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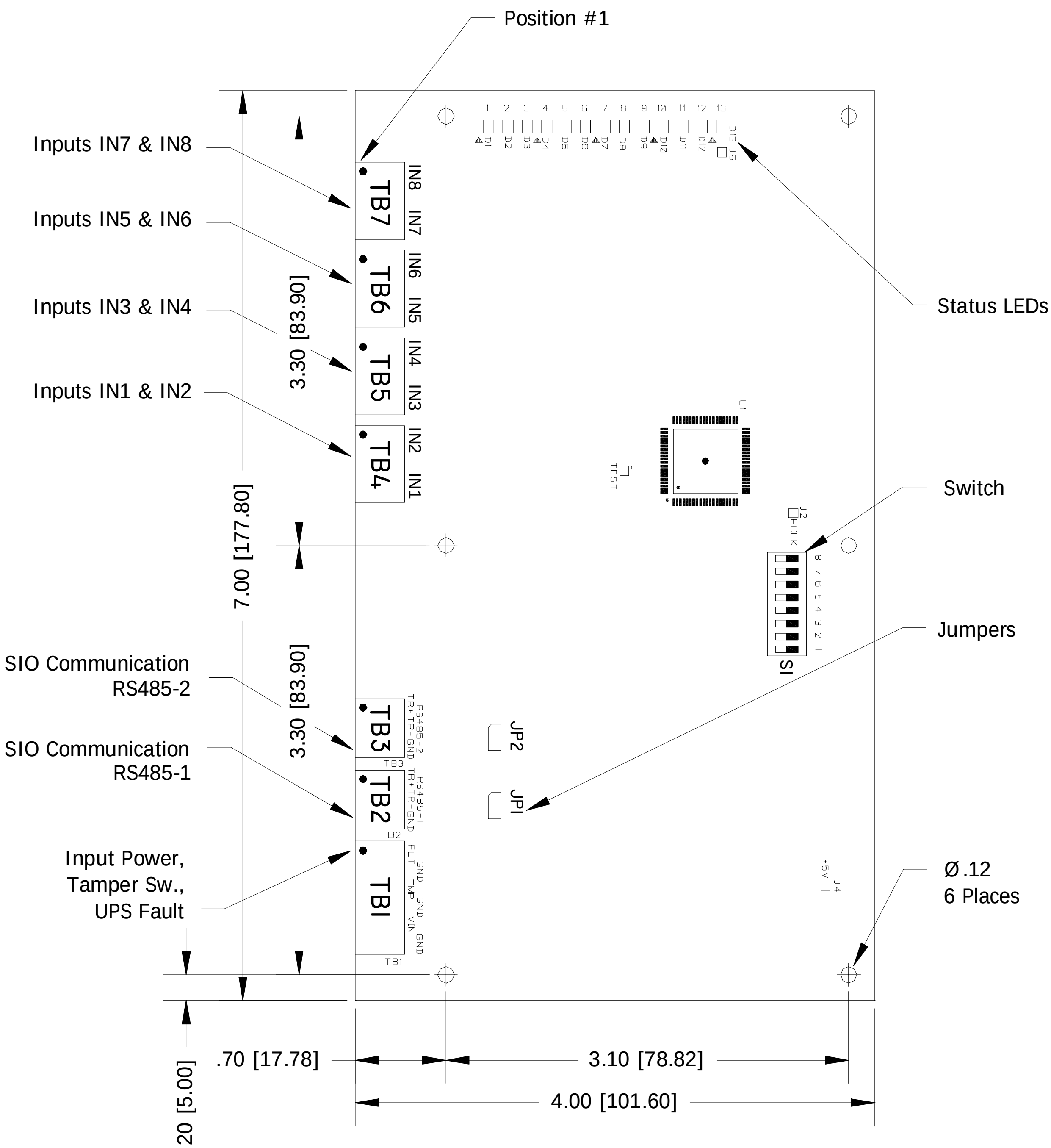
AP3108 Eight Input Module

Installation and Specifications

1. General:

The AP3108, Eight Input Module, provides sensor interface for system integrators in security/access control and other applications. The controller has 8 input channels for supervised contact monitoring. In addition, 2 unsupervised inputs may be used for cabinet tamper and UPS fault monitoring. The AP3108 requires 12-24Vdc for power. It is recommended that the AP3108 be mounted .25" minimum above any conductive surface.



2. Setting up the AP3108 Hardare:

The AP3108 hardware is configured with two jumpers (JP1 & JP2) and an eight position DIP switch (S1).

JP1 and JP2 Jumpers:

Install the RS-485 end of line (EOL) termination jumper only at the first and last units on the multi-drop communication bus.

JUMPER	SET AT	SELECTED
JP1	ON	SIO Port 1 RS-485 EOL Terminator is Engaged
	OFF	SIO Port 1 RS-485 EOL Terminator is Not Engaged
JP2	ON	SIO Port 2 RS-485 EOL Terminator is Engaged
	OFF	SIO Port 2 RS-485 EOL Terminator is Not Engaged

S1 DIP Switch:

Switches 1 to 5 select the device's communication address. Switches 6 and 7 select the communication baud rate.

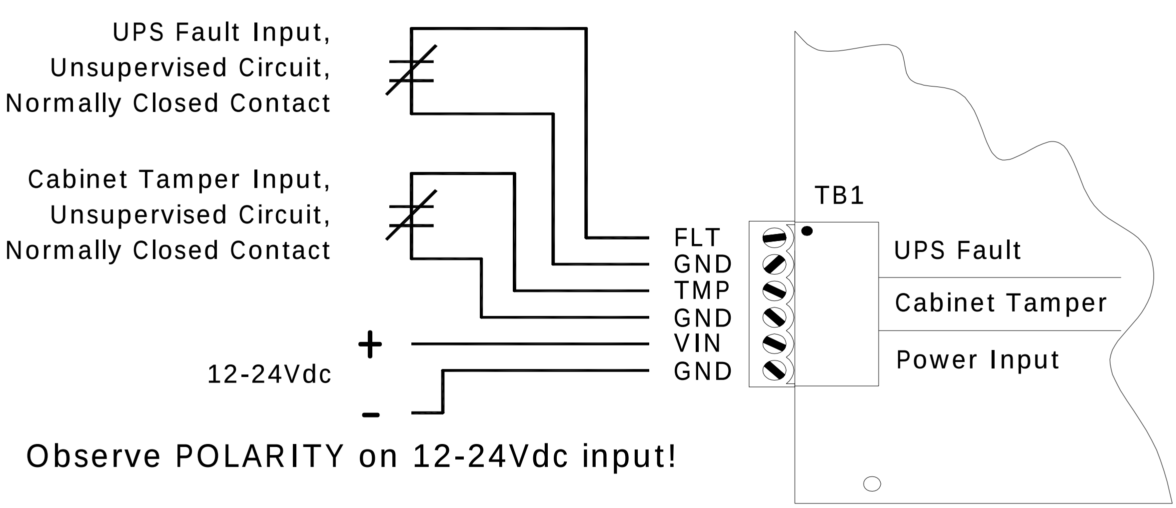
S8	S7	S6	S5	S4	S3	S2	S1	SELECTION
			OFF	OFF	OFF	OFF	OFF	Address 0
			OFF	OFF	OFF	OFF	ON	Address 1
			OFF	OFF	OFF	ON	OFF	Address 2
			OFF	OFF	OFF	ON	ON	Address 3
			OFF	OFF	ON	OFF	OFF	Address 4
			OFF	OFF	ON	OFF	ON	Address 5
			OFF	OFF	ON	ON	OFF	Address 6
			OFF	OFF	ON	ON	ON	Address 7
			OFF	ON	OFF	OFF	OFF	Address 8
			OFF	ON	OFF	OFF	ON	Address 9
			OFF	ON	OFF	ON	OFF	Address 10
			OFF	ON	OFF	ON	ON	Address 11
			OFF	ON	ON	OFF	OFF	Address 12
			OFF	ON	ON	OFF	ON	Address 13
			OFF	ON	ON	ON	OFF	Address 14
			OFF	ON	ON	ON	ON	Address 15
			ON	OFF	OFF	OFF	OFF	Address 16
			ON	OFF	OFF	OFF	ON	Address 17
			ON	OFF	OFF	ON	OFF	Address 18
			ON	OFF	OFF	ON	ON	Address 19
			ON	OFF	ON	OFF	OFF	Address 20
			ON	OFF	ON	OFF	ON	Address 21
			ON	OFF	ON	ON	OFF	Address 22
			ON	OFF	ON	ON	ON	Address 23
			ON	ON	OFF	OFF	OFF	Address 24
			ON	ON	OFF	OFF	ON	Address 25
			ON	ON	OFF	ON	OFF	Address 26
			ON	ON	OFF	ON	ON	Address 27
			ON	ON	ON	OFF	OFF	Address 28
			ON	ON	ON	OFF	ON	Address 29
			ON	ON	ON	ON	OFF	Address 30
			ON	ON	ON	ON	ON	Address 31
	OFF	OFF						2,400 BPS
	OFF	ON						9,600 BPS
	ON	OFF						19,200 BPS
	ON	ON						38,400 BPS
OFF								Not Used

3. AP3108 Wiring Connections:

		CONNECTION
TB1	1	UPS Fault: FLT: Input
	2	UPS Fault: GND: Ground
	3	Cabinet Tamper: TMP: Input
	4	Cabinet Tamper: GND: Ground
	5	Power: VIN: Power Input (12 - 24Vdc)
	6	Power: GND: Ground
TB2	1	SIO Port 1: RS485-1: TR+
	2	SIO Port 1: RS485-1: TR-
	3	SIO Port 1: RS485-1: Ground
TB3	1	SIO Port 2: RS485-2: TR+
	2	SIO Port 2: RS485-2: TR-
	3	SIO Port 2: RS485-2: Ground
TB4	1	Input 2: IN2
	2	Input 2: IN2
	3	Input 1: IN1
	4	Input 1: IN1
TB5	1	Input 4: IN4
	2	Input 4: IN4
	3	Input 3: IN3
	4	Input 3: IN3
TB6	1	Input 6: IN6
	2	Input 6: IN6
	3	Input 5: IN5
	4	Input 5: IN5
TB7	1	Input 8: IN8
	2	Input 8: IN8
	3	Input 7: IN7
	4	Input 7: IN7

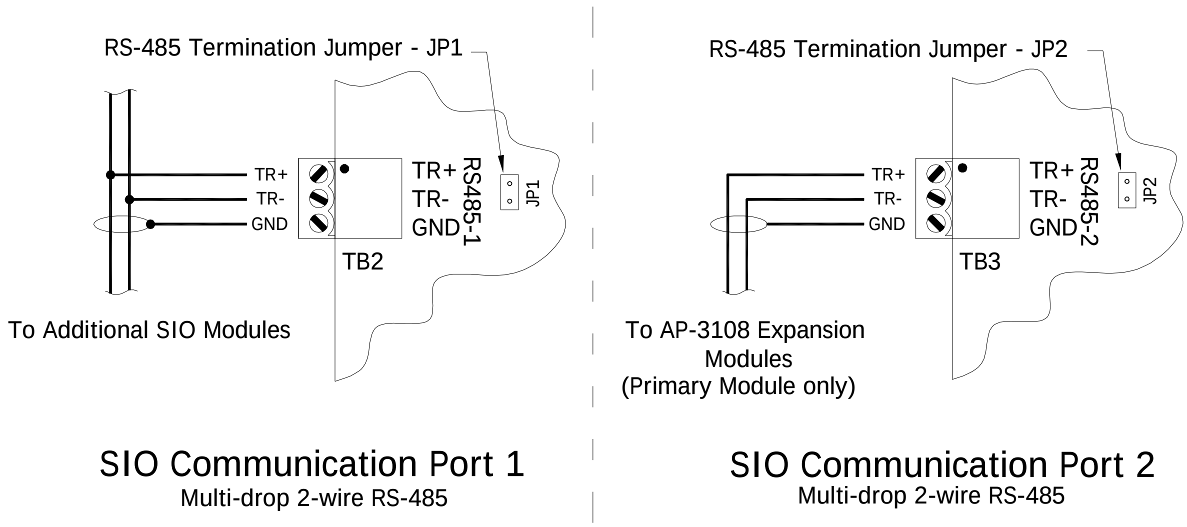
4. Input Power, Cabinet Tamper and UPS Fault Input Wiring:

The AP3108 requires 12-24Vdc for power. Locate power source as close to the unit as possible. Connect power with minimum of 18AWG wire**. Connect the GND signal to earth ground in one location within the system! Multiple earth ground connections may cause ground loop problems and is not advised.**
Observe POLARITY on 12-24Vdc input!
There are two dedicated inputs for cabinet tamper (TMP) and UPS fault monitoring (FLT). Normal (safe) condition is closed contact. If these inputs are not used, install a jumper wire.



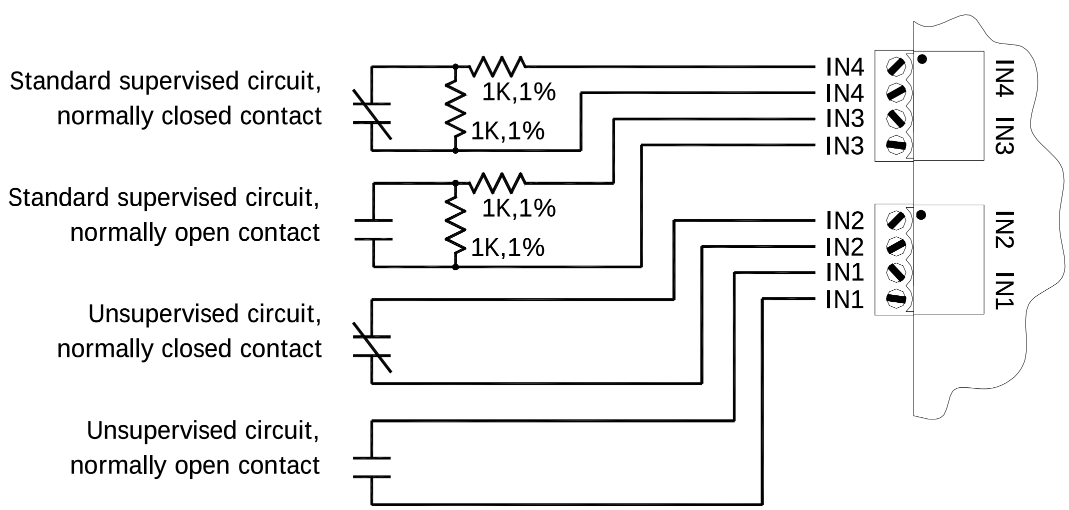
5. Communication Wiring:

The AP3108 communicates with the AP3502 controller via a 2-wire RS-485 interface, port RS485-1. The interface allows multi-drop communication on a single bus of up to 4,000 feet (1,200 m). Use twisted pair(s) (minimum 24 AWG) with an overall shield. Utilizing port RS485-2 on the primary AP-3108, up to three additional AP3108 modules may be added to each primary AP3108. Only SIO modules of the same type may be on the same SIO expansion module communication bus. It is recommended that the expansion modules be mounted in the same enclosure as the primary SIO module because the cabinet tamper and UPS monitor inputs are supported only on the primary AP3108 module.



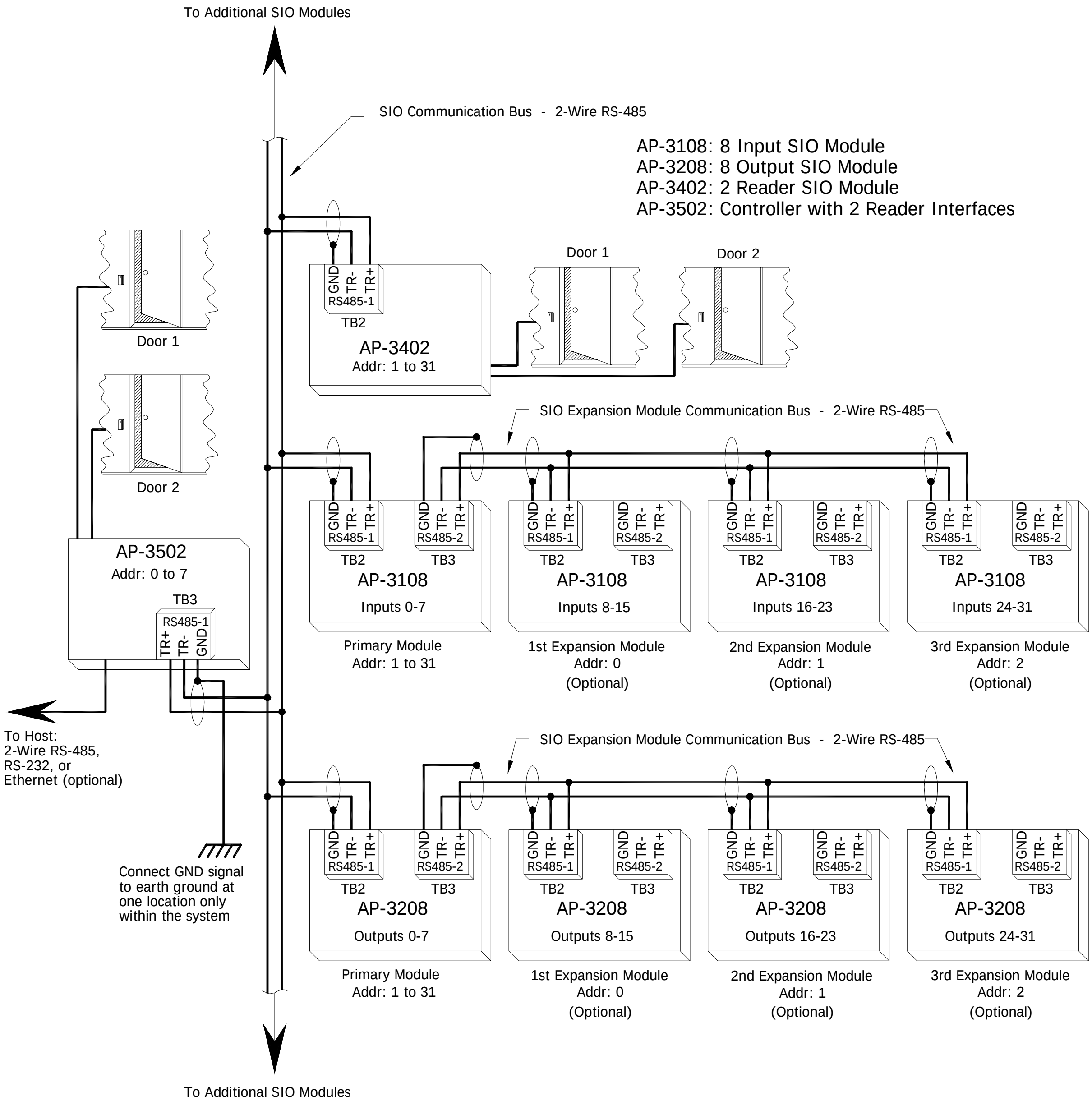
6. Alarm Input Wiring:

Inputs IN1 to IN8 may be configured to use normally open or normally closed contacts. EOL resistors are optional if supervision is required.



Information subject to change without notice.

7. AP System Architecture:



8. Status LED Definitions:

Initialization: Once power is applied, initialization of the module is started.

The BOOT code will turn **ON** LED1 after the initialization of the registers is completed. If the BOOT code cannot complete the initialization, the watchdog timer will reset the module after about one second.

If the BOOT code cannot launch the LOADER code: LED1 will be **ON**, LED2 will be **OFF** and LED3 will **flash**.

If the LOADER cannot launch the application code: LED1 will **flash** (heartbeat (off-line), see below), LED2 will display communication activity, and LED3 will be **ON.**

After initialization is complete, LEDs 1 through 13 are sequenced at a 200mS rate.

Running: After the above sequence, the LEDs have the following meanings:

LED1: Heartbeat and On-Line Status:
Off-line: 1 second rate, **OFF** for 90% (900mS) **ON** for 10% (100mS).
On-line: 1 second rate, **OFF** for 10% (100mS) **ON** for 90% (900mS).

LED2: SIO Communication Port 1 Status (TB2: RS485-1):
Primary AP3108 Module: Indicates communication activity on SIO communication port 1.
Expansion AP3108 Modules: Indicates communication activity on SIO communication port 1 to any configured AP3108 expansion module(s).

LED3: SIO Communication Port 2 Status (TB3: RS485-2):
Primary AP3108 Module: Flashes when attempting to communicate with any configured AP-3108 expansion module(s).
Expansion AP3108 Modules: Not supported, the LED is **OFF**.

LED4 through LED11: Input zone status, input IN1 through input IN8, respectively:
Input in the inactive state: **OFF**.
Input in the active state: **ON**.
Input in a trouble state: flash, (100mS: **ON**, 100mS: **OFF**).

LED12: Cabinet Tamper Switch:
OFF: No cabinet tamper (switch closed).
ON: Cabinet tamper (switch open).

LED13: UPS Fault Monitor:
OFF: No UPS Fault (switch closed).
ON: UPS Fault (switch open).

LED4 through LED13: Every 3 seconds the LED will change state for 50mS, only if the input is configured. The LED is always **OFF** when the input is not configured.

9. Specifications:

The AP3108 is for use in low voltage, class 2 circuits only.

Primary Power:	12-24Vdc ±10%, 125mA
Inputs:	2 unsupervised, for local cabinet tamper and UPS fault monitoring, primary AP3108 only. 8 unsupervised/supervised, standard EOL: 1K Ohm/1K Ohm. Four custom EOL's are available (host software dependent).
Wire requirement:	
Power:	1 twisted pair, 18 AWG.
RS-485:	24AWG, 4,000ft (1,200m) max., twisted pair(s) with an overall shield.
Alarm Input:	1 twisted pair, 30 ohms maximum, typically 22 AWG @ 1000 feet (300m).
SIO Communication, RS485-1 & RS485-2:	2-wire RS-485 serial ports: asynchronous, half-duplex, 1 start bit, 8 data bits, and 1 stop bit. Baud rate is switch selectable: 2400 to 38400 BPS. If modems and/or drivers are used, fast data turnaround times are required.

Information subject to change without notice.

Environmental:

	Temperature:	0 to 70 °C, operating
		-55 to +85 °C, storage
	Humidity:	0 to 95% RHNC

Mechanical:

	Dimension:	7 in. (178mm) W x 4 in. (102mm) L x .75 in. (19mm) H
	Weight:	4.2 oz. (120 gm) nominal, board only.

Warranty

Mercury Security Corporation warrants the product is free from defects in material and workmanship under normal use and service with proper maintenance for one year from the date of factory shipment. Mercury Security Corporation assumes no responsibility for products damaged by improper handling or installation. This warranty is limited to the repair or replacement of the defective unit.

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Returned units are repaired or replaced from a stock of reconditioned units. Returns must be accompanied by a return authorization number (RMA) obtained from customer service, and prepaid postage and insurance.

Liability

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