

# APD-16

## Digital Input Alarm Module

*Supports 16 Supervised Grade AA Digital Inputs  
Using Ultra High Line Security (UHLS)*

The APD-16 alarm module and ATD-16 transceiver, bring a new **UHLS** standard for intensive security installations not before possible at low cost. The APD-16 and ATD-16 transceiver unit **detect attempts to compromise line security by both substitution of equipment and introduction of pre-recorded data.**

Traditional analog alarm circuits, designed for UL Grade A supervision, cannot detect a compromise attempt by substitution of equipment or introduction of pre-recorded data. The model APD-16 digital input alarm module **provides this added dimension** in high line security.

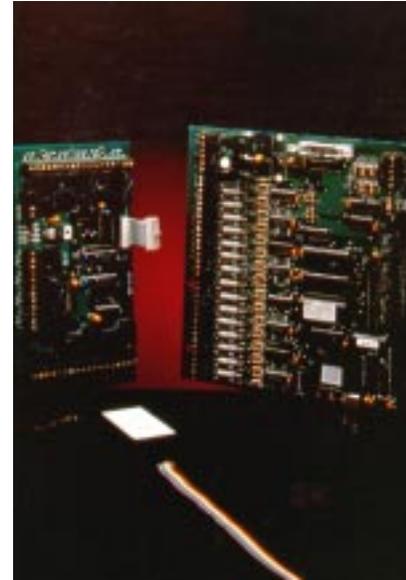
The APD-16 digital input alarm module monitors and provides **Ultra High Line Security** using supervised digital alarm monitoring techniques for 16 Grade AA alarm input circuits. **The APD-16 represents a significant breakthrough in line security. These units are designed to provide the ultimate in digital line supervision from the alarm initiating device to the alarm collection panel up to 1000 feet away.**

The APD-16 communicates with up to 16 ATD-16 alarm transceiver units that are mounted at alarm devices, using an encoded two way interrogation/response protocol.

The ATD-16 transceiver module encodes the alarm contact input status along with device tamper from the initiating device, converts this input to digital data and transmits the information (status) over a 2 wire data path to the APD-16, when interrogated.

The ATD-16 has a field configurable ID (unit address). The APD-16 transmits an interrogation packet to the ATD-16, consisting of a unique address and a random number. When the ATD-16 transceiver unit recognizes its unique address, it sends a reply packet to the APD-16, consisting of its unique address, the random number, the status of the monitored alarm transceiver device and the device tamper status.

The APD-16 and ATD-16 together are designed to meet the UL 1076 section 64.4C line security specification which states the equipment shall meet a 95% probability of detection of the substitution of randomly selected equipment of the same design and manufacturer. It also meets UL 1076 section 64.4D "Detection of Introduction of Pre-recorded Data". This total capability meets Grade AA line supervision.



This ATD-16 transceiver unit requires no external power. The 2 wire connection facilitates easy upgrade of existing conventional circuits, leaving the wiring in place, replacing the end-of-line terminator with the ATD-16, and adding the APD-16. The ATD-16 is housed in a sealed and potted unit, takes up very little space and can be mounted adjacent to or inside of the alarm initiating device.

The APD-16 digital input alarm module supports 16 ATD-16 transceiver unit inputs. The APD-16 supplies power to the 16 ATD-16 sender units and accepts 16 digital data streams from the senders over two wire data paths. Outputs are provided to control 16 relays on a separate relay output module (ARM-16) that plugs into the APD-16.

The APD-16 supports an RS-485 communications output to a host alarm processor. The APD-16 module can mount into existing OEM alarm panels.

### Description:

The ATD-16 provides digital line supervision from the contacts of the remote initiating device to the alarm panel. The ATD-16 encodes the alarm contact input information along with device tamper into a digital data stream. The APD-16 module continuously interrogates and decodes up to 16 ATD-16s, verifies that data is valid, and reports all malfunctions via the RS-485 link to the host alarm processor.

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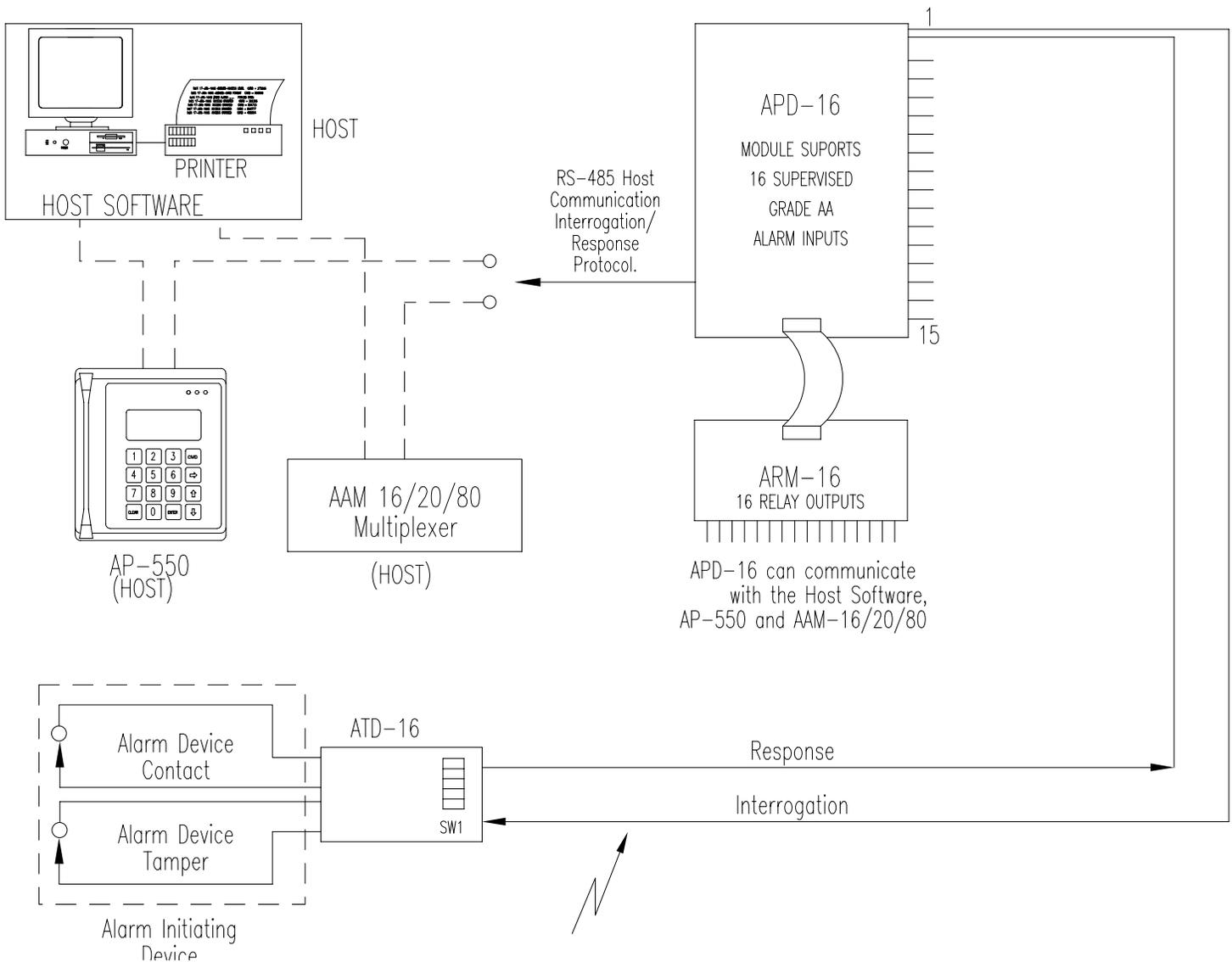
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# APD-16 System Block Diagram

## Ultra High Line Security (UHLS) Using Grade AA Digital Line Supervision



### **Digitally Encoded Data Path**

- Sender ID
- Contact Status
- Tamper Status
- Random Number
- Interrogation/Response Protocol

Designed to meet UL 1076 Section 64.4C (Detection of substitution of like equipment)

Designed to meet UL 1076 Section 64.4D (Detection of introduction of pre-recorded data)

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The APD-16, mounted in its enclosure is 16" × 16" × 5"  
 (41 cm × 41 cm × 13 cm).

### **APD-16 Digital Input Alarm Module Features:**

- CMOS single chip processor/24 Vdc input
- Serial port with RS-485 interface to host.
- 16 Grade AA digitally supervised input zones.
- Interface to ARM-16 16 relay module via ribbon cable
- Diagnostic LEDs with switch selectable address/ baud rate.
- APD-16 reports all alarm status and trouble conditions to host alarm processor.
- APD-16 may switch (ARM-16) signal relays.

Note: Information contained in this document is subject to change without notice.