NEXSYS® Component Technology

ARINC 429 MULTI-BIT BINARY DECODER

PRODUCT DESCRIPTION

The ARINC 429 MULTI-BIT DECODER from Applied Avionics can provide a full binary decode for up to three bits from a single ARINC 429 data label. The 2 X 4 decoder *(see Figure 1: Block Diagram)* option is available in an 8-pin package (expandable to 12-pin) while the 3 X 8 decoder *(see Figure 2: Block Diagram)* is a 12-pin device. The polarity of the decoded outputs is selectable (one selection for all decoded results).

The ARINC converter circuitry inside the ARINC 429 MULTI-BIT DECODER includes an internal Health Monitor that can provide a "fail" indication if power to the decoder is lost or upon loss of valid ARINC data input. The Health Monitor has a range of watchdog timings requiring a valid ARINC label to be received within a specified time interval. If specified, the Health Monitor can be selected as a decoder input.

Figure 1: Block Diagram, 2 X 4 Decoder

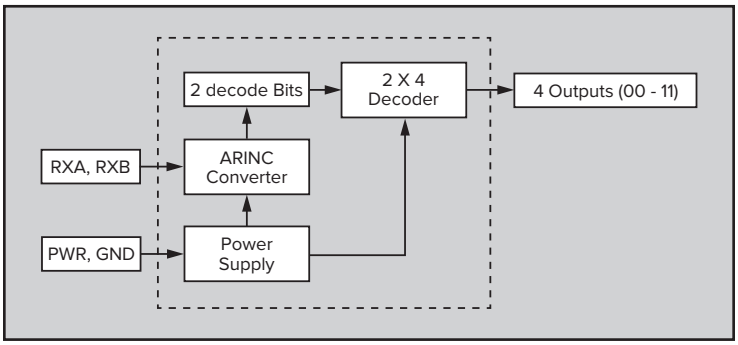
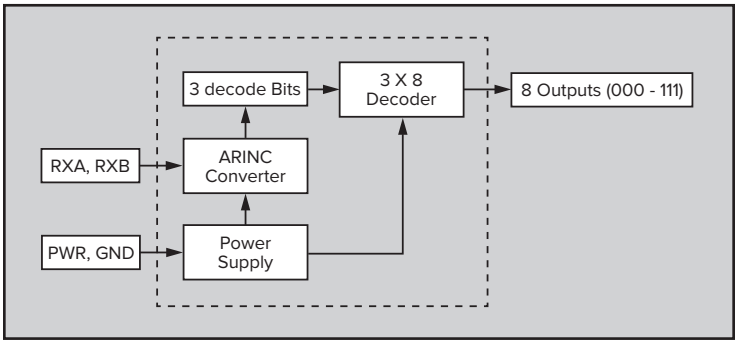


Figure 2: Block Diagram, 3 X 8 Decoder



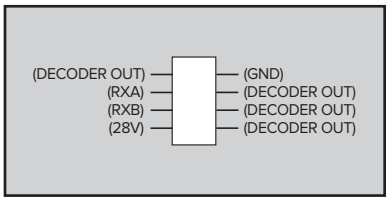
This device is part of our NEXSYS Component Technology and is configurable inside of a VIVISUN switch/annunciator or a NEXSYS Module. When used in a VIVISUN switch/annunciator, the compact size of the decoder allows for the inclusion of additional NEXSYS components or electro-mechanical switch poles.

The ARINC 429 MULTI-BIT DECODER is designed, tested and qualified to applicable military standards. The ARINC 429 MULTI-BIT DECODER also meets the environmental requirements of DO-160.

CONFIGURATIONS

2 X 4 Decoder

Two specified ARINC data bits are input to the 2 X 4 decoder producing four binary results on four separate output pins. Output polarity for the decoded bits can be specified as Open = True or Ground = True.

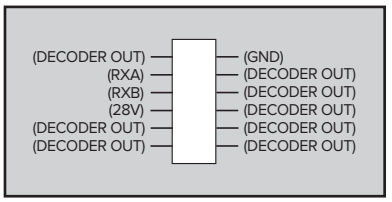


Additional Options (not shown in *Figure 1: Block Diagram*):

- Within the same 8-pin package, repurpose decoder answer "00," "11" or both with discrete bits, including the internal Health Monitor.
- By increasing to a 12-pin package, all four decoder answers can remain accessible and two additional discrete outputs can be added, including the internal Health Monitor.

3 X 8 Decoder

Three specified ARINC data bits are input to the 3 X 8 decoder producing eight binary results on eight separate output pins. Output polarity for the decoded bits can be specified as Open = True or Ground = True.



Additional Options (not shown in *Figure 2: Block Diagram*):

- Within the same 12-pin package, repurpose decoder answer "000," "111" or both with discrete bits, including the internal Health Monitor.

Continued

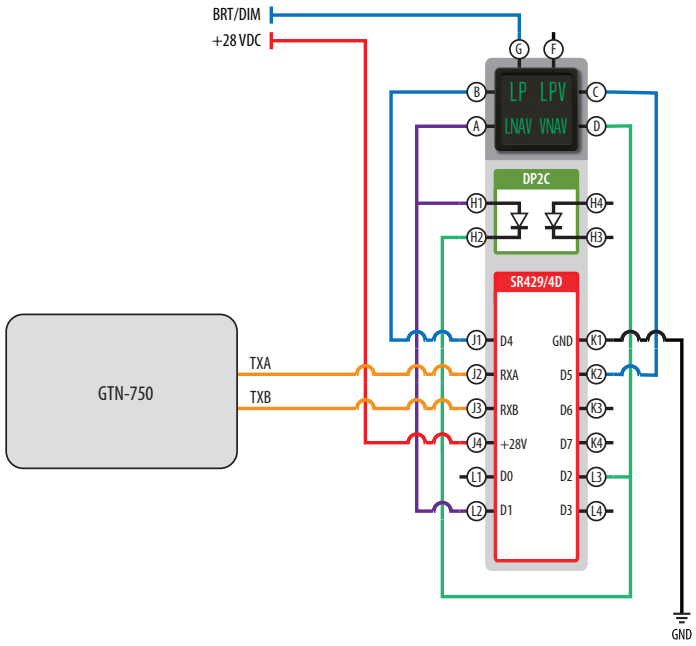
PARAMETRIC TABLE

Description	Parameters	
Operating Parameters		
Operating Voltage (Max./Nom./ Min.)	+32 VDC /+28 VDC/+18 VDC	
Power Supply Input Current	8 mA maximum	
Reset From Power Loss	5 second minimum @ +25°C	
Hold Up On Power Loss	200 ms minimum	
ARINC 429 inputs	Per ARINC 429 specification	
Low Level Output Voltage @ 0.5 A (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		
	Per Output	Total All Outputs
Resistive / Inductive	0.5 A maximum	1.5 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 = 103,012 Hrs.	

APPLICATION EXAMPLE

Ex. 1: WAAS Approach

Display of LP/LPV/LNAV and VNAV indications obtained from WAAS Approach type data to bring Garmin GTN level of service annunciation into compliance with FAA Circular, AC 20-138B. This solution uses our NEXSYS ARINC 429 Multibit Decoder and a NEXSYS Diode Pack component inside a VIVISUN High Capacity annunciator housing. Once the ARINC 429 data is received, the annunciator decodes bits 17, 18 and 19 to correspond with the correct level of service.



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Manufactured by
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