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# ASCOR VXI Modules 3000-501 through Modules 3000-509







*The ASCOR Modules 3000-501 through 3000-509 are all examples of ASCOR's capability to design and manufacture complex VXI modules to meet our customers' custom design requirements. In many of the designs, the customers required a series of modules to provide ATE support in acceptance and qualification testing. This support was accomplished by simulating the input and output communications with the unit under test (UUT). The ASCOR modules significantly reduced the cost of testing electronic devices used in satellite communication systems. The ASCOR modules facilitated unit test without the costly requirements of a complete system test. Other module designs include Thermistor Simulators along with Source Driver modules.*

## Model 3000-501

**This module is a special purpose VXI module designed to simulate an SVC (Space Vehicle Computer) communicating with the IBE (Integrated Bus Electronics). The module can send commands to the IBE and record responses. The module generates the 1 MHz data rate clock and 90 ms Lband sync pulse. The module can also generate a VXI Interrupt and VXI TTL Trigger at the 90 ms rate.**

**Functional Features**

Functional features of this module include:

- Tachometer simulation: A burst of up to 4095 pulses, pulse width adjustable from 125 ns to 8.19 ms in 125 ns steps, and pulse rate adjustable from 125 ns to 8.19 ms in 125 ns steps.
- Gyro simulation: Transmit differential serial data, up to 16-bit word length, and up to 2048 words.
- Command data: Transmit differential serial data, up to 32 bit word length, up to sixteen groups of up to 127 words each, separated by a delay with millisecond resolution.
- Response data: Receive differential serial data, up to 32 bit word length, up to sixteen groups of up to 125 words each.
- Data clock rate is adjustable from 2 MHz to 1.95 KHz in 125 ns steps. Sync pulse width adjustable from 125 ns to 8.19 ms in 125 ns steps, rate adjustable from 1 ms to 255 ms in 1 ms steps.

**Specifications**

- Power: +5 VDC, 2.5 Amps
- Register-Based Architecture: A16/ D16, A32/D32
- Size: One slot "C" size module

## Model 3000-502

**This module is a special purpose VXI module designed to simulate the communications between the IBE (Integrated Bus Electronics) and the ACE (Attitude Control Electronics) on a space vehicle. In the IBE mode, the module can send commands and telemetry requests to the IBE and record telemetry data. In the ACE mode, the module can record IBE commands and telemetry requests and return telemetry data. The module can generate a VXI Interrupt and VXI TTL Trigger at the 90 MS Lband rate.**

**Functional Features**

The functional features of the 3000-502 are the same as those of the 3000-501.

**Specifications**

The specifications of the 3000-502 are the same as those of the 3000-501.

## Model 3000-503

**This module is a special purpose VXI module designed to transmit and receive serial data, as a master and/or slave. Each serial interface consists of a clock, a data enable pulse, and the data. All signals are differential pairs. Four interfaces are supplied: one master transmit, one master receive, one slave transmit, and one slave receive.**

**Functional Features**
Functional features of this module include:
- Simultaneously transmit and receive differential Serial data through the master and slave ports.
- Five data rates are available: 2.048 million, 1.024 million, 512 thousand, 256 thousand, and 128 thousand bits per second.
- Can transmit a master sync whose pulse width is adjustable from 62.5 nanoseconds to 4.096 milliseconds in 62.5 nanosecond steps, and with a period that is adjustable form 1 millisecond to 511 milliseconds in 1 millisecond steps.

**Specifications**
- Power: +5 VDC, 2.1 Amps
- Register-Based Architecture: A16/ D16, A32/D32
- Size: One slot “C” size module

## Model 3000-504

**This module is a special purpose VXI module designed to transmit and receive biphase Manchester serial data. The data pattern consists of a sync edge, data, and an optional parity bit. The quiescent state can be programmed high or low and the number of data bits is programmable. The Manchester interface consists of five sections: master transmit, master receive, master loopback, slave transmit and slave receive. The master I/O and slave signals are wired to connectors on the front panel. Status lights are available on the front panel to indicate the presence of power, VXI bus activity, master and slave clocks, and data. The I/O capabilities of this module are enhanced with eight static single-ended inputs and eight static differential inputs.**

**Functional Features**
Functional features of this module include:
- Simultaneously transmit and receive Manchester data through the master and slave ports.
- Eight data rates are available: 2.048 million, 1.024 million, 512 thousand, 256 thousand, 409.6 thousand, 204.8 thousand, 102.4 thousand, and 51.2 thousand bits per second.
- Can transmit a master sync whose pulse width is adjustable from 62.5 nanoseconds to 4.096 milliseconds in 62.5 nanosecond steps, and with a period that is adjustable form 1 millisecond to 511 milliseconds in 1 millisecond steps.
- Eight static single-ended and eight static differential control outputs and status inputs.

**Specifications**
- Power: +5 VDC, 2.5 Amps
- Register-Based Architecture: A16/ D16, A32/D32
- Size: One slot “C” size module

## Model 3000-505

**This module is a special purpose VXI module designed to support gyroscope interfaces, tachometer interfaces, static registered outputs, static register inputs, and opto-coupled inputs.**

**Each gyro interface supplies three differential outputs: clock, data, and data valid. The data can be from 1 to 255 bits in length which is transmitted at the clock rate.**
**Each tachometer supplies four differential outputs and one differential input. Two of the outputs are static control lines, and the other two outputs are tachometer signals.**

**A 32-bit register is partitioned into eight groups of four differential inputs. There are eight differential clock inputs, one for each group of four bits. The state of the inputs is latched into the register by the rising edge of the clock input. Reading the register resets the latches.**

**Ten opto-coupled inputs consist of ten differential inputs which are accessed through a read-only register.**

**Functional Features**
Functional features of this module include:
- Two independent gyro interfaces.
- Four independent tach interfaces.
- One 32-bit status register.
- One 10-bit optoisolated register.

**Specifications**
- Power: +5 VDC, 2.6 Amps
- Register-Based Architecture: A16/ D16, A32/D32
- Size: One slot “C” size module

## Model 3000-506

**This module is a versatile multi-function digital input-output interface VXI module. It provides:**
- **Two channels with a single differential input driving four differential outputs.**
- **Two 8:1 multiplexers with differential inputs and a differential output.**
- **Two 1:8 multiplexers with differential inputs and a differential output.**
- **Four 4:1 multiplexers with single ended inputs and a differential output. All single ended inputs are converted to differential output drivers.**
- **Four 4:1 multiplexers with differential inputs and a differential output. All differential inputs are converted to single ended output drivers.**
- **Twenty four differential drivers.**
- **A clock and sync generator. The clock generator provides four single ended outputs and four differential outputs with programmable rates of 16.384 MHz, 8.192 MHz, 4.096 MHz, and 2.048 MHz. The clocks have a 50% +/- 5% duty cycle. The sync generator provides programmable rates of 5 Hz, 10 Hz, 50 Hz, 100 Hz, 500 Hz, 1 KHz, 2 KHz, 4 KHz, 8 KHz, 16 KHz, 32 KHz, 64 KHz, 128 KHz, 256 KHz, 512 KHz, 1.024 MHz outputs.**

**Functional Features**
Functional features of this module include:
- Two channels with a single differential input driving four differential outputs.
- Two 8:1 multiplexers with differential inputs and a differential output.
- Two 1:8 multiplexers with differential inputs and a differential output.
- Four 4:1 multiplexers with single ended inputs and a differential output. All single ended inputs are converted to differential output drivers.
- Four 4:1 multiplexers with differential inputs and a differential output. All differential inputs are converted to single ended output drivers.
- Twenty four differential drivers.
- A clock and sync generator providing programmable outputs.

**Specifications**
- Power: +5 VDC,
- Register-Based Architecture: A16/ D16, A32/D16
- Size: Two slot “C” size module

## Model 3000-507

**This Multi-Purpose Serial I/O (or MPSIO) VXI module consists of thirty serial data channels on eight printed circuit boards. The motherboard consists of the VXI bus interface, self test transmit and receive data channels, time stamp generator, and sync pulse I/O. The seven daughterboards are electrically identical, each supplying four transmit channels and four receive channels, for a total of twenty-eight transmit and twenty-eight receive channels.**

**Functional Features**
Functional features of this module include:
- 28 Serial output channels. External clock and optional gate cause data output synchronous to a clock edge up to 2 Mbps data rate.
- 28 Serial input channels. External clock, data, and optional gate cause data storage with optional time stamp, up to 2 Mbps data rate.
- All 56 I/O channels can operate simultaneously.
- 2K by 32-bit FIFO storage in every I/O channel. FIFO empty/full status flags can be used to generate a VXI interrupt.

**Specifications**
- Power: +5 VDC, 9.25 Amps
- Register-Based Architecture: A16/ D16, A32/D32
- Size: Three slot “3C” size module

## Model 3000-508

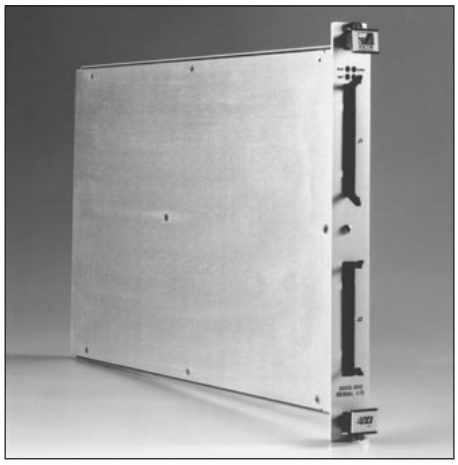
**This VXI module is a single 1 Amp source driver circuit connected to the front panel connector pins through a 64-channel relay matrix. The driver signal can then be routed to one or more destinations (up to 64 loads). Each relay is a two-pole type to switch both the drive and the return path. The driver circuit is fused for protection from overload. The power for the driver can be the VXI +24 VDC or an externally supplied voltage ranging from +15 VDC to +50 VDC. The driver circuit and relay matrix are isolated from the VXI chassis and ground, allowing the user to connect to a floating supply environment.**

**The output driver can be, under software control, turned on, turned off, or pulsed. The output pulse width can be changed in microsecond increments up to 1.049 seconds (a 20 bit counter). The rise and fall time of the driver can also be controlled. If a controlled slew rate is required, rise/fall times in the millisecond range can be set.**

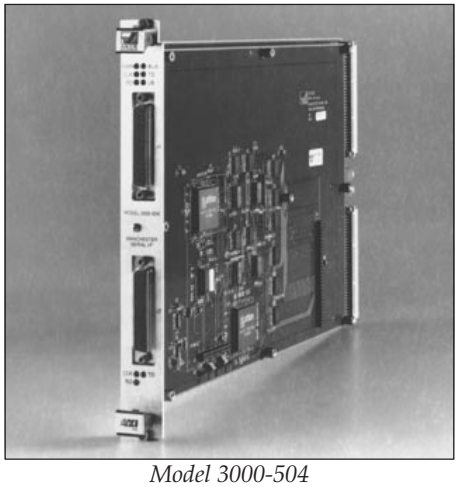
**Functional Features**
Functional features of this module include:
- 1 Amp source driver.
- Floating driver circuit, opto-coupled to control circuitry.
- Output slew rate control.
- Output amplitude set by user provided power supply.
- Output routed through 64-channel relay matrix.

**Specifications**
- Power: +5 VDC, 1.0 Amp
- Register-Based Architecture: A16/ D16, A24/D16/D32, A32/D16/D32
- Size: One slot “C” size module

# ASCOR VXI Modules 3000-501 through Modules 3000-509



*Model 3000-502*



*Model 3000-504*

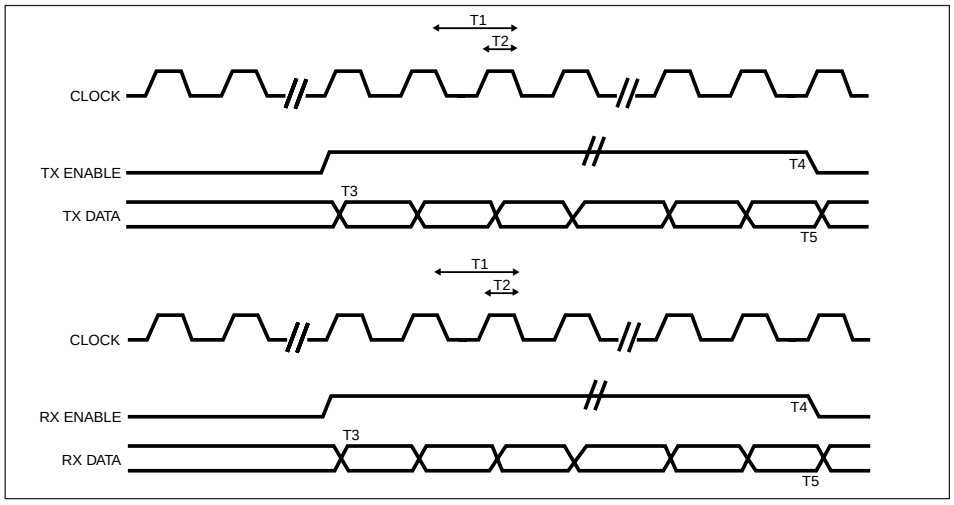



*Figure 1 Typical timing diagram for Model 3000-503.*

## Model 3000-509 (Pictured On Cover)

**This VXI module is a Thermistor Simulator which provides 64 completely independent thermistor channels. Each channel is electrically isolated from all others and is programmable to 256 different states/values from 0 ohms to 128 Kohms in 500 ohm increments. The 3000-509 is a register based device and supports VXIbus register maps. All controls to the module are done through registers. All registers can be accessed with the use of slot 0 computers, host computers with VXI-MXI, or host computers with GPIB and GPIB-VXI slot 0 controllers.**

**Functional Features**

Functional features of this module include:

- 64 independent thermistor simulator channels.
- Static/Dynamic logical address configuration
- Resistance Accuracy ± 1%

Specifications

| | |
|---|---|
| ■ Power: | +5 VDC, 8.75 Amps (80% Relays Activated) |
| ■ Register-Based Architecture: | A16/ D16, A32/D16/D32 |
| ■ Size: | One slot "C" size module |

**Self Testing**

Like all ASCOR VXI Modules these models incorporate internal self test hardware which provides the ability to test, read back and verify the integrity of the relay control circuitry.

All ASCOR VXI Modules also feature a unique built-in service record, for tracking repairs to the Module by time and date the repair was actually performed.

ASCOR also provides a 3 year limited warranty on all VXI Modules.

**Quiet Ideas. Powerful Solutions.**

ASCOR , founded in 1987 and headquarters in California's Silicon Valley, provides a complete line of VXI Switching and Digital Modules for industrial, medical, scientific, and governmental automatic test applications. ASCOR VXI products are the quietest, cleanest, highest density VXI modules commercially available.

## Protecting Your Investment With VXIMAX™ 16/32

To address tomorrow's applications, requiring even greater capabilities, ASCOR's 3000 series modules support either 16-bit or 32-bit data bus paths through its VXIMAX 16/32 VXIbus interface. ASCOR customers can upgrade to 32-bit from 16-bit with VXIMAX's field upgradability.

## Contact ASCOR for your "Custom" VXI Module

ASCOR completes what others fear to start. We truly make VXI work for you.

## Specifications

- Environmental Specification
  - Temperature
    - Operating: 0 to 55 degrees C
    - Storage -40 to 75 degrees C
  - Relative Humidity
    - Operating 10 to 90 % non-condensing
    - Storage 0 to 95% non-condensing

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