AX/4000
Mainframe Chassis

Overview

The AX/4000 mainframe chassis supplies timing signals, distributes power and provides cooling for its Control Module and sixteen slots of AX/4000 test modules and port interfaces. Because every test module connected to the AX/4000 bus has a unique address, each can be accessed individually and operated independently. This permits multiple users to access modules in the same chassis simultaneously.

Control Module

Each AX/4000 chassis includes an Ethernet Control Module that plugs directly into the first slot of the AX/4000 chassis. Each Control Module contains an embedded computer system with its own CPU, RAM, flash ROM and UNIX operating system. The module provides a 10/100/1000Base-T Ethernet interface to the AX/4000 chassis.

The Control Module supports several timing options. It provides a timestamp generator and BNC connectors for synchronizing multiple AX/4000 chassis. The module also supports a GPS interface allowing the AX/4000 chassis to use a timestamp and frequency reference derived from a GPS receiver. When two geographically separated AX/4000 chassis are operating in GPS mode, one-way, point-to-point transfer delay measurements may be achieved within an accuracy of less than one microsecond. The GPS timestamp is inserted into a generated test cell or frame from one system and then transmitted to the other system. The analyzer in the other system timestamps the test cell or frame when received. The difference between the two timestamps determines the one-way, point-to-point transfer delay measurement.

The BITS (Building Integrated Timing Supply) input connectors support the ability to generate cells based on a precision or common clock reference. Typical applications include AAL 1 CBR tests and accurate cell throughput testing of ATM devices. The faceplate has five LED indicators and eight connectors, as illustrated below.

AX/4000 System Software

Each AX/4000 chassis includes the AX/4000 System Software that runs on a Microsoft Windows-based PC or on a Sun Solaris-based workstation. The AX/4000 System Software facilitates remote connection to the AX/4000 Control Module as well as reservation of test modules, configuration and execution of test scenarios, and analysis of test results. The AX/4000 System Software also includes numerous tools to report resource utilization, off-line configuration/demonstration and software downloads.

Ordering Information

AX Chassis

(P/N 400151) AX/4000 XL Mainframe Chassis, AX/4000 system software, and 10/100/1000Mbps Ethernet Control Module with GPS functionality. Mainframe chassis has 16 slots available which support any test module.

XL MF Chassis

(P/N 400140) Specifies chassis alone, without the mainframe Control Module and AX/4000 System Software. The option is provided for customers who already have these required components.

Mainframe Hard Shipping Carrying Case

(P/N 300208A.) Foam-lined hard shipping case for AX/4000 mainframe chassis with storage space for cords and small accessories.

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OS READY
LED indicates the module passed its CPU startup test and the operating system is active.

INT, EXT, GPS AND BITS
This LED group indicates the source of the Control Module timing; internally generated (INT), externally derived from another AX/4000 chassis (EXT), externally derived from a GPS receiver (GPS) or derived from an external T1 (AMI/B8ZS) timing reference (BITS).

EXT CLK IN
75-ohm BNC input connector for receiving a timestamp from the EXT CLK OUT connector of another AX/4000 chassis. Also used to support an E1 or DSO BITS timing reference input.

EXT CLK OUT
75-ohm BNC output connector provides timestamp to another AX/4000 chassis. Connects to the EXT CLK IN connector on the other chassis.

GPS 10MHz
Connects to the GPS receiver for frequency reference. Receives a sinusoidal 10MHz signal at 1Vpp terminated at 50-ohms.

GPS 1PPS
Connects to the GPS receiver for time synchronization. Receives a one pulse per second TTL signal terminated at 50-ohms.

GPS TIME
Connects to the GPS receiver for timestamp reference. Supports RS-232 and RS-422 input levels via DB9.

BITS
Connector for receiving external T1 (AMI/B8ZS) timing reference signal.

CONSOLE
Serial port DIN-8 connector for an external terminal. Used to configure the operating parameters of the Ethernet port. DIN-8/DB9 cable supplied with the module.

ETHERNET
10/100/1000Base-T Ethernet port to connect the AX/4000 chassis to an Ethernet-based LAN.

RESET
Switch for restarting the Control Module CPU.

Mainframe Chassis Specifications

Physical

Size

- 10.5 inches (26.67 cm) high
- 19 inches (48.26cm) wide (standard EIA rack-mounting)
- 23.5 inches (59.69cm) deep

Weight (all slots filled)

- 60 pounds (27.2kg)

Recommended Clearance

- 1.75-inch clearance from top of chassis
- 6-inch clearance from back of chassis
- 1.75-inch clearance from bottom of chassis

Electrical

Operating Voltage

- 110-120/220-240 VAC
- 50/60 Hz

Rated Input Current

- 15A at 110-120 VAC or 7.5A at 220-240 VA Fuse Rating
- 15A, CKT breaker, 250 VAC

Environmental

Operating Temperature

- Ambient room tempearture should not exceed 95F (35C)

Cooling Requirements

- The mainframe chassis has four rear-mounted cooling fans requiring a six-inch minimum clearance in the rear for proper air flow.

Control Module Specifications

Supported GPS Receivers

- Symmetricom ExacTime 6000
- Symmetricom DCD-523
- Symmetricom 58503B
- EndRun Preacis Cfr Time and Frequency Receiver
- Zyfer Nanosync II
- Zyfer Comm Sync II

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