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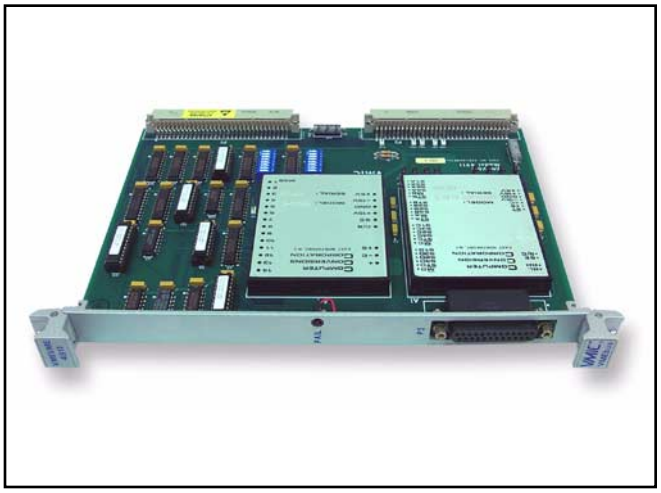
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Find the *Abaco Systems / VMIC VMIVME-4911* at our website: ***Click HERE***

# VMIVME-4911
## Quad-Channel Multiplexed Synchro/Resolver-to-Digital Converter Board

- 14-bit converter
- Quad-channel multiplexer
- Simultaneous sampling and random access
- Expandable by adding multiplexers
- 3-wire synchro plus reference or 4-wire resolver plus reference
- Internal transformers for 60 and 400 Hz references
- Front panel fail LED
- Double Eurocard form factor
- Supports Built-in-Test for VMIVME-49xx series digital-to-synchro/ resolvers
- Compatible with VMIC's family of Intelligent I/O Controllers



**INTRODUCTION** — The VMIVME-4911 board is a four-channel, 14-bit multiplexed Synchro/Resolver-to-Digital Converter. The multiplexed input scheme is cost-effective because fewer components and interconnections are required. The product was designed utilizing primarily two modules. A converter module is interconnected to the multiplexer and S&H module to form a four-channel board. All common synchro and resolver line-to-line voltages and frequencies are available.

The VMIVME-4911 is designed to support fault detection and isolation of VMIC's Synchro/Resolver-to-Digital Converter product line (VMIVME-4900 or -4905). When configured in this mode, Channel 0 is jumpered to support signals via the P2 backplane. Channel 0 in this application is not available for processing user inputs. For a thorough understanding of Built-in-Test schemes associated with VMIC's Synchro/Resolver product line, the reader should refer to VMIC's Document No. 825-000000-004.

The Built-in-Test features of this product are supported by jumperable options that allow the user to process real-time signals on three channels while testing is accomplished on Channel 0. If the Built-in-Test is not required, all four channels may be programmed to process real-time input data.

**APPLICATIONS** — Multiplexed Synchro-to-Digital and Resolver-to-Digital Converters can be used when multiple synchro or resolver inputs are sampled for digital computation or display, and real-time tracking is not required. Multiplexing is found in data logging systems, process monitors, ordnance aiming controls, navigation systems, numerical control, and range instrumentation. The synchro and resolver inputs often represent variables which are analyzed by a computer for monitoring or control.

## FUNCTIONAL CHARACTERISTICS

**Compatibility:** VMEbus specification compatible. Double height form factor.

**Input Connector Type:** AMP 25-pin D-type (no. 206584-1) PC board connector

**Ordering Options**

**October 28, 1994 800-004911-000 D**

**VMIVME-4911**

**Quad-Channel Synchro/Resolver-to-Digital Board [1]**
**(Dual Height, Quad-Channel with Front Panel Fail LED)**

| Description | Signal/Ref V Input (VL-L) [3] | Freq. (Hz) | Resolution (Bits) | Board Input Type | Model No. [2] VMIVME- |
|---|---|---|---|---|---|
| Multiplexer | 90/115 | 360-440 | N/A | Synchro | 4911-0B0 |
| Multiplexer | 90/115 | 47-66 | N/A | Synchro | 4911-0B1 |
| Multiplexer | 11.8/26 | 360-440 | N/A | Synchro | 4911-0B2 |
| Multiplexer | 90/115 | 360-440 | N/A | Resolver | 4911-0B3 |
| Multiplexer | 26/26 | 360-440 | N/A | Resolver | 4911-0B4 |
| Multiplexer | 11.8/26 | 360-440 | N/A | Resolver | 4911-0B5 |
| Multiplexer | 11.8/26 | 47-66 | N/A | Synchro | 4911-0B6 |
| Converter/Multiplexer | 90/115 | 360-440 | 14 | Synchro | 4911-1B0 |
| Converter/Multiplexer | 90/115 | 47-66 | 14 | Synchro | 4911-1B1 |
| Converter/Multiplexer | 11.8/26 | 360-440 | 14 | Synchro | 4911-1B2 |
| Converter/Multiplexer | 90/115 | 360-440 | 14 | Resolver | 4911-1B3 |
| Converter/Multiplexer | 26/26 | 360-440 | 14 | Resolver | 4911-1B4 |
| Converter/Multiplexer | 11.8/26 | 360-440 | 14 | Resolver | 4911-1B5 |
| Converter/Multiplexer | 11.8/26 | 47-66 | 14 | Synchro | 4911-1B6 |

**Notes**

1. Supports Built-in-Test on Digital-to-Synchro/Resolver Boards (VMIVME-4900 Series).
2. B = Access code options.
   The user may select the following VMEbus address modifier access codes:
   0 = Supervisory or nonprivileged
   1 = Supervisory only
   2 = Nonprivileged only
3. Reference Input Voltage equals 26 or 115 VRMS (±20 percent) depending on option selected.

**Connector Data**

| | |
|---|---|
| Compatible Cable Connector | AMP 747322-2 |
| Strain Relief Kit | Type D |
| PC Board Header Connector | AMP 206584-1 |

**For Ordering Information, Call:**
**1-800-322-3616 or 1-256-880-0444 • FAX (256) 882-0859**
**E-mail: info@vmic.com Web Address: www.vmic.com**
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**Input Organization:** Four channels, 16 bits wide. Channel 0 is jumper-selectable for front panel or P2 inputs.

**Address Modifier Codes:** Factory configured via programmed PAL to respond to short supervisory and/or short nonprivileged I/O access according to option ordered, see the Ordering Options.

**Addressing Scheme:** Four channels selectable by writing to the Control and Status Register (CSR). Address DIP switches provide unlimited short data I/O address map selection.

**Fail LED:** A front panel Fail LED (red) is provided for quick fault isolation. The LED is illuminated upon power up clear (system reset) and is extinguished upon successful diagnostic execution.

## PHYSICAL/ENVIRONMENTAL

**Temperature Range:** 0 to +55 °C, operating
-20 to +85 °C, storage

**Relative Humidity Range:** 20 to 80 percent, noncondensing

**Cooling:** Convection

**Power Requirements:** +5 V at 610 mA maximum
+15 V at 40 mA [1]
-15 V at 40 mA [1]

**Reference Input Voltage:**
26 or 115 VRMS (±20 percent) per option selected

## TRADEMARKS

The SRTbus is a trademark and the VMIC logo is a registered trademark of VMIC. Other registered trademarks are the property of their respective owners.

1. External power required.

### Table 1. Specifications

Apply over reference frequency, reference amplitude, temperature, and power supply ranges; 10 percent signal amplitude variation; and up to 10 percent harmonic distortion in the reference.

| PARAMETER | VALUE |
|---|---|
| **Resolution** | **14 bits** |
| **Accuracy** | **±4.6 Minutes ± 1/2 LSB** |
| **DYNAMIC CHARACTERISTICS** | |
| Signal Sample Rate at Each Signal Input Channel | Once per cycle of the reference processor controlling that input channel. |
| Conversion Time, Per Channel | 120 to 150 µs. |
| Number of Conversions per Carrier Cycle | |
| At 400 Hz | 15 maximum. |
| At 60 Hz | 100 maximum. |
| Channel Access | Random, one address per line per channel. |
| **ANALOG INPUT CHARACTERISTICS** | |
| **Input Type** | Transformer isolation, both reference and signal inputs. |
| **Breakdown Voltage** | 500 V minimum to ground. |

**REFERENCE AND SIGNAL CHARACTERISTICS**

| **Synchro Input** | Min $Z_{IN}$ L-L (Balanced, Resistive) | Ref Input Voltage (±20%) | Min Ref $Z_{IN}$ (Resistive) |
|---|---|---|---|
| 11.8 V L-L, 47 to 66 Hz | 19 K | 26 VRMS | 40 K |
| 11.8 V L-L, 360 to 440 Hz | 19 K | 26 VRMS | 40 K |
| 90 V L-L, 360 to 440 Hz | 148 K | 115 VRMS | 160 K |
| 90 V L-L, 47 to 66 Hz | 148 K | 115 VRMS | 160 K |
| **Resolver Input** | | | |
| 11.8 V L-L, 360 to 440 Hz | 26 K | 26 VRMS | 40 K |
| 26 V L-L, 360 to 440 Hz | 57 K | 26 VRMS | 40 K |
| 90 V L-L, 360 to 440 Hz | 198 K | 115 VRMS | 160 K |



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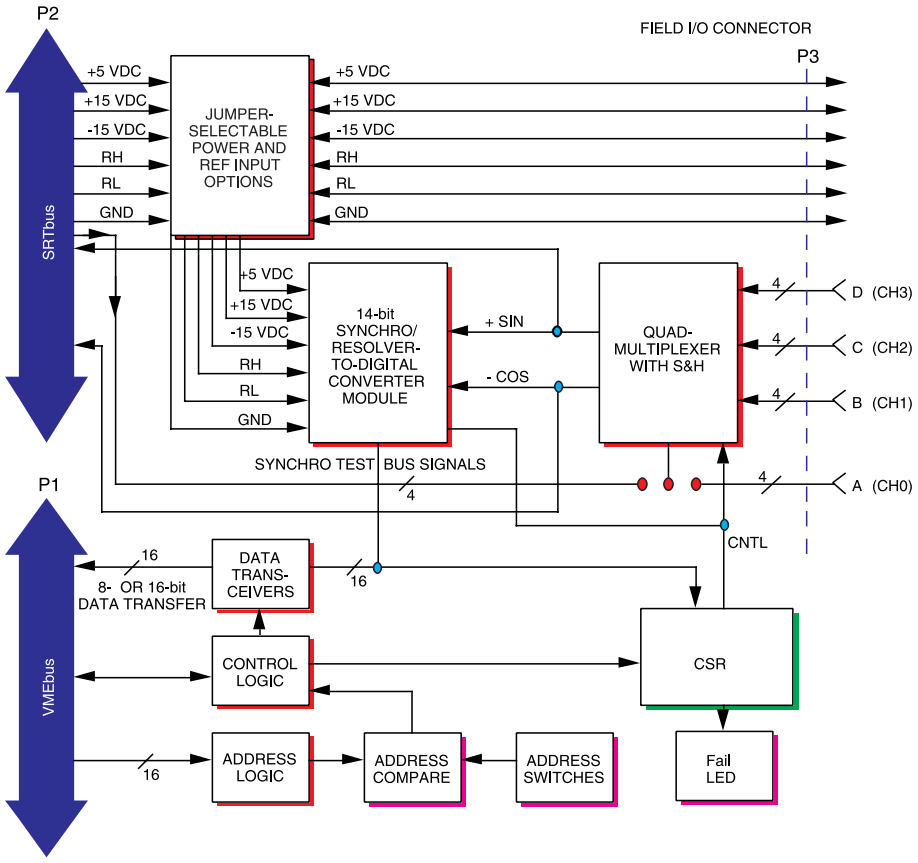
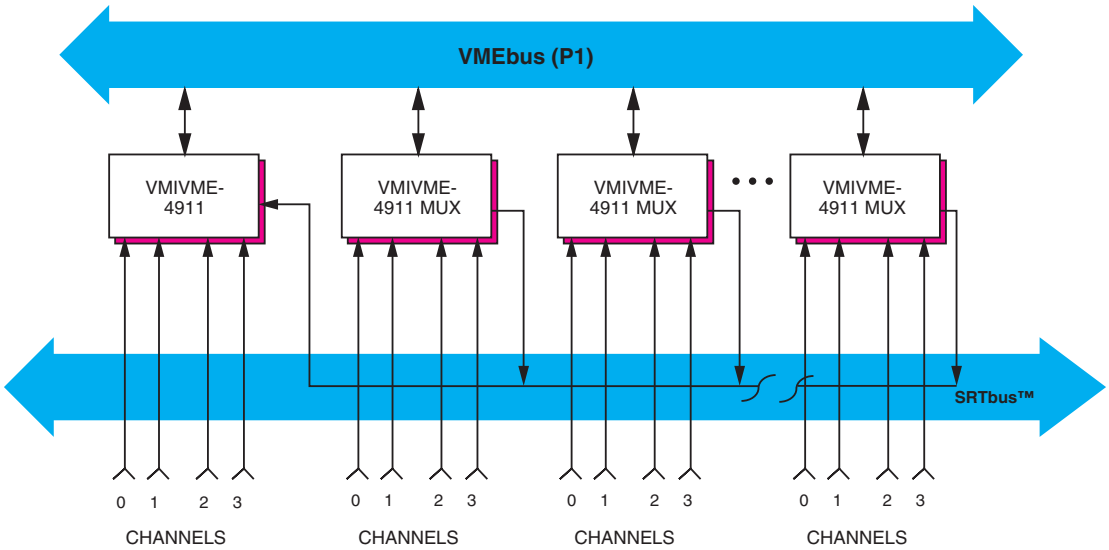



**Figure 1. VMIVME-4911 Single Channel Synchro/Resolver-to-Digital Converter Module Functional Block Diagram**




This configuration requires the multiplexed signals on P2 be interconnected. The VMIC SRTbus™ backplanes provide the required P2 interconnect.

**Figure 2. Low-Cost Synchro/Resolver Input Subsystem Using One VMIVME-4911 with Converter and Multiplexer, and Up to 16 Multiplexer Expansions**



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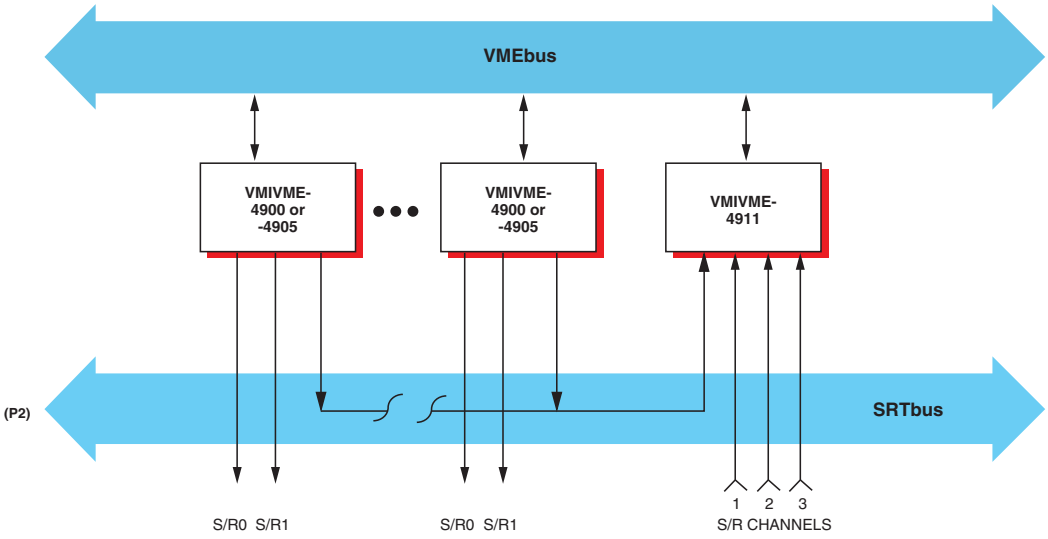



**Figure 3. Typical Subsystem Configuration for Testing VMIC's VMIVME-49XX Synchro Output Boards**

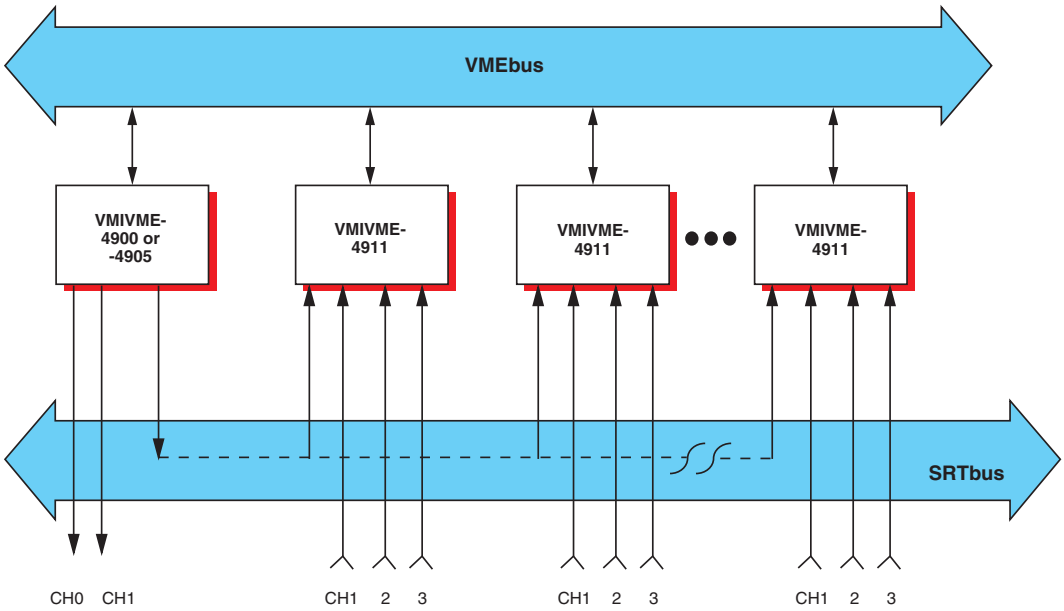



**Figure 4. Typical Synchro/Resolver Input Subsystem with Built-in-Test**

**APPLICATION AND CONFIGURATION GUIDES** — The following Application and Configuration Guides are available from VMIC to assist the user in the selection, specification, and implementation of systems based on VMIC's products.

| Title | Document No. |
|---|---|
| Digital Input Board Application Guide | 825-000000-000 |
| Change-of-State Board Application Guide | 825-000000-002 |
| Digital I/O (with Built-in-Test) Product Line Description | 825-000000-003 |
| Synchro/Resolver (Built-in-Test) Subsystem Configuration Guide | 825-000000-004 |
| Analog I/O Products (with Built-in-Test) Configuration Guide | 825-000000-005 |
| Connector and I/O Cable Application Guide | 825-000000-006 |



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