

Installation Instructions

DSC[®]
Power 832[®]

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

Please refer to the System Installation Manual for information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer.

PC5100
Version 1.0

FCC COMPLIANCE STATEMENT

CAUTION: Changes or modifications not expressly approved by Digital Security Controls Ltd. 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 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:

- 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.

Digital Security Controls Ltd. 160 Washburn St., Lockport, NY 14094

This Class [B] digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.

Limited Warranty

Digital Security Controls Ltd. warrants 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 and that in fulfillment of any breach of such warranty, Digital Security Controls Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its factory. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls Ltd. This warranty contains the entire warranty. Digital Security Controls Ltd. neither assumes, 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.

In no event shall Digital Security Controls Ltd. be liable for any direct or indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

WARNING: Digital Security Controls Ltd. 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.

Overview

S E C T I O N 1

1.1 Specifications

PC5100 2-Wire Addressable Device Interface Module

- The PC5100 is an interface module for the PC5010 and PC5015 alarm control panels. The module is used to connect 2-wire addressable devices to the Power832 Security System.
- Current draw: 40mA
- Addressable loop maximum current draw: 170mA
- Up to 32 2-wire addressable devices can be added to the system
- Compatibility PC5010 v2.x or higher; PC5015 v2.x or higher.

Addressable Multiplex Loop (AML) Devices

All addressable series devices use a 2-wire connection for power and to communicate with the control panel. This simplifies wiring and permits fast and efficient installations.

WARNING: Connect only DSC Addressable Series devices to the addressable loop connections. Connection of ANY other type of device will impair operation. Any devices other than Addressable Series devices which require power to operate must be powered separately.

Addressable Device Current Loading				
Device	Description	Standby*	Alarm	Test
AMS-220/AMS-220T	Smoke Detector	0.8 mA	0.8 mA	1.5 mA
AMB-300	Motion Detector	.75 mA	.90 mA	3.0 mA
AMB-500	Ceiling Mount Motion Detector	.75 mA	.90 mA	3.0 mA
AMB-600	Pet Immune Motion Detector	3.5 mA	3.5 mA	6.5 mA
AMA-100	Glassbreak Detector	3.9 mA	3.9 mA	5.9 mA
AMP-700/AMP-701	Contact	0.8 mA	0.8 mA	0.8 mA
AMP-702	Fire Point Module	1.1mA	1.6mA	1.6mA

**Always use the Standby Current Draw when calculating maximum wire run lengths.*

Due to continuous technological changes and product enhancements, the above table is intended only as a guide. Always verify the current draw of each device by consulting the Installation Instructions provided with the product at the time of purchase.

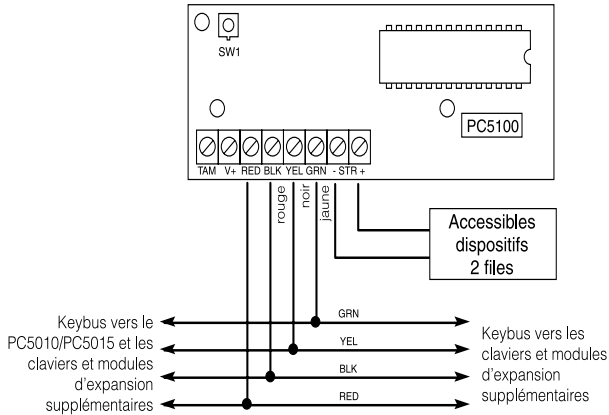
Getting Started

S E C T I O N 2

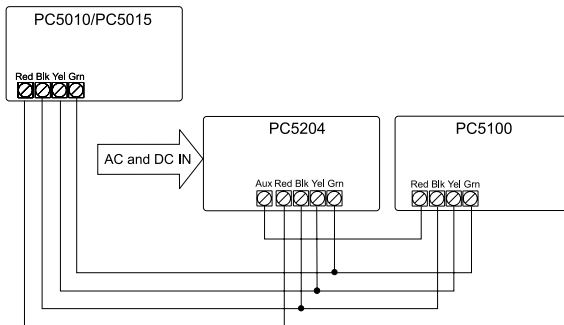
2.1 Connecting the PC5100 Interface Module

! *Remove all power from the control panel before connecting any module to the system.*

Connect the PC5100 to the PC5010/5015 Keybus by inserting the red, black, yellow and green Keybus wires into their corresponding terminals.



! *If the PC5100 is not located within the main cabinet, a PC5204 power supply must be used to power the module, as in the diagram below.*



After wiring is complete, add power back to the PC5010/PC5015. The system will detect the new module and it will be supervised.

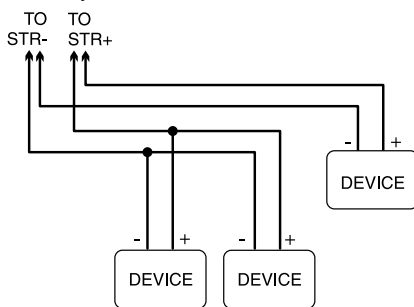
2.2 Calculating Current Draw

Up to 32 addressable devices can be connected to the PC5100. However, a maximum of 170mA of current can be used on the addressable loop. Calculate how much current your selection of devices will require by completing the following table:

Model #	Description	Quantity x	Max. Device Current Draw (in standby mode)	Total Current
AMS-220	Smoke Detector	x	0.8 mA =	
AMB-300	PIR Detector	x	.75 mA =	
AMB-500	Ceiling Mount PIR	x	.75 mA =	
AMB-600	Dual PIR Detector	x	3.5 mA =	
AMA-100	Glass-break Detector	x	3.9 mA =	
AMP-700	Magnetic Door/Window Contact	x	0.8 mA =	
AMP-701	Contact Input Module	x	0.8 mA =	
AMP-702	Fire Point Module	x	1.1mA =	
Total Current Draw (Maximum 170 mA) =				

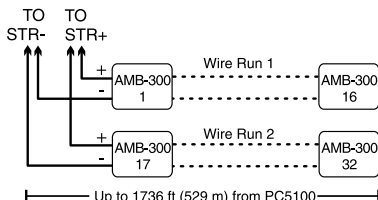
2.3 Connecting 2-Wire AML Devices

The 2-wire addressable devices are connected to the STR+ and STR- terminals on the PC5100. All devices can be home-run, t-tapped or connected in a daisy chain. Please refer to the diagram below:



The wiring length of each addressable loop is restricted to the following distances, depending on the amount of current required (see Section 2.2 “Calculating Current Draw”). Consult the wiring chart on the next page.

For longer wire runs, you can split the addressable devices onto two or more loops from the STR terminals. For example, 32 AMB-300 detectors (2.5mA each) take 80mA total. In one 18AWG wire run, this would allow a maximum length of 720 feet (220 m). If you split the 32 detectors into two wire runs of 16 detectors each, using 18AWG wire, each wire run could be 1736 feet (529 m) long. See the diagram on the right.



! *Not more than four 24AWG conductors should be connected to a single terminal as wire bulk may cause improper operation.*

All devices must be enrolled as individual zones on the system by entering their serial numbers (see section 3.2 “Enrolling Devices”).

Loop Current vs. Wiring Distance		
Total loop current (mA)	22 AWG distance (ft/m)	18 AWG distance (ft/m)
10	2880/878	5143/1568
20	1620/494	3645/1111
30	1010/308	2520/768
40	771/235	1736/529
50	600/183	1250/381
60	500/152	980/298
70	400/122	800/244
80	321/98	720/220
90	250/76	500/152
100	200/61	310/95
110	165/50	220/67
120	135/41	155/47
130	115/35	130/39
140	106/32	126/38
150	100/30	124/37
160	98/29	122/36
170	96/28	120/35

! *If any of the system keypads indicate a PC5100 module tamper, or if any zones show as open, or show a zone fault, there may be a short on the AML loop. The PC5100 module and zones will not be restored until the short is corrected - remove power from the system and re-check the zone wiring.*

2.4 Connecting the PC5100 Tamper

The PC5100 has a built-in tamper switch (SW1). If an external tamper switch is being used, connect the switch according to the following diagram.



If no tamper is used, run a wire between TAM and BLK.

! *If neither the built-in tamper nor an external switch is being used, you must short the TAM and BLK terminals. If you do not make this connection, a trouble condition will be indicated.*

Programming the PC5100

S E C T I O N 3

3.1 How to Program

You can program the PC5100 by entering installer's programming mode ([*] [8] [Installer's code]) at any system keypad.

All PC5100 programming is in programming section [805] (see page 8).

! *Ensure that you have double checked each entry for all device serial number sections. If you have entered data which was not accepted, the section will not change from the previous settings and device serial numbers will revert to [00000].*

3.2 Enrolling Devices

To enroll AML devices:

1. At a system keypad, enter [*][8][Installer's code] to go to the installer's programming section.
2. Enter programming section [805].
3. Enter the 2-digit number corresponding to the zone the device is to occupy ([01] to [32]).

NOTE: *You cannot enroll more than one device to a zone.*

! *If you install AML devices on zones programmed as interior and delay zone types, the delay zones must have a lower zone number than the interior zones. For example, if zone number [04] is a delay zone, interior zones that use AML devices can only be installed on zones [05] or higher. If you program an AML delay zone with a higher number than AML interior zones, the system may detect a violation on the interior zone before the delay zone is triggered, causing a false alarm.*

4. Enter the device's serial number. The entry *must* be five digits.
5. The device is now enrolled on the system. Record the serial number and the assigned zone number in the programming worksheets in the back of this manual.
6. Continue with steps 3 - 5 until you have enrolled all devices.
7. To exit press [#].

! *Once you have enrolled all the AML devices, you should program the Panel Key. See section 3.7 for more information.*

3.3 Zone Programming

The AML devices will not work properly until you complete the zone and partition programming. Select a zone definition for each used zone in programming sections [001] – [004].

You must also enable the wireless/AML zone attribute for each zone that has been assigned to an AML device. To do this, turn ON option 8 in the appropriate programming section (one or more of sections [101] – [132]). See your PC5010 or PC5015 *Installation Manual* for more information.

To ensure proper operation, use zone definitions (87) and (88) for both delayed and standard fire zones on the addressable loop.

3.4 Module and Device Supervision

To confirm that the panel is supervising the PC5100, enter section [903]. If the PC5100 is being supervised, on LED keypads light 15 will be on, and on LCD keypads the message "PC5100" will be displayed. Devices are supervised as zones. The level of supervision for AML devices is determined by the type of zone supervision that was selected for the PC5010/5015 (i.e. normally closed, single end of line, or double end of line supervision).

For more information, please refer to your PC5010 or PC5015 *Installation Manual*.

3.5 Removing Devices

Before removing devices from the system, you must delete their serial numbers. To remove a 2-wire addressable device from the system, perform the steps outlined in Section 3.2. Enter [00000] for the serial number of the device you wish to remove.



You may need to power down the panel to clear troubles which could be caused by deleted devices.

3.6 Replacing Devices

In order to replace an AML device, you must first remove the old device, as described in section 3.5, above. Then, enroll the new device as described in section 3.2.

3.7 Programming Section Descriptions

Sections [01] - [32]: Zone Serial Numbers

These sections are for enrolling the serial numbers of each 2-wire addressable device on the system. See Section 3.2 for details.

Section [97]: Special Functions

Option 1: Walk test light ON. Turn on this option to enable the walk test LED on all motion and glassbreak detectors. If a device is working, its LED will turn on when it is tested.



This option does not turn on the walk test - only the walk test LEDs. To walk test the system, follow the instructions in the Walk Test section of the PC5010 or PC5015 Installation Manual.

- To test the motion detectors, create motion in front of each device. If the LED turns on, the device is working.
- To test the glassbreak detectors, you will also need to turn on option 4 (Glassbreak Test ON). See the *AMA-100 Installation Instruction* sheet for testing instructions.

Once the walk test has been completed, re-enter Section [97] and turn option [1] OFF.

Option 2: Smoke test on installer exit. Turn on this option to enable the smoke test for all AML smoke detectors. The PC5100 will begin the test after you exit from Installer's Programming. The PC5100 tests each smoke detector by:

- turning on the test output of each detector, and then checking for an alarm state on each detector

- turning off the test output and checking for an alarm restore state on each detector.

If the PC5100 module does not receive an alarm signal from a smoke detector, there will be a trouble on that zone when the test is over. The trouble will only be restored when the next smoke test is performed and the detector passes the test. If the PC5100 module does not receive a restore signal from a smoke detector, there will be an alarm on that zone when the smoke test is over. The alarm will be restored once the zone has been restored.

After you turn on this test, do not enter Installer's Programming for at least 60 seconds. The PC5100 will turn off the option once the test is complete.

See your *AMS-220 Installation Instruction* sheet for more information on testing AML smoke detectors.



If a smoke alarm occurs during the smoke test, the zone will be placed into the alarm state once the test has been completed.

Option 3: 24-hour smoke test. If this option is turned on, the panel will perform the smoke test as described in option 4, above, every day at 11:00 pm.

Option 4: Glassbreak test ON. Turn this option on to test AMA-100 devices with the AFT-100. After you have turned this option on, follow the instructions in the Walk Test section of the PC5010 or PC5015 *Installation Manual*. See the *AMA-100 Installation Instruction* sheet for testing instructions.

The AMA-100 will not respond to the AFT-100 unless this option is turned on. Turn this option OFF when you are done testing the AMA-100 devices.

Section [98]: Panel Key



IMPORTANT: We strongly recommend that the panel key be programmed to ensure the security of the system.

The Panel Key is a 2-digit code which acts as a security lock for the addressable detectors. Once you have enrolled all addressable zones you must change the panel key from the default "00" to another 2-digit number (01-FF). When the panel key is changed, the panel will broadcast the new code to each addressable device.

Section [99]: Module Default

To return the module to its factory default settings, enter section [99], then enter [55].



Before you can continue programming the PC5100 module, you must exit (press [#] twice), and then re-enter installer's programming (enter [*][8][Installer's Code]).

3.8 Testing the System

To verify that each device is working as intended, you should perform a walk test once all devices have been installed. To perform a walk test, follow the instructions in section 3.7 (Option 1: Walk Test Light ON), and in your PC5010 or PC5015 *Installation Manual*.

You should also perform a test of the smoke detectors as described in section 3.7 (Option 2: Smoke test on installer exit).

Programming Worksheets

S E C T I O N 4

[805] PC5100 Expansion Programming

Zone Serial Numbers

Default for each section = 00000 (5-digit decimal entry required)

- | | | | |
|--------------|----------------------|--------------|----------------------|
| [01] Zone 1 | <input type="text"/> | [17] Zone 17 | <input type="text"/> |
| [02] Zone 2 | <input type="text"/> | [18] Zone 18 | <input type="text"/> |
| [03] Zone 3 | <input type="text"/> | [19] Zone 19 | <input type="text"/> |
| [04] Zone 4 | <input type="text"/> | [20] Zone 20 | <input type="text"/> |
| [05] Zone 5 | <input type="text"/> | [21] Zone 21 | <input type="text"/> |
| [06] Zone 6 | <input type="text"/> | [22] Zone 22 | <input type="text"/> |
| [07] Zone 7 | <input type="text"/> | [23] Zone 23 | <input type="text"/> |
| [08] Zone 8 | <input type="text"/> | [24] Zone 24 | <input type="text"/> |
| [09] Zone 9 | <input type="text"/> | [25] Zone 25 | <input type="text"/> |
| [10] Zone 10 | <input type="text"/> | [26] Zone 26 | <input type="text"/> |
| [11] Zone 11 | <input type="text"/> | [27] Zone 27 | <input type="text"/> |
| [12] Zone 12 | <input type="text"/> | [28] Zone 28 | <input type="text"/> |
| [13] Zone 13 | <input type="text"/> | [29] Zone 29 | <input type="text"/> |
| [14] Zone 14 | <input type="text"/> | [30] Zone 30 | <input type="text"/> |
| [15] Zone 15 | <input type="text"/> | [31] Zone 31 | <input type="text"/> |
| [16] Zone 16 | <input type="text"/> | [32] Zone 32 | <input type="text"/> |

[97] Special Functions Options (1-3)

- | Default = OFF | Option ON | Option OFF |
|-------------------------------------|------------------------------|--------------------------|
| <input type="checkbox"/> Option 1 | Walk test LED ON | Walk test LED OFF |
| <input type="checkbox"/> Option 2 | Smoke test on installer exit | Smoke test OFF |
| <input type="checkbox"/> Option 3 | 24-hour smoke test ON | 24-hour smoke test OFF |
| <input type="checkbox"/> Option 4 | Glassbreak test mode ON | Glassbreak test mode OFF |
| <input type="checkbox"/> Option 5-8 | Not used | |

[98] Panel Key (2-digit hexadecimal entry)

[99] PC5100 Module Default

Enter [55] in this location to return the PC5100 to its default settings.

Guidelines for Locating Smoke Detectors

A P P E N D I X A

Experience has shown that all hostile fires in family living units generate smoke to a greater or lesser extent. Experiments using typical fires in family living units indicate that detectable quantities of smoke precede detectable levels of heat in most cases. In existing homes, the 1993 edition of NFPA 72 requires that a smoke detector be installed outside each sleeping area and on each additional story of the family unit.

The following information is for general guidance only and it is recommended that the 1993 edition of NFPA 72 (**National Fire Protection Association, One Batterymarch Park, Quincy, MA 02269**) be consulted and that the smoke detector manufacturer's literature be used for detailed installation instructions.

It is recommended that additional smoke detectors beyond those required be installed for increased protection. The added areas include: basement, bedrooms, dining rooms, furnace room, utility room and hallways not protected by the required detectors.

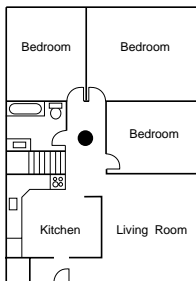


Figure 1: A smoke detector should be located between the sleeping area and the rest of the family unit.

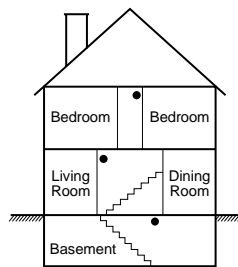


Figure 3: A smoke detector should be located on each story of the living unit.

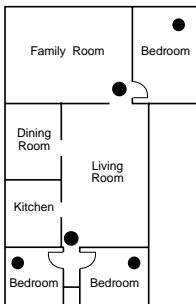
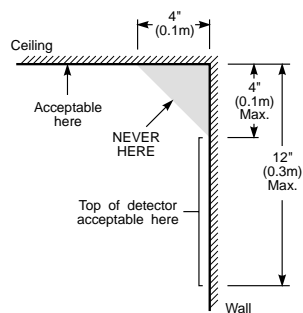


Figure 2: In family living units with more than one sleeping area, a smoke detector should be located to protect each sleeping area.



NOTE: Measurements shown are to the closest edge of the detector.

Figure 4: Smoke Detector Mounting - 'Dead' Air Space. The smoke from a fire generally rises to the ceiling, spreads out across the ceiling surface and begins to bank down from the ceiling. The corner where the ceiling and wall meet is an air space into which the smoke may have difficulty penetrating. In most fires, this "dead" air space measures about 4 in. (0.1m) along the ceiling from the corner and about 4 in. (0.1m) down the wall as shown in Figure 4. Detectors should not be placed in the 'dead' air space.



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