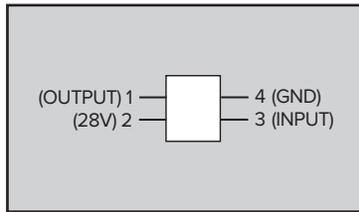


SQUARE WAVE OSCILLATOR



PRODUCT DESCRIPTION

The SQUARE WAVE OSCILLATOR from Applied Avionics is a 4-pin device which can output a signal that oscillates between Open and Ground at a specified rate. The oscillating function will become active based on the state of an input line and will persist until the state of the input line is reversed. This device is part of our NEXSYS Component Technology and is configurable inside of a VIVISUN switch/annunciator or a NEXSYS Module.



The SQUARE WAVE OSCILLATOR is designed, tested and qualified to applicable military standards. The SQUARE WAVE OSCILLATOR also meets the environmental requirements of DO-160.

Output Signal

When oscillating function is ACTIVE, the output signal (PIN 1) will oscillate between Ground and Open. The output signal (PIN 1) can be specified to be either Ground or Open when oscillating function is in STANDBY state.

The SQUARE WAVE OSCILLATOR requires constant power (+28 VDC) on PIN 2 and Ground on PIN 4 for proper operation. If power is removed from PIN 2, the output (PIN 1) will be Open. At power-up, the oscillating function will be STANDBY or ACTIVE based on the state of the INPUT line (PIN3).

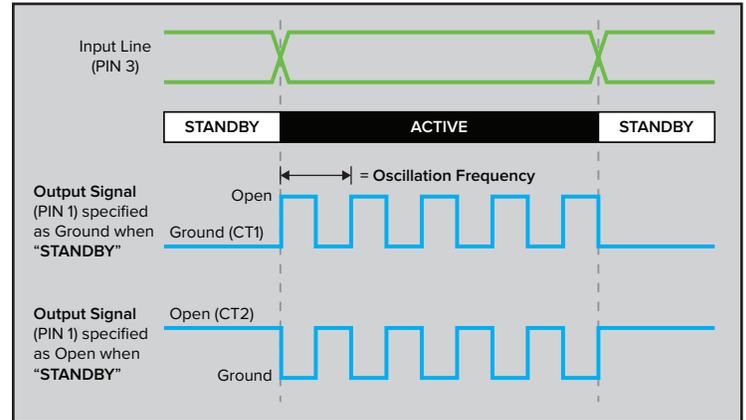
Oscillation Function

Oscillation of the output (PIN 1) is determined by the state of the INPUT line (PIN 3). There are 4 possible combinations of state that can be specified to activate the oscillating output.

Code	Oscillation STANDBY	Oscillation ACTIVE
Input Line Options (PIN 3)		
W	+28 VDC or Open	Ground
P	+28 VDC Must be same power source as PIN 2	Ground or Open
D	Ground or Open	+28 VDC Must be same power source as PIN 2
G	Ground	+28 VDC or Open
Output (PIN 1)		
CT1	Ground	Oscillating (Ground/Open)
CT2	Open	Oscillating (Ground/Open)

FUNCTIONALITY

The SQUARE WAVE OSCILLATOR's functionality and options are depicted in the diagram below.



There are two operating states of the SQUARE WAVE OSCILLATOR.

- **“STANDBY”** – Unit is powered, but output signal (PIN 1) is in its steady state based on the state of the INPUT line. In the STANDBY state, the output can be specified to be either Ground or Open.
- **“ACTIVE”** – Based on the INPUT line (PIN 3) moving to the Active state, output signal (PIN 1) is oscillating between Open and Ground at the specified oscillation frequency. Output (PIN 1) will return to STANDBY if PIN 3 returns to the STANDBY state.

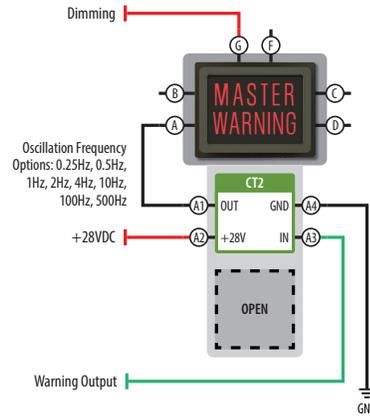
Oscillation frequency can be specified from the eight options below:

Frequency (Cycles / Sec.)	Period (Sec. / Cycle)
500 Hz	0.002
100 Hz	0.01
10 Hz	0.10
4 Hz	0.25
2 Hz	0.50
1 Hz	1
0.5 Hz	2
0.25 Hz	4

Description	Parameters
Operating Parameters	
Operating Voltage (Max./Nom./ Min.)	+32 VDC /+28 VDC/+18 VDC
Power Supply Input Current	4 mA maximum
Reset From Power Loss	5 second minimum @ +25°C
Hold Up On Power Loss	200 ms minimum
INPUT	
Input Timing	10 ms maximum
Low Level Input Current (I _{IL})	1 mA maximum
Low Level Input Voltage (V _{IL})	< +1.5 VDC
High Level Input Voltage (V _{IH})	> +8 VDC
Low Level Output Voltage @ 1A (V _{OL})	+0.4 VDC typical, +0.6 VDC maximum
High Level Output Voltage (V _{OH})	Open Drain +32 VDC maximum pull-up allowed
Output Load Capacity	
Resistive / Inductive / Incandescent	0.5 A maximum / 0.5 A maximum
Temperature	
Operating	-55°C to +85°C
Non-operating	-55°C to +125°C
Reliability MIL-HDBK-217F, Notice 2	
Airborne Inhabited Cargo (AIC) at +40°C Continuous Operation	MTBF = 321,986 Hrs.

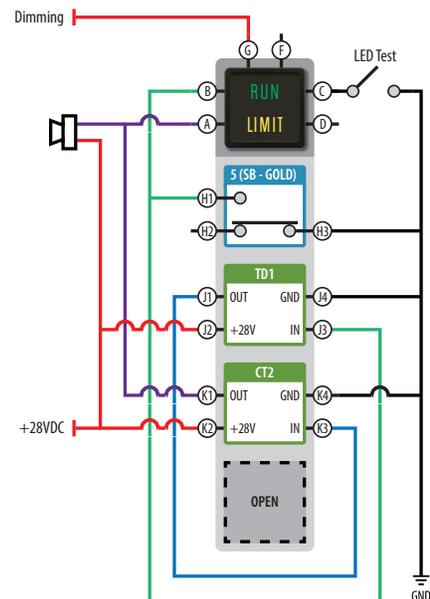
Ex. 1: Custom Blink

This example schematic demonstrates how the NEXSYS Oscillator component may be used as a custom blink generator. Oscillator frequency options are specified by part number and offered as specified in the diagram below. The NEXSYS Oscillator component offers more options to designers affording the opportunity to tailor blink circuitry to specific applications.



Ex. 2: Time Limit Switch

The following schematic demonstrates how the depicted NEXSYS Oscillator and Time Delay components, integrated inside of a VIVISUN high capacity switch body, can be combined to provide a time limit indicator with optional horn. When the switch is pressed it provides a latched ground to the input (IN) of the Time Delay which initiates the timer. When the specified time limit is reached, the Time Delay triggers the Oscillator to begin flashing the “LIMIT” indicator and sounding the horn at the specified frequency rate. This state will continue until the switch is unlatched, which removes the latched ground from the Time Delay component and resets the circuit.



For more information: