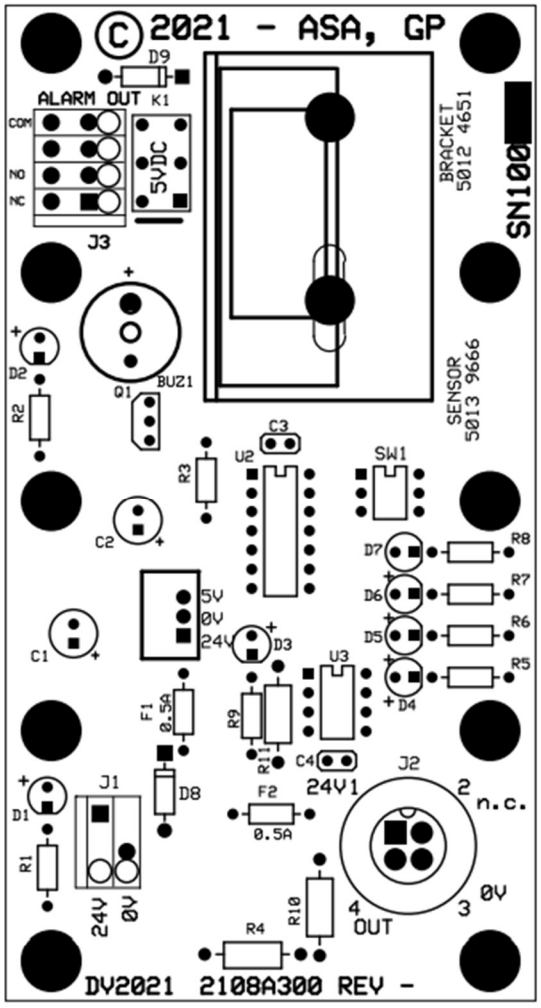
ASA, GP
Obstruction Sensor
User Manual
Rev –
08/15/2021



1) Laser Sensor & Reflector
2) Power Input
3) Delay Time Setting
4) Piezo Electric Buzzer
5) Relay Alarm Output

1) Laser Sensor
    a. The sensing method is accomplished by use of a class I laser sensor and reflector. The sensor (fig 1) is housed in an enclosure on a PCB assembly is mounted to one side of the monitored entrance. A reflector (fig 2) is placed on the other side of the entrance. The sensor has power requirement is10-30VDC, in this application the voltage is regulated 24VDC applied from the ASA, GP motor rive board. Once properly powered the sensor itself will have a green LED light illuminated on the top of the unit. There is also an Amber LED that will illuminate when the sensor is aimed at the reflector and the light signal is reflected back to the sensor, indication proper alignment and no obstruction. When the light beam is obstructed the Amber LED will go out and the D3 LED on the Obstruction Alarm board will illuminate and begin the timing cycle.

Figure 1
Laser Sensor
5013 9666

Figure 2
Reflector
5004 0820

2) Power Input
    a. The obstruction alarm control board is powered by 24VDC from the systems motor control board. The system requires 24VDC at 1 amp to properly function. The power input is applied to the J1 connector, pin1, is 24VDC and pin 2 is 0VDC. The connector is a spring-loaded type, user must use 22awg to 18awg copper wire, depress spring button and insert 0.38” stripped section of wire into corresponding hole, release button and gently pull on wire to set and insure correct electrical connection. The J1 connector is polarity protected and fused, ensuring no damage to circuitry if power is applied with incorrect polarity. There are 2 Green LED’s that indicate the board is properly power, D1 LED indicates 24vdc present, D2 indicates 5vdc low voltage logic is present. If lights fail to illuminate, check polarity of 24VDC also check fuse F1. Fuse F2 protects the power input of the laser sensor only.

3) Delay Time Setting

a. When the sensor detects an obstruction the control board will begin a time delay to activate the alarm buzzer and power alarm relay output. The delay is set by turning the rotary switch mounted on the control board and labeled SW1. The switch may be set to a value of 0 to 9 and this setting sets the delay from 0min to 9 minutes in 1 minute increment. When setting up a new system set the delay to 0, so the alarm sounds instantly when an obstruction occurs. Once the control enclosure and reflector are mounted and aligned, you may select the final desired delay and test again using a stopwatch to verify the time to alarm. The unit ships with the delay switch set to 0. The delay will be reset whenever the obstruction is cleared preventing an alarm condition. There are 4 red LED's, D4-D7 that will display the delay setting. See figure 3 below.

SETTING DELAY TIME TRUTH TABLE										
SW1	0	1	2	3	4	5	6	7	8	9
Delay	0 min	1 min	2 min	3 min	4 min	5 min	6 min	7 min	8 min	9 min
LED D7	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON
LED D6	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF
LED D5	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
LED D4	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON

Figure 3, Delay Logic Table

Figure 4, Time Delay Rotary Switch

1) Piezo Electric Buzzer
    a. When an obstruction is detected and maintained during the delay time period an alarm condition will be triggered. Once the alarm condition is triggered the buzzer on the control board will be energized and continue to be energized.

Figure 5, Piezo Electric Alarm Buzzer

1) Relay Alarm Output
    a. The control board is outfitted with a set of relay “dry” contacts that will enable a remote alarm signal to be used in the system. These connections are available on the J4 connector located at the top of the control board. The user may use either the N.O. normally open or N.C. normally closed, referenced to COM, common of the relay. The relay signal is controlled in parallel with the alarm buzzer.

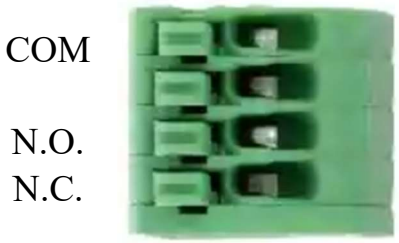


Figure 6,
J3 - Remote Alarm Relay Contacts