times and exit the program section. The Ready light will turn OFF and the Armed light will turn ON.

For sections that do not require data for every box (such as phone numbers) press the [#] key to exit the program section after entering all the required data. The Ready light will turn OFF and the Armed light will turn ON.

At any time the [#] can be pressed to exit any program section. All changes made up to that point will be saved.

HEX (or hexadecimal) digits are sometimes required. To enter a HEX digit, press the [*] key to begin HEX programming. The Ready light will FLASH. Refer to the chart below and press the number corresponding to the HEX digit required. The Ready light will continue to FLASH. Press [*] again to return to normal decimal programming. The Ready light will turn ON.

HEX [A]	[*] [1] [*]
HEX [B]	[*] [2] [*]
HEX [C]	[*] [3] [*]
HEX [D]	[*] [4] [*]
HEX [E]	[*] [5] [*]
HEX [F]	[*] [6] [*]

How to Exit Installer Programming:

To exit installer programming, press the [#] key when the panel is waiting for a 3-digit section number (the Armed light is ON).

Viewing Programming

LED and LCD5501Z Keypads
Any programming section can be viewed from an LED or LCD5501Z keypad. When a programming section is entered, the keypad will immediately display the first digit of information programmed in that section.
The keypad displays the information using a binary format, according to the following chart:

Press any of the Emergency keys (Fire, Auxiliary or Panic) to advance to the next digit.
When all the digits in a section have been viewed, the panel will exit the section: the Ready light will turn OFF, and the Armed light will turn ON, waiting for the next 3-digit programming section number to be entered.
Press the [#] key to exit the section

LCD Keypad
When a programming section is entered, the keypad will immediately display all the information programmed in that section. Use the arrow keys (< >) to scroll through the data being displayed. To exit the section, scroll past the end of the data displayed, or press the [#] key.

DLS Programming

Hardware Setup - Local (PC-Link)
Connect a RS-232 to PC-Link Cable between the Computer with DLS Software installed and the alarm panel to be programmed.

[401] First Downloading Option Code

The 1st toggle option in this section is used to enabled/disable Downloading.
Configure the options as required and press [#] to exit.

Opt		Default		Description
2	I__I	✔	ON	User can enable DLS Window
			OFF	User can NOT enable DLS Window

[402] Downloading Computer Phone Number (32-digits)

```
|D||__||__||__||__||__||__||__||__||__||__||__||__||__||__||__||__|

|__||__||__||__||__||__||__||__||__||__||__||__||__||__||__||__||__|
```

[403] Downloading Access Code
Enter 4 or 6-digit code

This code identifies the downloading computer to the panel.
The downloading access code prevents unauthorized access to the panel.
This code must match the code programmed in the downloading file before the panel will allow remote or local DLS connection. Enter a new downloading access code to disable downloading.

Default**XXXX**XX	I___II___II___II___II___II___I

[404] Panel Identification Code
This code identifies the panel to the downloading computer.
See section [403]
Enter 6 decimal places

Default**XXXXXX**	I___II___II___II___II___II___I

[499][Installer Code][499] Initiate PC-Link
Enter [499][Installer Code][499]

Special Installer Functions

Enter section# for the following features

[900]	Panel Version ([✱][8][Installer Code][900])
[902]	Module Supervision Reset ([✱][8][Installer Code][902])
[903]	Module Supervision Field ([✱][8][Installer Code][903])
[904]	Wireless Module Placement Test ([✱][8][Installer Code][904])

Enter section#, Installer Code section# for the following features

[990] INSTALLER CODE [990]	Installer Lockout Enable
[991] INSTALLER CODE [991]	Installer Lockout Disable
[993] INSTALLER CODE [993]	Restore Alt.Comm. Factory Defaults
[995] INSTALLER CODE [995]	Restore Escort 5580 Factory Defaults
[996] INSTALLER CODE [996]	Restore PC5132 Factory Defaults
[997] INSTALLER CODE [997]	Restore PC5400 Factory Defaults
[999] INSTALLER CODE [999]	Restore Panel Factory Defaults

[000] Keypad Programming
Note: This programming must be done at each keypad

[0]	Slot Address (0-8) for partition, 1-8 for slot
[1]	Function key Assignment (00-32)
[2]	Function key Assignment (00-32)
[3]	Function key Assignment (00-32)
[4]	Function key Assignment (00-32)
[5]	Function key Assignment (00-32)

Slot Address	Key 1	Key 2	Key 3	Key 4	Key 5
ICON LED Defaults	**11**	**03**	04	06	14	16
Full Message Defaults	**18**	**03**	04	06	14	16
Keypad 1 Keypad 2 Keypad 3 Keypad 4 Keypad 5 Keypad 6 Keypad 7 Keypad 8					

00 Null Key (Key not used)	17 [✱][0] Activate Stay/Away
01 Partition 1 Select	18 Identified voice prompted help
02 Partition 2 Select	
03 Stay Arm	19 Command output 3 [✱73]
04 Away Arm	20 Not used
05 [✱][9] No entry arm	21 Command output 4 [✱74]
06 [✱][4] Chime On/Off	22 Active camera monitor selection
07 [✱][6][----][4]System Test	
08 [✱][1] Bypass Mode	23 Bypass Recall
09 [✱][2] Trouble display	24 Bypass Group Recall
10 [✱][3] Alarm memory	25 Not Used
11 [✱][5] User programming	26 Time Programming
12 [✱][6] User functions	27 Partition 3 Select
13 Command output 1 [✱71]	28 Partition 4 Select
14 Command output 1 [✱72] Sensor Reset	29 Partition 5 Select
	30 Partition 6 Select
15 General voice prompted help	31 Partition 7 Select
16 [✱][0] Quick Exit	32 Partition 8 Select

[001]-[004] Zone Definitions
Enter the number corresponding to the zone definitions required.The keypad will beep rapidly 3 times and move to the next step. If an invalid number is entered the keypad will revert to the default setting (option [1]).
Press [#] to exit the section.

[001] Zone 1-16 Definitions **ALL Models**		00 Null Zone (not used)
Def	Def	01 Delay 1
01 I__II__I Zone 1	00 I__II__I Zone 9	02 Delay 2
03 I__II__I Zone 2	00 I__II__I Zone 10	03 Instant
03 I__II__I Zone 3	00 I__II__I Zone 11	04 Interior
03 I__II__I Zone 4	00 I__II__I Zone 12	05 Interior, Stay/Away
04 I__II__I Zone 5	00 I__II__I Zone 13	06 Delay, Stay/Away
04 I__II__I Zone 6	00 I__II__I Zone 14	07 Delayed 24-hr Fire (Hard-wired)
04 I__II__I Zone 7	00 I__II__I Zone 15	08 Standard 24-hr Fire (Hard-wired)
04 I__II__I Zone 8	00 I__II__I Zone 16	09 24-hr Supervisory

[002] Zone 17-32 Definitions **PC1864** & **PC1832**		10 24-hr Supervisory Bu
Def	Def	11 24-hr Burglary
00 I__II__I Zone 17	00 I__II__I Zone 25	12 24-hr Holdup
00 I__II__I Zone 18	00 I__II__I Zone 26	13 24-hr Gas
00 I__II__I Zone 19	00 I__II__I Zone 27	14 24-hr Heat
00 I__II__I Zone 20	00 I__II__I Zone 28	15 24-hr Medical
00 I__II__I Zone 21	00 I__II__I Zone 29	16 24-hr Panic
00 I__II__I Zone 22	00 I__II__I Zone 30	17 24-hr Emergency
00 I__II__I Zone 23	00 I__II__I Zone 31	18 24-hr Sprinkler
00 I__II__I Zone 24	00 I__II__I Zone 32	19 24-hr Water

[003] Zone 33-48 Definitions **PC1864** Only		20 24-hr Freeze
Def	Def	21 24-hr Latching Tamper
00 I__II__I Zone 33	00 I__II__I Zone 41	22 Momentary Keyswitch arm
00 I__II__I Zone 34	00 I__II__I Zone 42	23 Maintained Key-switch Arm
00 I__II__I Zone 35	00 I__II__I Zone 43	24 Future Use
00 I__II__I Zone 36	00 I__II__I Zone 44	25 Interior Delay
00 I__II__I Zone 37	00 I__II__I Zone 45	26 25-hr non-alarm
00 I__II__I Zone 38	00 I__II__I Zone 46	27 Delayed 24-hr Water Flow
00 I__II__I Zone 39	00 I__II__I Zone 47	28 Instant 24-hr Water Flow
00 I__II__I Zone 40	00 I__II__I Zone 48	29 Auto-verified Fire

[004] Zone 49-64 Definitions **PC1864** Only		30 Fire Supervisory
Def	Def	31 Day zone
00 I__II__I Zone 49	00 I__II__I Zone 57	32 24-hr Bell/Buzzer
00 I__II__I Zone 50	00 I__II__I Zone 58	33 Push to set
00 I__II__I Zone 51	00 I__II__I Zone 59	34 Final Door set
00 I__II__I Zone 52	00 I__II__I Zone 60	35 Instant Stay, Away
00 I__II__I Zone 53	00 I__II__I Zone 61	36 24-hr Non latching Tamper
00 I__II__I Zone 54	00 I__II__I Zone 62	37 Night Zone
00 I__II__I Zone 55	00 I__II__I Zone 63	87 Delayed 24-hr Fire (Wireless)
00 I__II__I Zone 56	00 I__II__I Zone 64	88 24-hr Fire (Wireless)

[005] System Times

This section programs the entry and exit delays for the control panel. After entering section [005] press [1] to select partition 1. Enter the 3-digit delay time for Delay 1 type zones, Delay 2 type zones followed by the exit delay time. Press [#] to exit the sub-menu and return to regular programming.

NOTE: For SIA FAR Installations, the Exit Delay must be within the range of 045-255 seconds (Default 60 seconds). If the Exit Delay is silent (Section 14, Option 6 or Stay Function Key Arming) the exit delay must be twice the programmed value but must not exceed 255 seconds (i.e., 090-255 seconds).

NOTE: For UL Installations, the Entry Delay plus the Communications Delay must not exceed 60 seconds.

NOTE: Exit Time Restart shall be disabled when the panel is used in combination with T-Link TL250/TL300.

[005]	[01] Partition 1 Entry/Exit Times	
Def	Enter 3 digits [[001]-[255]]	
030 I___II___II___I	Entry Delay 1	Valid entries: [030] to [255]
*045 I___II___II___I	Entry Delay 2	Valid entries: [030] to [255]
**120 I___II___II___I	Exit Delay 1	Valid entries: [060] to [255]
*Entry Delay 2 Default is 030 for SIA CP-01 Installations **Exit Delay 1 Default is 060 for SIA CP-01 Installations		

[006] Installer Code
Enter a new 6-digit Installer Code

Default **555555**	I___II___II___II___II___II___I

[007] Master Code
Enter a new 6-digit Master Code

Default **123456**	I___II___II___II___II___II___I

[008] Maintenance Code
Enter a new 6-digit Maintenance Code

Default **AAAAAA**	I___II___II___II___II___II___I

[009-010] PGM Programming
PGMs 3&4 apply to PC1864 only

[009]	Main Board PGM Output Programming	
Def		Enter 2 digits [[01]-[32]]
19	I___II___I	PGM 1	Section [009]
10	I___II___I	PGM 2	Section [009]
01	I___II___I	PGM 3	Section [010] ...... PC1864 Only
01	I___II___I	PGM 4	Section [010] ...... PC1864 Only

01 Fire & Burglary Output	17 Away Armed Status
02 Not Used	18 Stay Armed Status
03 Sensor Reset (∗72)	19 Command Output#1 (∗71)
04 2-Wire Smoke (PGM2 Only)	20 Command Output#1 (∗72)
05 Armed Status	21 Command Output#1 (∗73)
06 Ready to Arm	22 Command Output#1 (∗74)
07 Keypad buzzer follow mode	23 24-hr Silent Input
08 Courtesy Pulse	24 24-hr Audible Alarm
09 System Trouble output (with Trouble Options)	25 Delayed Fire & Burglary Output
10 System Event (with Event Options)	26 Battery Test Output
11 System Tamper (All Sources)	27 Police Code Output
12 TLM and Alarm	28 Holdup Output
13 Kiss-off Output	29 Zone Follower Inverted Output
14 Ground Start Pulse	30 Partition Status Alarm Memory Output
15 Remote Operation	31 Alternate Communications
16 Future Use	32 Open After Alarm (Abort Code)

[013] – First System Option Code

The first two toggle options in this section are used to determine what type of EOL resistors are being used, toggle option [1] to determine if normally-closed or EOL resistors are being used and option [2] to determine if single or double EOL resistors are being used. Configure the options as required and press [#] to exit.

Opt		Default		Description
1	I__I		ON	Normally Closed loops
		✔	OFF	End-of-line Resistors
2			ON	Double End-of-Line Resistors
		✔	OFF	Single End-of-Line Resistors
8	I__I		ON	Temporal Three Fire Signal
		✔	OFF	Standard Pulsed Fire Signal.

[015] – Third System Option Code

This section is used to determine if the Panic keys on the keypads will be audible or silent (toggle option [2]) and if phone line supervision is enabled or disabled (toggle option [7]). Configure the options as required and press [#] to exit.

Opt		Default		Description
2	I__I		ON	[P] Key Audible (Bell/Beeps) loops
		✔	OFF	[P] Key Silent
7	I__I	✔	ON	TLM Enabled
			OFF	TLM Disabled

[018] Cross Zone/Police Code

NOTE: The panel uses the cross zoning attribute for Burglary Verification. This feature requires two or more trips on a zone(s) specified as 'cross zones' within a specified time before starting an alarm sequence (See Section[101] Option 3, page 33 of the Reference Manual).

Opt		Default		Description
6	I__I	✔	ON	Cross Zoning Enabled
			OFF	Police Code is Enabled

[165] Maximum Dialing Attempts to each Phone Number

This section programs the number of Dialing Attempts. Enter a 3-digit. *For UL Listed Installations 5-10 Dialing attempts are required*.

[165]	Maximum Dialing Attempts to each Phone	
Def		Enter 3 digits [[001]-[005]]
005	I___II___II___I	Valid entries: [001] to [005]

[301] First Telephone Number (32-digits)

Program the central station phone number or CAA for T-LINK. In addition to the standard digits [0] - [9], Hex digits may also be required (Refer to the "Programming Decimal and Hexadecimal (HEX) Data" at the beginning of this section).

ID II___II___II___II___II___II___II___II___II___II___II___II___II___II___II___I

I___II___II___II___II___II___II___II___II___II___II___II___II___II___II___II___

[304] Call Waiting Cancel String (6 Digits)
Program Unused digits with Hex F

Default **DB70EF** [Hex]	I___II___II___II___II___II___I

[310]-[311] Partition Identifier Codes
Enter a 6 digit Maintenance Code

[310 System Acct. Code	I___II___II___II___II___II___I
[311] Partition 1 Acct. Code	I___II___II___II___I

[350] – Communicator Format Options
This section determines the communication format used for central station reporting. From the chart listed below program the 2-digit number for the desired format for the first and second telephone number

Def		Enter 2 digits From Chart Below
04	I___II___I	**NOTE:** 3rd Phone Number follows the format of the 1st Phone Number
04	I___II___I	

01 20BPS, 1400 Hz Handshake	07 10BPS, 1400 Hz Handshake
02 20BPS, 2300 Hz Handshake	08 10BPS, 2300 Hz Handshake
03 DTMF Contact ID	09 Private Line
04 SIA FSK	10 Scantronics 4-8-1 Fast Slo
05 Pager	12 Robofon
06 Residential Dial	13 CESA 200

[367] – Opening/Closing Call Direction Options
The first toggle option in this section is used to enable/disable opening/closing reporting for partition 1. To enable opening/closing reporting turn option [1] ON. Configure the options as required and press [#] to exit

Opt		Default		Description
1	I__I		**ON**	1st Telephone Number
		✔	**OFF**	Disabled
2	I__I		**ON**	2nd Telephone Number
		✔	**OFF**	Disabled
5	I__I		**ON**	Alternate Communicator
		✔	**OFF**	Disabled

[377] Communication Variables
NOTE: For UL Installations, the Entry Delay plus the Communications Delay must not exceed 60 seconds.

Def	Enter 3 digits as indicated below	
003 I___II___II___I	Swinger Shutdown (Alarms and Rest.	(001-014 Transmissions)
003 I___II___II___I	Swinger Shutdown (Tamper and Rest.	(001-014 Transmissions, 000=disabled)
003 I___II___II___I	Swinger Shutdown (Maint. and Rest.	(001-014 Transmissions, 000=disabled)
000 I___II___II___I	**Communication Delay**	(000-255 seconds)
030 I___II___II___I	AC Failure Comm Delay	(001-255 minutes)
010 I___II___II___I	TLM Trouble Delay	No. of checks req'd (003-255)
030 I___II___II___I	Test Transmission Cycle (land line)	(001-255 days/minutes)
030 I___II___II___I	Not Used	
007 I___II___II___I	Zone low Battery Transmission Delay	(000-255 days)
030 I___II___II___I	Delinquency Transmission Cycle	(000-255 days/hours)
000 I___II___II___I	Communications Cancelled Window	(000-255 minutes)

NOTE: Option 1 is defaulted to **001** for CP-01 Installations
Option 4 is defaulted to **030** for CP-01 Installations
Option 11 is defaulted to **005** for CP-01 Installations

[380] – First Communicator Option Codes

Opt		Default		Description
1	I__I	✔	**ON**	Communications Enabled
			OFF	Communications Disabled
2	I__I		**ON**	Restorals on Bell Time-out
		✔	**OFF**	Restorals Follow Zones
3	I__I		**ON**	Pulse Dialing
		✔	**OFF**	DTMF Dialing
5	I__I		**ON**	3rd Telephone Number Enabled
		✔	**OFF**	3rd Telephone Number Disabled
8	I__I		**ON**	Delinquency Follows Zone Activity (Hours)
		✔	**OFF**	Delinquency Follows Arming (Days)

[381] – Second Communicator Option Codes
The 3rd toggle option in this section is used to enable/disable automatic SIA reporting. The 5th toggle option is used to enable/disable automatic Contact ID reporting. Configure the options as required and press [#] to exit.

NOTE: *If the automatic SIA or automatic Contact ID reporting formats are not used, reporting codes must be programmed. To program reporting codes refer to the PowerSeries PC1616/1832/1864 Reference Manual which can be downloaded from the DSC web site at www.dsc.com*

Opt		Default		Description
3	I__I		**ON**	SIA Sends Programmed Reporting Codes
		✔	**OFF**	SIA Sends Automatic Reporting Codes
5	I__I		**ON**	Contact ID Uses Programmed Reporting Codes
		✔	**OFF**	Contact ID Uses Automatic Reporting Codes

[382] – Third Communicator Option Codes
The 4th toggle option in this section is used to enable/disable Call Waiting Cancel. Configure the options as required and press [#] to exit.

NOTE: *A Call Waiting Cancel on a Non Call Waiting line will prevent successful connection to the central station.*

Opt		Default		Description
4	I__I		**ON**	Call Waiting Cancel Enabled
		✔	**OFF**	Call Waiting Cancel Disabled
5	I__I		**ON**	T-Link Interface Enabled
		✔	**OFF**	T-Link Interface Disabled

[701] – First International Options Codes
Option 7 in this section Selects Battery Charge Options.
Select **ON** for 7 Ahr and 14 Ahr batteries (700 mA charge rate)
Select **OFF** for Standard 4 Ahr batteries (400 mA charge rate)

Opt		Default		Description
7	I__I		**ON**	High Current Battery Charge (700mA)
		✔	**OFF**	Standard Battery Charge Rate (400mA)

UL Listed Commercial and Residential Installations

The installation requirements listed below must be met for the following grades of service.

Grade AA Central Station and Police Connect (Standard or Encrypted Line Security Service)

The installation must use T-Link module which communicates over LAN/WAN to the Sur-Gard MLR-IP receiver or the TL200/250 which communicates over LAN/WAN/Internet to the SG System III receiver. Polling time must be 90 seconds. Compromise detection time must be 6 minutes.

Grade A Local

- The installation must have a bell which is UL Listed for mercantile local alarms (AMSECO MBL10B with model AB-12 bell housing).
- The digital communicator must be enabled.
- The control panel must be in the attack-resistant enclosure (DSC Model CMC-1 or PC4050CAR).

Grade B Central Station and Police Connect

- The installation must have a bell which is UL Listed for mercantile local alarms (AMSECO MBL10B with model AB-12 bell housing).
- The digital communicator must be enabled.
- The control panel must be in the attack resistant enclosure (DSC Model CMC-1 or PC4050CAR).

Grade C Central Station

- The digital communicator must be enabled.
- The control panel must be in the attack resistant enclosure (DSC Model CMC-1 or PC4050CAR).

All Commercial Installations

- The Entry Delay must not exceed 120 seconds
- The Exit Delay must not exceed 120 seconds.
- The minimum Bell Time-out is 15 minutes.

Residential Fire & Burglary Installations

- The Entry Delay must not exceed 45 seconds
- The Exit Delay must not exceed 60 seconds.
- The minimum Bell Time-out is 4 minutes.

Home Health Care Signaling Equipment

- There must be at least two keypads, one of either the LCD5500Z/LCD5520Z or LCD5501Z and one of the following models, PC5508Z, PC5516Z or PC5532Z.
- Each system shall be programmed to activate an audible Trouble signal within 90 seconds upon loss of microprocessor memory.
- The minimum Bell Time-out is 5 minutes.

Programming

The notes in the programming sections describing the system configurations for UL Listed installations must be implemented.

Control of the Protected Premises

In order to have a UL Certificated system the protected area is to be under the responsibility of one ownership and management (i.e., one business under one name). This may be a group of buildings attached or unattached with different addresses but under the responsibility of someone having mutual interest. The person of mutual interest is not the alarm-installing company.

Bell Location

The alarm sounding device (bell) must be located where it can be heard by the person or persons responsible for maintaining the security system during the daily arming cycle.

Protection of the Control Unit

The local control and the local power supply must be protected in one of the following ways:

- The control unit and audible alarm device must be in a protected area which is armed 24 hours a day.
- Each partition must arm the area protecting the control unit and the audible alarm device power supply. This may require duplicate protection armed by each partition. Access to this protected area, without causing an alarm, will require that all partitions be disarmed.
- In all cases described above, the protected area for the control unit must be programmed as not-bypassable.

Casual Users

The installer should caution the user(s) not to give system information to casual users (e.g. codes, bypass methods, etc. to baby-sitters or service people). Only the One-Time Use codes should be given to casual users.

User Information

The installer should advise the users and note in the User's Manual:

- Service organization name and telephone number
- The programmed exit time
- The programmed entry time
- Test system weekly

Two-Wire Smoke Detector Compatibility (if available)

Maximum loop resistance: 24 Ohms

- Operating Voltage Range: 9.8 - 13.8 V$_{DC}$
- Maximum Alarm Current: 89 mA
- Compatibility Identifier: PC18-1

*See **Section 5 PGM Wiring** for compatible 2-wire smoke detectors.*

SIA FAR Installations

Minimum requirement system for SIA-FAR Installations:

- **1 PC1616/PC1832/PC1864 Control panel**
- **2 Local annunciation devices**

The local annunciation devices may be any combination of the following keypads, as long as there is at least one LCD keypad in the installation (Model LCD5500Z or PK5500).

- **LCD5500Z**
- **LCD5501Z**
- **PK5500**
- **PK5508**
- **PKP-LCD**
- **PKP-ICN**
- **PK5501**
- **PK5516**

The following optional subassembly modules also bear the SIA FAR classification and may be used if desired:

PC5108 Zone Expander Module

Compatible initiating devices: Bravo200 series, 300 series, 400 series, 500 series, 600 series, AC-100, Encore300 series, Force200 series, 210 series, MN240.

PC5208 Low Current PGM Output Module

The following optional accessory modules also bear the SIA FAR classification and may be used if desired.

PC5204 Auxiliary Power Supply with PGM output ports

Escort5580/Escort5580TC, PC5400 Printer Module

Caution

- For SIA FAR installations, only use modules / devices that are listed on this page.
- Fire Alarm Verification feature (Auto Verified Fire zone) is not supported on 2-wire smoke detectors zones. This feature may be enabled for 4-wire smoke detectors only.
- Call Waiting Cancel (Section 382 Option 4) feature on a non-Call Waiting line will prevent successful communication to the central station.
- All smoke detectors on the system must be tested annually by conducting the Installer Walk Test prior to exiting the walk test mode, a sensor reset must be conducted on the system, **[✱][7][2]** to reset all latching 4-wire smoke detectors. Please refer to the smoke detector installation instructions on how to correctly test the detectors.

Notes

- Programming at installation may be subordinate to other UL requirements for the intended application.
- Cross zones have the ability to individually protect the intended area (e.g., motion detectors, which overlap).
- Cross zoning is not recommended for line security Installations nor is it to be implemented on exit / entry zones.
- There is a communication delay of 30 seconds in this control panel. It can be removed, or it can be increased up to 45 seconds at the option of the end user by consulting with the Installer.
- Do not duplicate any reporting codes. This applies for all communication formats other than SIA sending automatic programmed reporting codes.
- The control unit must be installed with a local sounding device and an off-premise transmission for SIA communication format.
- For ULC Listed Fire Monitoring Installations & module requirements, please refer to the ULC Installation Information sheet, part# 29002157.
- Use a CSA/cUL transformer, hardwired.
- All tamper circuits may be connected to the same zone.
- Use ULC-LA for AC Power indication.

PC1616/PC1832/PC1864 Installer Programming Quick Reference Chart SIA False Alarm Reduction

SIA Feature Programming Section	Comments	Range/Default	Requirement
Exit Time [005], 3rd entry	Access to Entry and Exit delays for each partition and Bell Time Out for the system	For Full or auto arming: **Range:** 45- 255 seconds **Default:** 60 sec.	Required (programmable)
Progress Annunciation/ Disable - for Silent Exit [014], Option 6 ON	Enables audible exit beeps from the keypad for the duration of exit delay	Individual keypads may be disabled **Default:** All Enabled	Allowed
Exit Time Restart [018], Option 7 ON	Enables the exit delay restart feature	**Default:** Enabled	Required
Auto Stay Arm on Unvacated Premises [001]-[004] Zone type 05, 06	Function Key: Stay Arming. All Stay/Away type zones (05, 06) will be automatically bypassed	If no exit after full arm **Default:** Enabled	Required
Exit Time and Progress Annunciation/Disable or Remote Arming [005] and [014] bit 6	System Times and Audible Exit beeps can be disabled when using the Key fob to arm away the system	**Default:** Enabled	Allowed
Entry delay(s) [005], 1st and 2nd entry	Access to Entry and Exit delays for each partition and Bell Time Out for the system **Note:** Combined Entry delay and Communications Delay (Abort Window) shall not exceed 60s	**Range:** 30 sec. to 4 min. **Default:** 30 sees	Required (programmable)
Abort Window for Non-Fire zones [101]-[164] bit 7 ON	Access to zone attributes, i.e, swinger shutdown, transmission delay and cross zone. Individual zones attribute bit 7 (Transmission delay) is by default ON	May be disabled by zone or zone type **Default:** Enabled	Required
Abort Window - for Non-Fire zones [377], 4th entry	Access to the programmable delay before communicating alarms **Note:** Combined Entry delay and Communications Delay (Abort Window) shall not exceed 60s	**Range:** 15 - 45 sec. **Default:** 30 sees	Required (programmable)
Abort Annunciation [382], Option 3 ON	Enables the "Communication Cancelled" message display on all keypads	Annunciate that no alarm was transmitted **Default:** Enabled	Required
Cancel Annunciation [328], 8th entry	Access to the reporting code for Alarm Cancelled	Annunciate that a Cancel was transmitted **Default:** Enabled	Required
Duress Feature [*][5] Master Code 33rd and 34th entries	Do not derive code from an existing Master/User code (e.g., Master code is 1234, the duress code should not be 1233 or 1235)	No 1+ derivative of another user code. No duplicates with other user codes **Default:** disabled	Allowed
Cross Zoning [018] Option 6 [101]-[164] bit 9 OFF	This option enables Cross Zoning for entire system. Individual zones can be enabled for Cross zoning via Zone attribute bit 9 in sections [101] - [164]	Programming required **Default:** Disabled	Required
Cross Zone Timer [176]	Access to the programmable Cross Zone timer	May program Range: 001-255 sec./min. **Default:** 60 secs	Allowed
Swinger Shutdown for Alarms [377] 1st entry	Access to the swinger shutdown limit for zone alarms	For all non-fire zones shut down at 1 or 2 trips **Default:** 1 Trip	Required (programmable)
Swinger Shutdown Disable [101] - [164] bit 6 ON	Access to zone attributes, i.e., swinger shutdown, transmission delay and cross zone. Individual zones attribute bit 6 (Swinger shutdown enabled) is by default ON	For non-police response zones **Default:** Enabled	Allowed
Fire Alarm Verification Zone type [29]	Auto Verified Fire, use only with 4 wire type detectors that can be reset by the panel 4-wire smoke detector powered from AUX = and PGM1 - PGM4 (type 03, Sensor reset)	70 seconds reset and confirmation time **Default:** disabled	Required
Call Waiting Cancel Dial String [304], [382], Option 4 OFF	Access to the dialing sequence used to disable call waiting	Dependant on user phone line **Default:** disabled	Required

Testing

System Test: [*][6] Master Code, Option 4	The system activates all keypad sounders, bells or sirens for 2 seconds and all keypad lights turn on. Refer to the *User Manual (part no. 29007165)*.
Installer Walk Test Mode: [901	This mode is used to test each zone on the system for proper functionality.
Alarm Communications During Walk Test [382] Option 2:	Enables Communication of zone alarms while installer Walk Test is active.
Walk Test End and Begin Reporting Codes [348], 1st and 2nd Entries	Access to the reporting codes for Walk Test Begin and Walk Test End.

Note to Installers

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system.

System Failures

This system has been carefully designed to be as effective as possible. There are circumstances, however, involving fire, burglary, or other types of emergencies where it may not provide protection. Any alarm system of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some but not all of these reasons may be:

n   Inadequate Installation
A security system must be installed properly in order to provide adequate protection. Every installation should be evaluated by a security professional to ensure that all access points and areas are covered. Locks and latches on windows and doors must be secure and operate as intended. Windows, doors, walls, ceilings and other building materials must be of sufficient strength and construction to provide the level of protection expected. A reevaluation must be done during and after any construction activity. An evaluation by the fire and/or police department is highly recommended if this service is available.

n Criminal Knowledge
This system contains security features which were known to be effective at the time of manufacture. It is possible for persons with criminal intent to develop techniques which reduce the effectiveness of these features. It is important that a security system be reviewed periodically to ensure that its features remain effective and that it be updated or replaced if it is found that it does not provide the protection expected.

n Access by Intruders
Intruders may enter through an unprotected access point, circumvent a sensing device, evade detection by moving through an area of insufficient coverage, disconnect a warning device, or interfere with or prevent the proper operation of the system.

n Power Failure
Control units, intrusion detectors, smoke detectors and many other security devices require an adequate power supply for proper operation. If a device operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a security system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

n Failure of Replaceable Batteries
This system's wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

n Compromise of Radio Frequency (Wireless) Devices
Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

n System Users
A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

n Smoke Detectors
Smoke detectors that are a part of this system may not properly alert occupants of a fire for a number of reasons, some of which follow. The smoke detectors may have been improperly installed or positioned. Smoke may not be able to reach the smoke detectors, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors. Smoke detectors may not detect smoke from fires on another level of the residence or building.

Every fire is different in the amount of smoke produced and the rate of burning. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

n Motion Detectors
Motion detectors can only detect motion within the designated areas as shown in their respective installation instructions. They cannot discriminate between intruders and intended occupants. Motion detectors do not provide volumetric area protection. They have multiple beams of detection and motion can only be detected in unobstructed areas covered by these beams. They cannot detect motion which occurs behind walls, ceilings, floor, closed doors, glass partitions, glass doors or windows. Any type of tampering whether intentional or unintentional such as masking, painting, or spraying of any material on the lenses, mirrors, windows or any other part of the detection system will impair its proper operation.

Passive infrared motion detectors operate by sensing changes in temperature. However their effectiveness can be reduced when the ambient temperature rises near or above body temperature or if there are intentional or unintentional sources of heat in or near the detection area. Some of these heat sources could be heaters, radiators, stoves, barbecues, fireplaces, sunlight, steam vents, lighting and so on.

n Warning Devices
Warning devices such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If warning devices are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible warning devices may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible warning devices, however loud, may not be heard by a hearing-impaired person.

n Telephone Lines
If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also an intruder may cut the telephone line or defeat its operation by more sophisticated means which may be difficult to detect.

n Insufficient Time
There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time to protect the occupants or their belongings.

n Component Failure
Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

n Inadequate Testing
Most problems that would prevent an alarm system from operating as intended can be found by regular testing and maintenance. The complete system should be tested weekly and immediately after a break-in, an attempted break-in, a fire, a storm, an earthquake, an accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

n Security and Insurance
Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

Limited Warranty

Digital Security Controls warrants the original purchaser that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Digital Security Controls shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labour and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original purchaser must promptly notify Digital Security Controls in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period. There is absolutely no warranty on software and all software products are sold as a user license under the terms of the software license agreement included with the product. The Customer assumes all responsibility for the proper selection, installation, operation and maintenance of any products purchased from DSC. Custom products are only warranted to the extent that they do not function upon delivery. In such cases, DSC can replace or credit at its option.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Digital Security Controls shall not be responsible for any customs fees, taxes, or VAT that may be due.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

• damage incurred in shipping or handling;

• damage caused by disaster such as fire, flood, wind, earthquake or lightning;

• damage due to causes beyond the control of Digital Security Controls such as excessive voltage, mechanical shock or water damage;

• damage caused by unauthorized attachment, alterations, modifications or foreign objects;

• damage caused by peripherals (unless such peripherals were supplied by Digital Security Controls Ltd.);

• defects caused by failure to provide a suitable installation environment for the products;

• damage caused by use of the products for purposes other than those for which it was designed;

• damage from improper maintenance;

• damage arising out of any other abuse, mishandling or improper application of the products.

Items Not Covered by Warranty

In addition to the items which void the Warranty, the following items shall not be covered by Warranty: (i) freight cost to the repair centre; (ii) products which are not identified with DSC's product label and lot number or serial number; (iii) products disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection or testing to verify any warranty claim. Access cards or tags returned for replacement under warranty will be credited or replaced at DSC's option. Products not covered by this warranty, or otherwise out of warranty due to age, misuse, or damage shall be evaluated, and a repair estimate shall be provided. No repair work will be performed until a valid purchase order is received from the Customer and a Return Merchandise Authorization number (RMA) is issued by DSC's Customer Service.

Digital Security Controls Ltd.'s liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty. Under no circumstances shall Digital Security Controls be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property. The laws of some jurisdictions limit or do not allow the disclaimer of consequential damages. If the laws of such a jurisdiction apply to any claim by or against DSC, the limitations and disclaimers contained here shall be to the greatest extent permitted by law. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that the above may not apply to you.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) and of all other obligations or liabilities on the part of Digital Security Controls. Digital Security Controls neither assumes responsibility for, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product. This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

WARNING: Digital Security Controls recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

Out of Warranty Repairs

Digital Security Controls will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Digital Security Controls determines to be repairable will be repaired and returned. A set fee which Digital Security Controls has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Digital Security Controls determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

FCC COMPLIANCE STATEMENT

CAUTION: Changes or modifications not expressly approved by Digital Security Controls could void your authority to use this equipment.

This equipment has been tested and found to comply with the limits for a Class B 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 deter-mined 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:

- Re-orient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

The user may find the following booklet prepared by the FCC useful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402, Stock # 004-000-00345-4.

IMPORTANT INFORMATION

This equipment complies with Part 68 of the FCC Rules. On the side of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this number must be provided to the Telephone Company.

PC1864 Product Identifier	US: F53AL01BPC1864
PC1832 Product Identifier	US: F53AL01BPC1832
PC1616 Product Identifier	US: F53AL01BPC1614
REN:	0.1B
USOC Jack:	RJ-31X

Telephone Connection Requirements

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer Equivalence Number (REN)

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format.
US: AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Incidence of Harm

If this equipment PC1864/PC1832/PC1616 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

### Changes in Telephone Company Equipment or Facilities

The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Equipment Maintenance Facility

If trouble is experienced with this equipment PC1616, PC1832, PC1864 for repair or warranty information, please contact the facility indicated below. If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is solved. This equipment is of a type that is not intended to be repaired by the end user.
DSC c/o APL Logistics, 757 Douglas Hill Rd., Lithia Springs, GA 30122

Additional Information

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
Alarm dialling equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system, computer modem, etc.) already has the telephone line in use. To do so, alarm dialling equipment must be connected to a properly installed RJ-31X jack that is electrically in series with and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the figure below. If you have any questions concerning these instructions, you should consult your telephone company or a qualified installer about installing the RJ-31X jack and alarm dialling equipment for you.

Customer Premises Equipment and Wiring
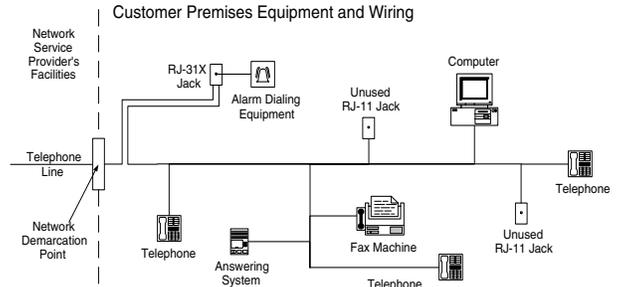
INDUSTRY CANADA STATEMENT

NOTICE: This Equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that that Industry Canada approved the equipment

NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is 0.1. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals 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 Ringer Equivalence Numbers of all devices does not exceed five.

PC1864 Registration number . . . . .IC: 160A-PC1864
PC1832 Registration number . . . . .IC: 160A-PC1832
PC1616 Registration number . . . . .IC: 160A-PC1614