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Find the *North Atlantic / Apex Signal VME-8SD4DS* at our website: *Click HERE*

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VME-8SD4DS

Eight S/D and Four D/S (1.2 VA)
Two-speed or Single-speed (for both S/D & D/S), Programmable
Multi-speed ratios: 1 to 255; Optional Internal Reference
Accurate Velocity Outputs; D/S Rotation, Continuous Self-test

- 16-bit resolution
- 1 arc-minute accuracy for measurement channels; 30 arc-seconds accuracy for stimulus channels
- Continuous background bit testing with Reference and Signal loss detection
- Power-On Self-Test (POST)
- 50 Hz to 10 kHz
- ON/OFF for D/S channels
- Transformer isolated
- Accurate Digital Velocity outputs
- Latch feature
- Either A32, A24 or A16 address
- Geographical addressing is automatic
- Synthetic reference for S/D compensates for ±60° phase shift
- I/O via front panel or P2
- Commercial or severe environment MIL

This single slot card contains eight separate transformer isolated Synchro/Resolver-to-Digital tracking converters, four separate transformer isolated Digital-to-Synchro/Resolver converters (1.2 VA), Optional 5 VA reference, and extensive diagnostics. The measurement channels incorporate high linearity digital velocity outputs, angle change alert and can be field configured for either single speed or multi-speed to any ratio between 1 and 255.The Stimulus channels include ON/OFF capability, common or separate reference inputs, two-speed programmability, and rotation with start and stop angles. All Measurement channels offer the unique capability to automatically gear shift to a lower resolution when the 16-bit tracking rate is exceeded. The gear shifting is smooth, continuous with no glitches. The "Latch" feature permits the user to read all channels at the same time. Reading will unlatch the channel. The use of Type II servo loop processing techniques enables tracking, at full accuracy, up to the specified rate. A step input will not cause any hang-up condition. Intermediate transparent latches, assure that current valid data is always available for any channel without effecting the tracking performance of the converters. For two-speed applications, our ambiguity circuits maintain monotonic outputs by compensating for variations of the zero positions between the Coarse and Fine Synchros. However, if the maximum allowable angle difference of 90°/n is exceeded, a flag will be set that immediately indicates to the user that the input Synchros are defective or out of alignment.

The Stimulus channels offer short circuit protection and the ability to ground one of the outputs without effecting performance. External amplifiers can be added to drive up to 30 watts with a frequency range of 50 to 400 Hz. Optional programmable output voltages can be supplied for the D/S channels to minimize the need for multiple cards because Resolver outputs are not standardized. Contact factory for programming information. No interrupts or waiting time are required. Each channel can be specified for a different voltage, frequency or resolution. If geographical addressing is part of the overall system, this card will respond automatically, otherwise the board dip switches will be activated to set base address. To simplify logistics, Part number, S/N, Date code, & Rev. are located in permanent memory locations.

Major diagnostics are incorporated to offer substantial improvements to system reliability because user is immediately alerted to malfunctions. This approach also reduces bus traffic because the Status registers do not require constant polling. Power-On, Self-Test (POST) diagnostic can immediately initiate (D3) test. Request Programming Instructions for details. Three different tests (one on-line and two off-line) can be selected. NOTE: All D/S tests require the putputs to be ON and that a reference is supplied:

- **The (D2) test** initiates automatic background bit testing. Each channel is checked every 5(to a test accuracy of 0.05(and each Signal and Reference is always monitored. Any failure triggers an Interrupt (if enabled) and the results are available in status registers. The testing is totally transparent to the user, requires no external programming, has no effect on the standard operation of this card and can be enabled or disabled via the bus.
- **The (D3) or POST test**, (if enabled), is an initiated bit test that disconnects all input channels from the outside and connects them across an internal stimulus that generates and tests 72 different angles to a test accuracy of 0.05(. External reference is required for the D/S channels. Any failure triggers an Interrupt (if enabled). Testing is totally transparent to the user, requires no external programming, and can be enabled or disabled via the bus. CAUTION: Outputs are active during this test. Check connected loads for possible interaction.
- **The (D0) test** is used to check the card and the VME interface. All input channels are disconnected from the outside world thus allowing user to write any number of angles to the card and then read the data from the VME interface. D/S outputs are programmed same as for normal operation. External reference required only for D/S.

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This board can operate over a "C" or "M" operating temperature range (see part number). The "C" version (0°C to +70°C) uses standard high quality commercial semiconductors. The "M" version (-55°C to +85°C, used for severe environmental condition, uses high quality extended temperature semiconductors. Conduction cooling, using a thermal plane and wedge locks, can be specified by adding "W" to P/N. A stiffener improves vibration response. Both sides of the board can be conformal coated (see part number). All "M" boards are burned in for 24 hours and cycled from -55°C to +85°C.

NOTE: +5 VDC and ±12 VDC power via P1. No other power required. I/O either via front panel or P2 connector.

SPECIFICATIONS Apply to each Measurement channel
Resolution: 16-bit
Accuracy:
±1 arc minute for single speed inputs
±20 arc seconds (0.0055°) for two-speed at any ratio and 16-bits
Tracking Rate: To 1000 rps. See part number
Gear ratio: Programmable from 1 to 255.
Input format: Synchro or Resolver. See part number
Input voltage: 2-90 V_{L-L} Transformer isolated. See part number
Input Impedance: 26 V_{L-L} or less: 40 kΩ min. 90 V_{L-L}: 100 kΩ min.
Angle change alert: Each channel can be set to a different angle differential. When that differential is exceeded, an interrupt is generated. Default is "Ch. disabled". Msb = 90°; Min. differential is 0.05°. If enabled, automatically activated 1 second after SYSRST.
Reference: 2-115 V_{rms}, Transformer isolated at 5 ma max. See part number
Frequency: 50 Hz to 10 kHz. See part number
Phase shift: The synthetic reference circuit automatically compensates for phase shifts between the transducer excitation and output up to ±60°
Velocity, Digital: 16-bit resolution; Linearity: 0.1%

SPECIFICATIONS Apply to each Stimulus Channel
Resolution: 16-bits (0.0055°)
Accuracy:
30 arc seconds (0.008°) at 0.3 VA
±1 arc minute (0.017°) at 1.2 VA. No load to full load
Gear ratio: Programmable from 1 to 255.
Rotation: Programmable Start and Stop angles. 0 rps to 25 rps with a resolution of 0.15°/sec. Stepping rate is 16 bits (0.00055°/sec) to 1.5 rps, the automatically reduced to 14 bits to 6 rps and 12 bits to 25 rps.
Output format: Transformer isolated. See part number
Output voltage: See part number
Output load: 1.2 VA max./Channel. Short circuit protected (6500 Ω at 90 V_{L-L}; 110 Ω at 11.8 V_{L-L})
Regulation: 5% max. No load to Full load
Reference voltage: Transformer isolated. See part number
Reference frequency: 50 Hz to 10 kHz. Requires external amplifiers. See part number
Reference current: 1 mA max./Channel
Phase shift: 5° max. between output and reference.
Settling time: Less than 100 microseconds

REFERENCE SUPPLY: Optional. See part number
Voltage: 2.0 - 28 V_{rms} programmable or 115 V_{rms} fixed. Accuracy ±2%; resolution 0.1 V_{rms}.
Frequency: 360 Hz to 10 KHz ±1% with 2 Hz resolution.
Regulation: 10% max. No load to full load.
Output power: 5 VA max. at 40° min. inductive.

SPECIFICATIONS: General
Wrap-around Self Test: The three different powerful test methods are detailed in the Description section and further described in the Programming Instructions.
Base address: Responds automatically to geographical addressing. Otherwise, the on-board dip switches are activated for setting base address.
Power:
+ 5 VDC at 0.4 A

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±12 VDC at 0.9 A nominal, 1.2 A max. (for 8 S/D & 4 D/S channels).
Power supplies must be able to supply the peak power without current limiting

Temperature, operating: "C" 0°C to +70°C, "M" -55°C to +85°C. See part number
Storage temperature: -55°C to +105°C.
Size: 6U (9.2") height, 4HP (0.8") width. 233.4 mm x 20.3 mm x 160 mm deep
Weight: 25 oz.

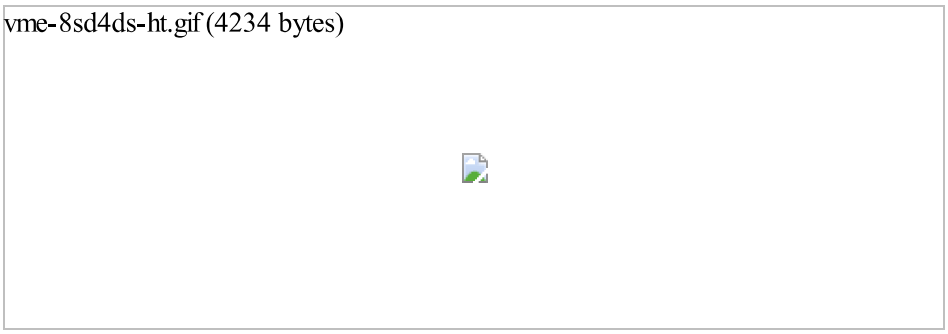
CODE DESIGNATION

Code	No. of Inputs	Input Format	Input (VL-L)	Ref Vrms	Freq. (Hz)	Tracking rate (rps) at 16 bit	No. of outputs	Format	Output (VL-L)	Ref (Vrms)	Freq. (Hz)	Load, out
1	8	Synchro	11.8	26	400	25	4	Synchro	11.8	26	400	1.2 VA
2	8	Synchro	90	115	400	25	2	Synchro	90	115	400	1.2 VA
3	8	Synchro	90	115	50/400	3.75/25	4	Synchro	90	115	400	1.2 VA
5	8	Resolver	2.72	6.0	1000	25	4	Resolver	11.8	26	400	1.2 VA
6	8	Synchro	11.8	26	400	25	4	Synchro	11.8	26	400	1.2 VA
7	8	Synchro	90	115	400	25	4*	Resolver	6.0	5.0	50/400	5 kΩ
8	4	Synchro	90	115	400	25	4	Synchro	90	115	400	1.2 VA
9	4	Synchro	11.8	26	400	25	4	Synchro	11.8	26	400	1.2 VA

Other codes can be supplied. Tracking rate and bandwidth can easily customized to meet specific requirements.
Please contact the sales department.
* For use with external amplifiers

PART NUMBER DESIGNATION

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