Installation Instructions

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.
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 fulfilment 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.
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.

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

*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.
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:
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:

![Diagram of 2-Wire AML Devices](image)

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 devices 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.

---

**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 | 0.75 mA | 
AMB-500 | Ceiling Mount PIR | x | 0.75 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) =**

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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”).

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

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.

![Diagram](image)

NORMALLY OPEN TAMPER SWITCH

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.
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).
[805] PC5100 Expansion Programming

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

[01] Zone 1 ____________  [17] Zone 17 ____________
[02] Zone 2 ____________  [18] Zone 18 ____________
[03] Zone 3 ____________  [19] Zone 19 ____________
[04] Zone 4 ____________  [20] Zone 20 ____________
[05] Zone 5 ____________  [21] Zone 21 ____________
[06] Zone 6 ____________  [22] Zone 22 ____________
[07] Zone 7 ____________  [23] Zone 23 ____________
[08] Zone 8 ____________  [24] Zone 24 ____________
[09] Zone 9 ____________  [25] Zone 25 ____________
[10] Zone 10 ____________  [26] Zone 26 ____________
[12] Zone 12 ____________  [28] Zone 28 ____________
[13] Zone 13 ____________  [29] Zone 29 ____________
[15] Zone 15 ____________  [31] Zone 31 ____________
[16] Zone 16 ____________  [32] Zone 32 ____________

[97] Special Functions Options (1-3)
Default = OFF  Option ON  Option OFF

____ Option 1  Walk test LED ON  Walk test LED OFF
____ Option 2  Smoke test on installer exit  Smoke test OFF
____ Option 3  24-hour smoke test ON  24-hour smoke test OFF
____ Option 4  Glassbreak test mode ON  Glassbreak test mode OFF
     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.
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.

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

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

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

**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 ceil-
ing. 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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**NOTE:** Measurements shown are to the closest edge of the detector.