Door Monitor Alarm (DMA)

Installation & Operations

47290_ins_BAPI_DMA rev. 09/02/21

Product Identification and Overview

The BAPI Door Monitor Alarm (DMA) monitors a door switch to alert personnel when the door is closed, open or has exceeded its user-selectable open time period. Green, amber and red LEDs on the face of the unit alert nearby personnel the door's status.

Leaving the door open for longer than the user-selected time will also energize an internal audible annunciator to alert nearby personnel that the door should be closed immediately. The unit also contains two auxiliary relays that will energize whenever the door is opened to alert other user-supplied warning devices or a building automation system.

A green LED inside the unit illuminates whenever power is present and red LEDs inside the illuminate when the auxiliary relays are energized to assist with installation and troubleshooting.

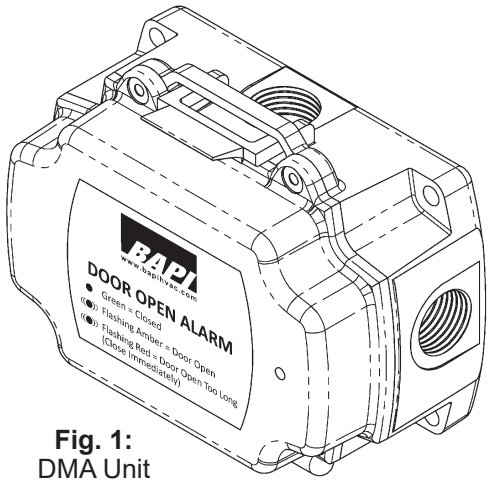

Fig. 1: DMA Unit

Mounting

1. Mount the unit on a solid, non-vibrating surface. The orientation doesn't matter.
2. Use the mounting template on the next page (or the enclosure itself) to to mark the pilot-hole locations. Use the 4 included #10 (M5) screws on the four mounting feet of the enclosure. A pilot-hole makes mounting easier.
3. Place the provided #6 screws into the holes on each side of the lid latch to make the cover tamper resistant.

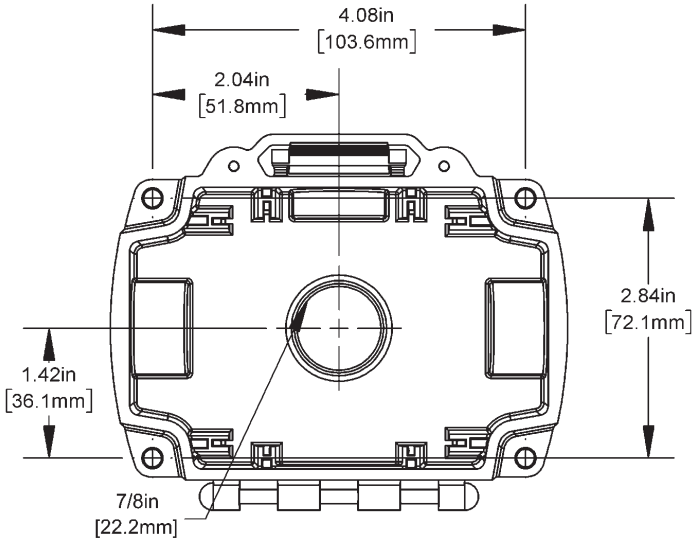

Fig. 2: DMA Mounting Diagram

Specifications

Power:
24 VAC or 24 VDC (UL Listed Class 2 Power Source only)

Power Consumption (max):
7.5 VA @ 24 VAC, 200 mA @ 24 VDC

Door Switch Contacts:
Normally Closed (NC) = door open is alarm condition
Normally Open (NO) = door closed is alarm condition

Auxiliary Relay Contact Rating:
1.0 Amp @ 30 VAC/VDC

Audible Annunciator:
90dB; 2,730 Hz

Wiring: 16 to 22 AWG

Environmental Operation Range:
Temp: 32 to 140 °F (0 to 60 °C)
Humidity: 5 to 95%, non-condensing

Enclosure Material:
UV-resistant Polycarbonate, UL94, V-0

Enclosure Rating:
IP66, NEMA 4

Agency:
CE EN 61326-1:2013 EMC (Industrial Electromagnetic Environment), UL94 V-0, RoHS

Specifications subject to change without notice.

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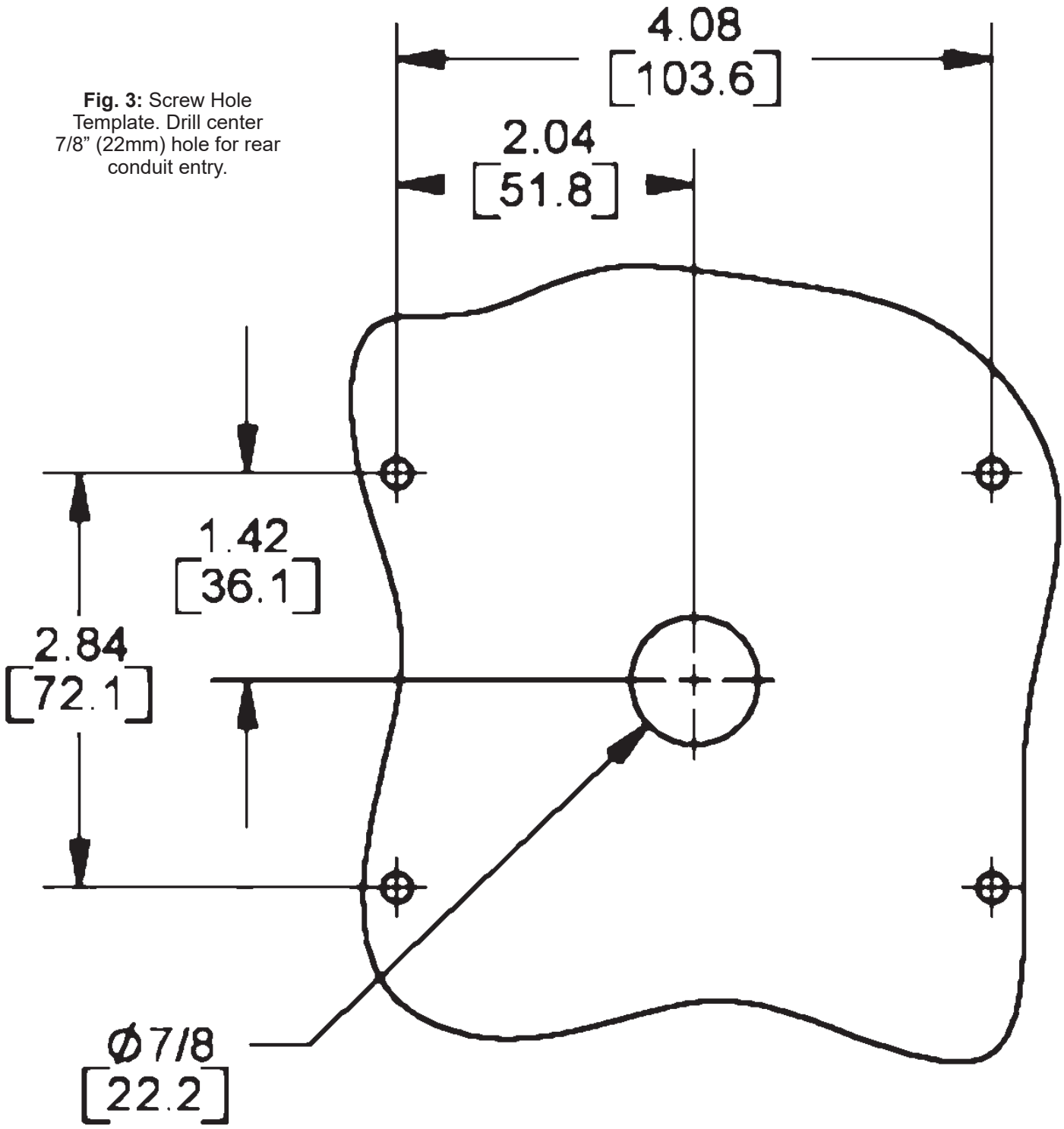
Mounting Template (Shown actual size)

Fig. 3: Screw Hole Template. Drill center 7/8” (22mm) hole for rear conduit entry.



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Termination

BAPI recommends using twisted pair of at least 22AWG for all wire connections. Larger gauge wire may be required for long runs. All wiring must comply with the National Electric Code (NEC) and local codes.

Do NOT run this device's wiring in the same conduit as AC power wiring of NEC class 1, NEC class 2, NEC class 3 or with wiring used to supply highly inductive loads such as motors, contactors and relays. BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your BAPI representative.

BAPI recommends wiring the product with power disconnected. Proper supply voltage, polarity and wiring connections are important to a successful installation. Not observing these recommendations may damage the product and void the warranty.

All terminal blocks are removable and pluggable connectors.

16 to 22 AWG wire is required for all connections.

POWER:
24 VAC or 24 VDC
(UL Listed Class 2 Power Source only)

DOOR SWITCH:
Connect the switch's wires. No polarity.

AUXILIARY RELAYS:
Can be connected as either Normally Open (NO) or Normally Closed (NC).

AUDIBLE ANNUNCIATOR:
Remove the cover sticker prior to use.

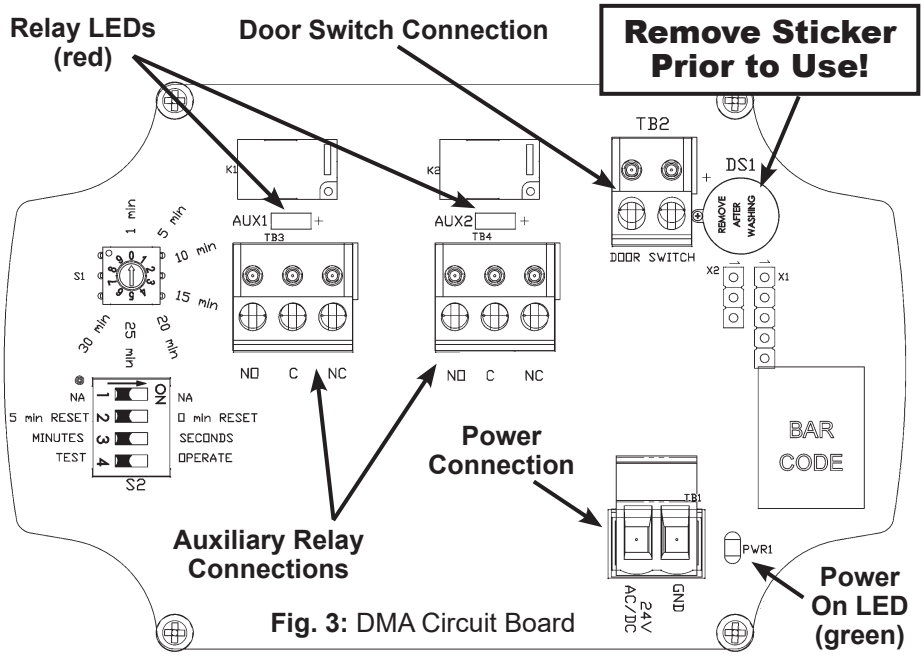

Fig. 3: DMA Circuit Board

Operation

When the door opens, the Door Switch creates a closed circuit. The Door Status LEDs on the face of the unit change color, both Auxiliary Relays energize (providing dry contact outputs), and both Auxiliary Relay LEDs illuminate. If the door stays open longer than the Door Timer Interval setting, the audible annunciator sounds (See Chart below).

Closing the door de-energizes both of the Auxiliary Relays, silences the audible annunciator if it is on, and changes the color of the Door Status LEDs. The Auxiliary Relays are energized whenever the door is open and de-energized whenever it is closed.

Door Timer Interval Switch:

The user can select how long the door can be continuously open before the audible annunciator sounds and the status LEDs turn red. Figure 4 shows the allowable settings. If the switch is in one of the blank positions, it uses 1 min.

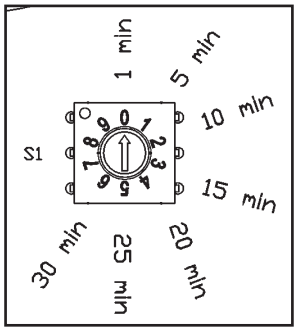

Fig. 4: Door Timer Interval Rotary Switch (S1)

Door Status LEDs (located on the face of the unit)

Color		Door Status	Additional Condition	User Action
Green	Solid	Closed	N/A	None.
Amber	Flashing	Open	Door timer interval has not been exceeded.	Close the door when completed with your work.
Amber	Solid	Closed	5 minute Audible Annunciator Reset Interval has not expired.	Avoid opening the door until the LEDs turn green.
Red	Flashing	Open	Door timer interval exceeded.	Close the door as soon as possible.

Operation continued...

Audible annunciator Reset Interval - 0 min or 5 min RESET (Position 2 of DIP Switch S2)

When set to 0 min RESET, the audible annunciator timer resets immediately after the door is closed. This essentially means that there is no waiting period before you should open the door again. The audible annunciator will not sound again unless the door is opened for longer than the Door Timer Interval rotary switch setting.

When set to 5 min RESET, the audible annunciator timer will not reset until the door has been closed for more than 5 minutes. This means that if the door has been open for longer than the Door Timer Interval rotary switch setting and the audible annunciator sounds, then closing the door will silence the audible annunciator BUT NOT reset the audible annunciator timer. The audible annunciator will immediately sound if the door is opened any time within the next 5 minutes. Each time the door is opened during this period, a new 5 minute "count down" period is started. The Door Status LEDs will change to green once the 5 minute period has expired.

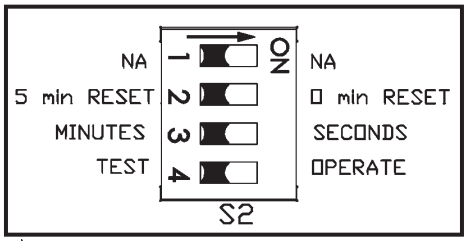

Fig. 5: DIP Switches (S2)

Operational Chart

Rotary Switch (S1) Position	Power LED	Both Relay LEDs	Both Relays	Door Status LEDs	Audible Annuciator
1 min	On	Off	De-energized	Solid green	Silent
5 min	On	On	Energized	Flashing amber	Silent
10 min	On	On	Energized	Flashing red	Sounding
15 min	On	Off	De-energized	Solid amber	Silent
20 min	On	Off	De-energized	Solid red	Silent
25 min	On	Off	De-energized	All off	Silent

Door Timer Interval - SECONDS or MINUTES (Position 3 of DIP Switch S2)

Normal operation is set to "OFF" - MINUTES. For a quick confidence test, this switch can be set to SECONDS by placing it to the "ON" position. This means that the audible annunciator will sound after 1 to 30 seconds (depending on the rotary switch settings) rather than 1 to 30 minutes. This switch also changes the audible annunciator Reset Interval from minutes to seconds (5 min RESET now equals 5 secs RESET).

Operational Test - OPERATE or TEST (Position 4 of DIP Switch S2)

Used to test all of the output combinations of the DMA. **NOTE: The test mode disables door monitoring.**

1. Set DIP switch (S2) to TEST.
2. Set rotary switch (S1) to the positions in the Operational Chart above to confirm that the unit's output matches those listed in the table.
3. Return the unit to normal operation by setting DIP switch to OPERATE and rotary switch (S1) to its intended time.

Diagnostics

Possible Problems:	Possible Solutions:
Power LED (PWR1) does not light	Confirm that there is 24 VAC/VDC at connector TB1 and that the polarity is correct.
Door Status LEDs indicate the wrong status	Make sure that the unit is in Operate mode, not Test mode (DIP Switch S2). Confirm that the door switch is wired as a Normally Closed (NC) connection. (A closed door equals an open circuit.) Check for loose or shorted wires at the Door Switch connection.
Door Status LEDs do not change	Make sure that the unit is in Operate mode, not Test mode (DIP Switch S2).
Door Status LEDs do not come on	Confirm that the unit is powered correctly. Power LED should be on. Make sure that the unit is in Operate mode, not Test mode (DIP Switch S2). Run the Operational Test described above to confirm that the LEDs, relays or audible annunciator are not burned out.