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V520 - Time Code Interface

General Description

The V520 is a single-width, C-sized VXIbus module that provides time stamp information for VXIbus-based data acquisition systems. In data acquisition, it is often important to provide time information for each block of data aquired. Reading the V520 allows the time stamp to be included in the acquired data block. Versions of the module are available for use either alone or in conjunction with a Datum Model 9300A Time Code Generator/Translator.

The Datum Generator/Translator or an internal crystal-controlled counter chain provides timing information to the V520 with a 44-bit parallel BCD representation for days, hours, seconds, and milliseconds. The time code has a resolution of one millisecond. The Datum unit can use an IRIG-B time code or an internal clock as the original source. The internal oscillator on the V520 provides an accuracy of +/-0.01%.

Time code information is "frozen" in a V520 register either by software command or by a front-panel TTL-level pulse. The 4-bit BCD pattern has the following format:

Word 0

Bit	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
BCD	---- SECONDS ----				---------- MILLISECONDS ----------											
Code	8	4	2	1	800	400	200	100	80	40	20	10	8	4	2	1

Word 1

Bit	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
BCD	---------- HOURS ----------						---------- MINUTES ----------						-- SECONDS --			
Code	20	10	8	4	2	1	40	20	10	8	4	2	1	40	20	10

Word 2

Bit	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
BCD	----- NOT USED -----				---------- DAYS ----------											
Code					800	400	200	100	80	40	20	10	8	4	2	1

Once the time information has been latched, it will remain so until the module receives another software or external trigger (i.e., subsequent read operations will yield the same data). Special buffering is incorporated to preclude any metastable effects caused by changing data in the time source during acquisition. A watchdog timer is included to monitor the one millisecond strobe from the time source. If a subsequent strobe does not occur within 1.5 milliseconds, then the 44-bit time pattern is set to an "all 1's" error state until the proper strobe rate returns. If a latch command or external strobe is received while the module is in an error condition, the "all 1's" pattern will be latched in the data registers. The current state of the error condition can be tested with a software command.

The V520 also contains a 16-word, 16-bit scratchpad memory. This general purpose RAM can be written or read. One application of this memory in a data acquisition system is to provide a set of unique (or nearly unique) words to form a sync header. The memory can be written during set-up and the appropriate number of words read as a part of each acquisition block.

The V520 supports both static and dynamic configuration capabilities. Access to the data is through memory locations indicated by the Offset Register within the VXIbus Configuration Register set, using A24/16, D16 data transfers.

Specifications

Ordering Information

Model V520-ZA11
Time Code Interface; Datum, Inc. time source
Model V520-ZB11
Time Code Interface; internal time source

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Other Information in this section:

- Previous Module: V515 - MIL-STD-1553B Bus Monitor
- Next Module: V522 - 2-channel Serial Data Interface

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V520 - Time Code Interface

Specifications

Item	Specification
Time Format	44-bit BCD pattern representing days, hours, minutes, seconds, milliseconds
Time Resolution	one millisecond
Data Source Model V520-ZA11 Model V520-ZB11	 Datum, Inc. Model 9300 Time Code Generator/Translator Internal, crystal-controlled counter chain
Oscillator Accuracy (Model V520-ZB11)	+/-0.01%
Front Panel Connector Types Data Input Latch Trigger Input	 50-contact, flat ribbon connector single-contact LEMO receptacle, shell size 00
Mating Connectors/ Cable Assemblies Data Input Latch Trigger Input	 KineticSystems Model 5862-Lxyz Interconnection Cable for Datum 9300A KineticSystems Model 5910-Z1A
Front Panel Diagnostics ADDR ERR RUN (V520-ZB11 only) PWRFL	 a red LED that flashes whenever software addresses the module a red LED indicating that the V520 is in an ERROR condition a green LED indicating that the internal oscillator has been activated a red LED indicating that power has failed since module set-up
Power Requirements +5 volts	 1650 mA, typical
Environmental and Mechanical Temperature range Operational Storage Relative humidity Cooling requirements Dimensions Front-panel potential	 0 deg.C to +50 deg.C -25 deg.C to +75 deg.C 0 to 65%, non-condensing to +40 deg.C 10 cubic feet per minute 340mm x 233.35mm x 30.48mm (C-size VXIbus) Chassis ground

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