DEVELOPMENT RELEASE –This document contains information on a new product currently under development by Applied Avionics, Inc. The final product release may differ in features or performance from this document.

NEXSYS® Component Technology

CURRENT SENSOR

PRODUCT DESCRIPTION

The NEXSYS® Current Sensor was developed to enhance avionics design flexibility by offering undercurrent or overcurrent monitoring. This solid state device compares a sense input to a predefined set point and provides a discrete output signal that transitions from Open to Ground if the sense line is above or below the specified set point. The NEXSYS® Current Sensor is ideally suited for a wide range of applications since set point options span from 10 mA to 1000 mA (1.0 Amp).

The component is either packaged inside of the VIVISUN® switch/indicator housing or a NEXSYS® Module. The NEXSYS® Current Sensor can also be combined with electromechanical switches and other NEXSYS® Component Technology to create custom configurations that uniquely address specific functional requirements.

The NEXSYS® Current Sensor is designed and tested to both military performance standards (MIL-STD) and commercial environmental requirements (DO-160).

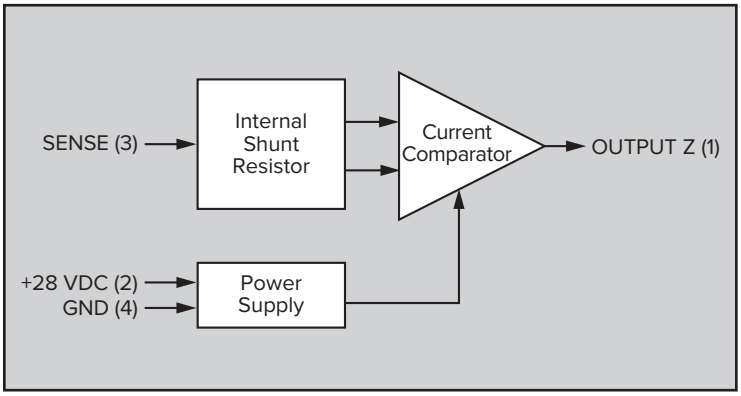
PRODUCT SPECIFICATIONS

Input Specification

The Sense Input (Pin 3) set point options increase in 10 mA increments from 10 – 100 mA, and in 50 mA increments from 100 – 1000 mA (1 Amp).

Output Specification

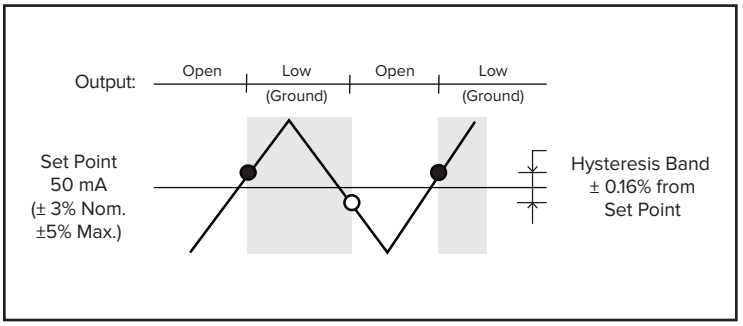
The Z Output (Pin 1) is specified to transition from Open (1) to active Ground (0) either ABOVE the specified set point or BELOW the specified set point. The Output load capacity is 0.5A (Resistive).



FUNCTIONALITY

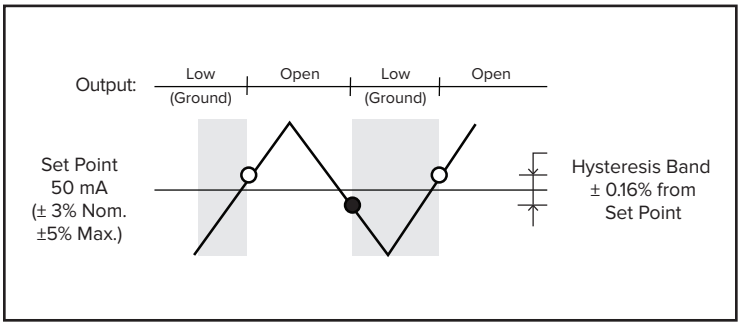
Overcurrent Sensors

NEXSYS® Current Sensors can be specified to activate with Output = Ground (0) when sensed current is ABOVE the specified set point. The Open Drain Output is High Impedance (Open) when the unit is not energized or inactive. The nominal tolerance is +/- 3% of the specified set point with hysteresis band of +/- 0.16% around set point as shown below.



Undercurrent Sensors

NEXSYS® Current Sensors can be specified to activate with Output = Ground (0) when sensed current is BELOW the specified set point. The Open Drain Output is High Impedance (Open) when the unit is Off or inactive. The nominal tolerance is +/- 3% of the specified set point with hysteresis band of +/- 0.16% around set point as shown below.



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FUNCTIONALITY (CONT'D)

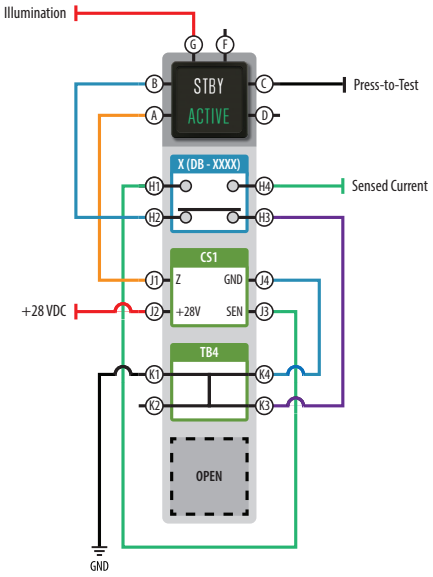
Wide Hysteresis Configuration

NEXSYS® Current Sensors can be combined with a NEXSYS® Electronic Latch component to create a wide hysteresis solution with orthogonal outputs. This is desirable for systems requiring different pull-in and drop-out levels for added system noise tolerance as demonstrated below.

APPLICATION EXAMPLE

Ex. 1: Current Draw Sensor

In its relaxed state, the “STBY” legend of the LED indicator is illuminated since the SPDT-DB switch is providing a path to ground through the normally-closed (NC) position of the switch contact. When the pushbutton switch cap is pressed, the SPDT-DB switch is actuated and latches in the normally-open (NO) position. This provides a path to the sense input of the NEXSYS® Current Sensor component. The "ACTIVE" legend remains Not Energized until the sense Input of the current sensor detects current above the specified set point. When this occurs, the Z output sources a Ground to Energize the "ACTIVE" legend, indicating that the specified current set point is reached.



PARAMETRIC TABLE

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	50 ms minimum
INPUT Input Timing Input Impedance	 10 ms maximum Approx. 100K Ohms
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	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 = 422,347 Hrs.

Manufactured by
Applied Avionics

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