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1261A

VXI CHASSIS

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FOR YOUR SAFETY

Before undertaking any maintenance procedure, whether it be a specific troubleshooting or maintenance procedure described herein or an exploratory procedure aimed at determining whether there has been a malfunction, read the applicable section of this manual and note carefully the **WARNING** and **CAUTION** notices contained therein.

The equipment described in this manual contains voltage hazardous to human life and safety and which is capable of inflicting personal injury. The cautionary and warning notes are included in this manual to alert operator and maintenance personnel to the electrical hazards and thus prevent personal injury and damage to equipment.

If this instrument is to be powered from the AC line (mains) through an autotransformer (such as a Variac or equivalent) ensure that the common connector is connected to the neutral (earthed pole) of the power supply.

Before operating the unit ensure that the protective conductor (green wire) is connected to the ground (earth) protective conductor of the power outlet. Do not defeat the protective feature of the third protective conductor in the power cord by using a two conductor extension cord or a three-prong/two-prong adaptor.

Maintenance and calibration procedures contained in this manual sometimes call for operation of the unit with power applied and protective covers removed. Read the procedures carefully and heed Warnings to avoid "live" circuit points to ensure your personal safety.

Before operating this instrument:

1. Ensure that the instrument is configured to operate on the voltage available at the power source. See Installation Section.

2. Ensure that the proper fuse is in place in the instrument for the power source on which the instrument is to be operated.

3. Ensure that all other devices connected to or in proximity to this instrument are properly grounded or connected to the protective third-wire earth ground.

If at any time the instrument:

- Fails to operate satisfactorily
- Shows visible damage
- Has been stored under unfavorable conditions
- Has sustained stress

It should not be used until its performance has been checked by qualified personnel.

SECTION 1 GENERAL INFORMATION

1.1 Introduction

1.1.1 This Manual provides the information necessary to install and operate the Racal-Dana Model 1261A family of chassis.

1.1.2 The 1261A chassis is a C-Size, VXIbus compatible chassis that conforms fully to VXIbus Specification Revision 1.3, and contains many practical end-user features.

1.1.3 The 1261A chassis is available in three different power configurations, and hosts a selection of many different option assemblies created to meet the needs of any VXIbus based application. The configurations and options will be discussed in detail later in Section 1. In the following paragraphs, a specific chassis in the 1261A family will be referred to as a/or the "1261A" except when necessary to differentiate between the selected configurations.

1.1.4 The 1261A chassis employs a 12-layer backplane to ensure premium VXIbus and VMEbus performance. The chassis provides all power supplies required by the VXIbus specification, a recessed cable tray, and a rear panel that may be customized for easy system integration.

1.1.5 The 1261A chassis uses a pressurized airflow scheme to cool the VXIbus instruments installed into the chassis. The 1261A supports conventional existing rack designs by pulling air through the sides of the chassis, up through removable dust filters, into the VXIbus modules installed, and out through the back of the chassis. This ensures that no hot air is blown into the VXIbus chassis, and that maximum airflow through the VXIbus instruments is maintained.

1.1.6 The 1261A chassis may be fitted with an Interface Connector Assembly (ICA) and receiver mechanism that precisely aligns a pin registered Interface Test Adapter (ITA) with the chassis front panel. This allows all VXIbus instrumentation and switching module connections to be collected into one interface, greatly reducing cabling lengths, the time needed to interface with various Units Under Test (UUTs), and loss of signal integrity. This option is discussed in more detail in Section 1.

1.1.7 The 1261A chassis contains 13 VXIbus slots that may be used for VXIbus compatible instruments. The left most slot in the card cage is dedicated to the VXIbus Slot 0 functions. This normally uses up one of the VXIbus slots in the card cage.

1.1.11 The Models 1261AL, 1261AM, and 1261AH are simply the same external chassis with different power supplies installed. They all operate in the same fashion, and the differences are transparent to the user.

1.1.12 Figure 1-2 is a glass box view of the 1261A showing the airflow through the chassis, and the position of the VXIbus compatible power supplies.

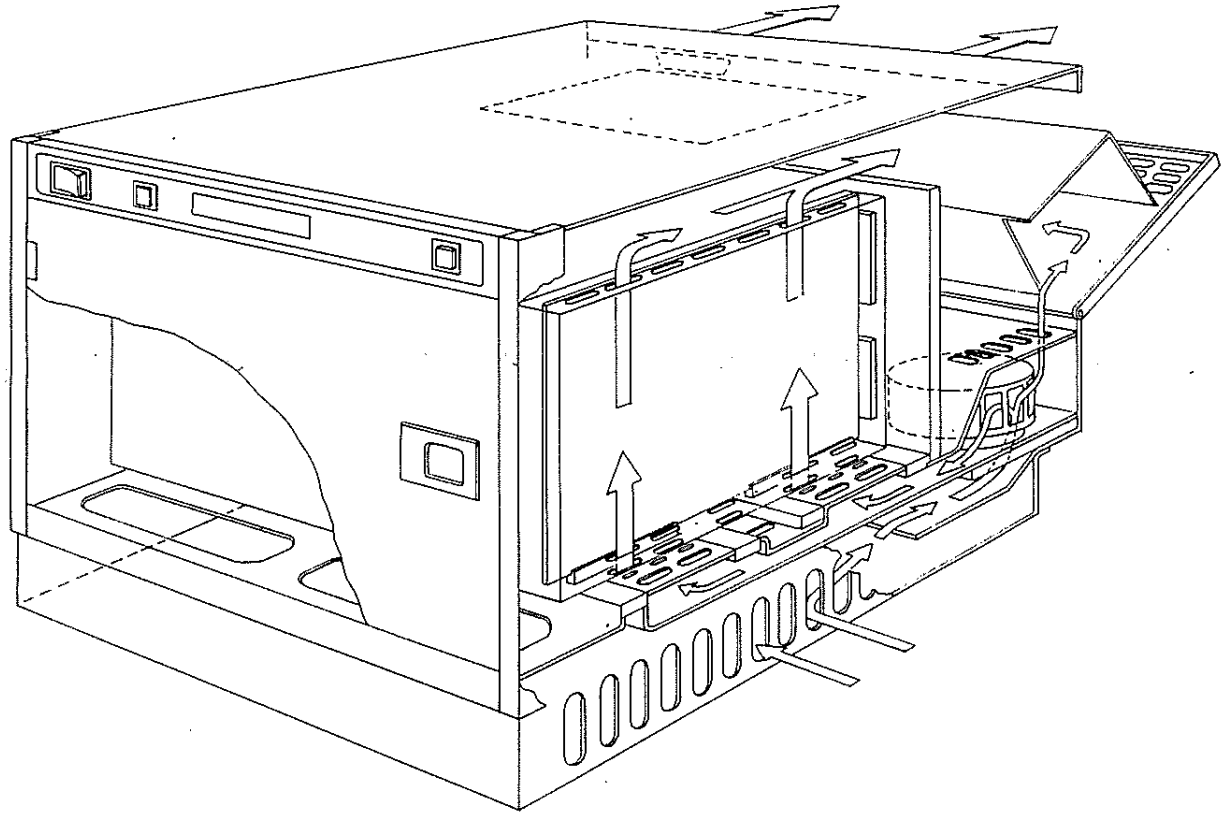

Figure 1-2, Model 1261A Glass Box View

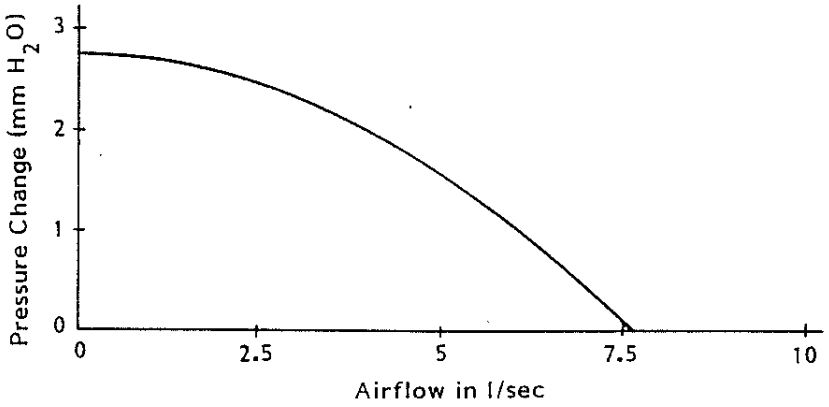

Figure 1-3, Model 1261A Mainframe Cooling, Worst Slot Curve

1.2.1 Figure 1-3 shows the mainframe cooling worst slot curve.

1.2.2 Use the graph to determine whether or not the chassis will provide adequate cooling for each module. To use the graph, find the module operating point (airflow versus pressure) and make sure this point falls below the worst slot curve.

1.3 Configurations

1.3.1 The 1261A was designed to give maximum flexibility to system designers by allowing flexible power supply versus cost trade-offs to be implemented. A family of VXIbus mainframes was created to allow this kind of flexibility. There are three different chassis configurations in the 1261A family. The 1261AL is a lower power unit that is most useful in light duty switching applications. The 1261AM, a medium power chassis, combines higher power and cost efficiency into one package suitable for most VXIbus applications. The final choice in the 1261A family is the 1261AH, the highest power mainframe in the series.

1.3.2 Different configurations are specified when ordering the 1261A, and are shipped with the proper power supplies installed and ready to use upon receipt of the unit by the customer.

1.3.5 The specifications for the 1261AH are given below, and also in Section 1.2.

4 Module 1261AH 3 3 PS1 – P/N = 921158 PS2 – P/N = 921157 800 W

Table 1-3, DC Power Supply Capacity For 1261AH

		+24	+12	+5	-5.2	-2	-12	-24
Ripple/ Noise	150mV	6.0A	5.0A	11.0A	11.A	3.5A	5.A	6.A
Ripple/ Noise	50mV	3.0	2A	5A	5A	1.3A	2A	3.0
Peak Current	(I_{MP})	6A	12A	60A	60A	10A	12A	6A

1.4.2.2 Option 11A Cable Tray Extension

1.4.2.2.1 The cable tray extension is used to supply additional room for the routing of cables from the front of the VXIbus modules to the rear of the 1261A chassis. The cable tray extension adds 1U of height to the overall chassis outline.

1.4.2.3 Option 65A Rack Mount Kit

1.4.2.3.1 The kit includes the rack mount ears, slides, and hardware to mount the chassis into an instrumentation rack. The rack mount slides provide 24 inches of travel out of the instrument rack. The slides kit includes the mounting hardware for the slides and chassis.

CAUTION

Before inserting the 1261A with the mounted rail onto the slide mounted in the rack, determine if any adjustment is necessary to properly mate these parts and adjust as required. A dimensional outline of the 1261A is provided in the options installation kit, and in Figure 1-5.

1.4.2.4 Option 14A Front Door

1.4.2.4.1 The front door option, if installed, provides some protection to the cables being launched from the front of the VXIbus modules. It is hinged, and made of tinted plexiglass. It is latched when closed but requires no special tools to reopen.

1.4.2.5 Option P Intelligent System Monitor

1.4.2.5.1 The function of this option is to monitor the mainframe's airflow and temperature for safe operating limits, in addition to monitoring the system's power supplies for operation within set tolerances. It alerts the operator of a fault in three ways: (1), by sending a Service ReQuest (SRQ) out over the IEEE-488 bus; (2), by sounding an audio alarm (may be disabled); and (3), displaying an error message on a front panel 16 character display.

1.4.2.5.2 The intelligent system monitor option adds a piezo electric element, a latching pushbutton switch, a momentary contact switch and a 16-character LCD display to the top, front panel of the mainframe. The option has an IEEE-STD-488 (and address switch) connector located on the rear of the chassis, and appropriately located airflow and temperature sensors. The electronics to drive the front panel and run system monitoring functions are located on top of the chassis power supply chamber. A front view of the panel is shown in Figure 1-6.

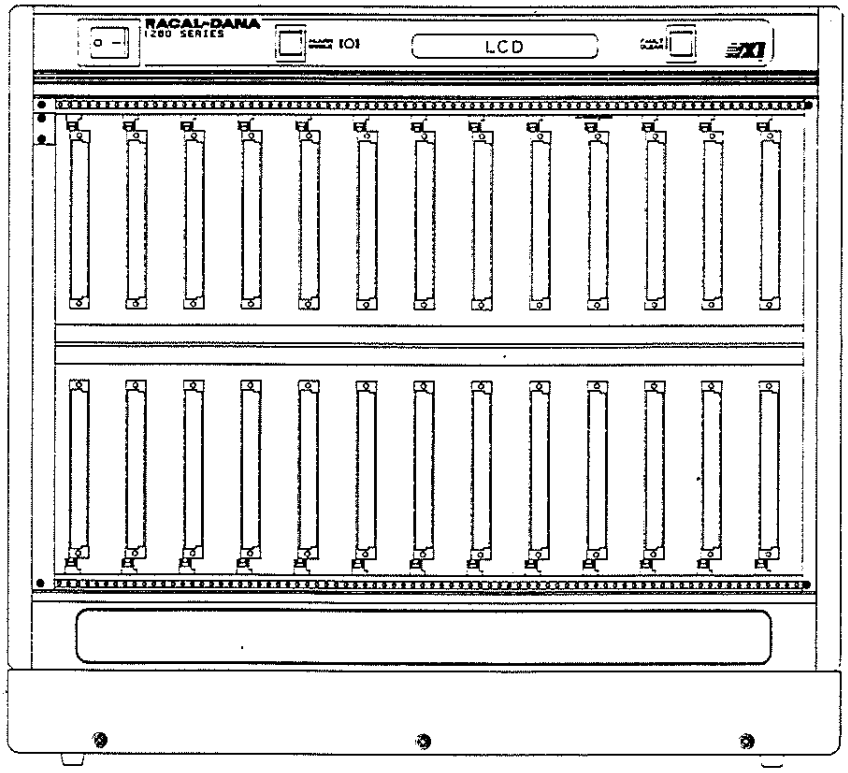

Figure 1-6, Intelligent System Monitor, Front Panel View

SECTION 2 INSTALLATION

2.1 Introduction

2.1.1 This section of the manual provides the information necessary to correctly connect the 1261A to the local AC supply.

2.2 Unpacking and Inspection

2.2.1 Before unpacking the unit, check the exterior of the shipping carton for any signs of damage. All irregularities should be noted on the shipping bill. Remove the instrument from its carton, preserving the factory packaging as much as possible. Inspect the unit for any defect or damage. Immediately notify the carrier if any damage is apparent. Have a qualified person check the instrument for safety before use.

2.3 Reshipment Instructions

2.3.1 Use the original packing when returning the unit to Racal-Dana for servicing. The original shipping carton and the instrument's plastic foam will provide the necessary support for safe reshipment. If the original packing is unavailable, wrap the unit in plastic sheeting and use plastic spray foam to surround and protect the instrument. Reship in either the original or a new shipping carton.

2.4 Line Voltage Selection

CAUTION

DO NOT change the line voltage selection switch on the rear of the 1261A while power is applied to the chassis. Dangerous line voltages are employed in this instrument. Contact may result in harm to the operator. Changing the voltage selection switch with power supplied to the chassis may also result in damage to the chassis itself.

2.4.1 To select the proper line voltage for the 1261A use the following procedure:

1) Power down the chassis and remove the line input cord.

2) Select the proper setting for switch S400 located on the rear of the chassis; either 115 or 230 indicating 115 VAC or 230 VAC line operation.

2.5.3 Special concern must be given to modules occupying more than one slot to ensure the IACK and BUSGRANT 0-3 signals are handled properly. This is not an issue with any double slot Racal-Dana VXIbus module.

2.5.4 The backplane daisy chaining/bypassing is handled automatically by the auto-configuration connectors. However, there is need for concern with older-design modules that do not properly handle the internal passing through of these signals. In this case, the only alternative is to modify the module. Racal-Dana 1260 Series switching modules without Option 01 can be reworked to pass the IACK and BUSGRANT 0-3 by installing a variant of the LBUS jumper onto the module's J3 connector. The Racal-Dana part number for this "BUS GRANT JUMPER PCB" is 401951-003.

2.6 Power Up Sequence

2.6.1 To power up the 1261A, use the following procedure:

1) Install all VXIbus modules that are to be used in the chassis prior to applying power. Ensure all VXIbus defined switch settings on the modules are as required, and in accordance with the manufacturers instructions.

2) Connect a line input cord to the line input receptacle on the rear panel of the chassis.

3) Ensure the line input voltage selected is in agreement with the local line voltage. Set the line switch in the top left hand corner of the chassis front panel to 1.

2.7 Engaging An ITA

2.7.1 If your 1261A comes with a receiver mechanism, use care in engaging and disengaging the mechanism. If the receiver handle does not travel smoothly, STOP immediately and investigate the cause of the trouble.

2.7.2 When removing (or installing) any VXIbus module allow the receiver mechanism to swing down unhindered and remove (or install) the module as necessary.

SECTION 3 OPERATION

3.1 Introduction

3.1.1 There are no operating instructions required for the 1261A VXIbus mainframe. After the chassis is powered up, operation is completely transparent to the operator. This section is limited to a description of the controls and connectors fitted to the 1261A front and rear panels.

3.2 Air Inlet Filters

3.2.1 Two air filters are located on the bottom rear panel of the 1261A. They filter air coming into the chassis before it reaches any moving parts or electrical components.

3.2.2 The two filters are made of washable materials. A maximum of six (6) months between cleanings is recommended. Depending upon the amount of usage, the filters may have to be cleaned more frequently. The filters should be removed and cleaned with a mild detergent and allowed to dry before re-installation into the chassis.

3.3 1261A Front Panel

3.3.1 To apply power to the chassis and VXIbus modules installed, depress the side of the AC line switch marked "1". The front panel and line switch are shown in Figure 3-1.

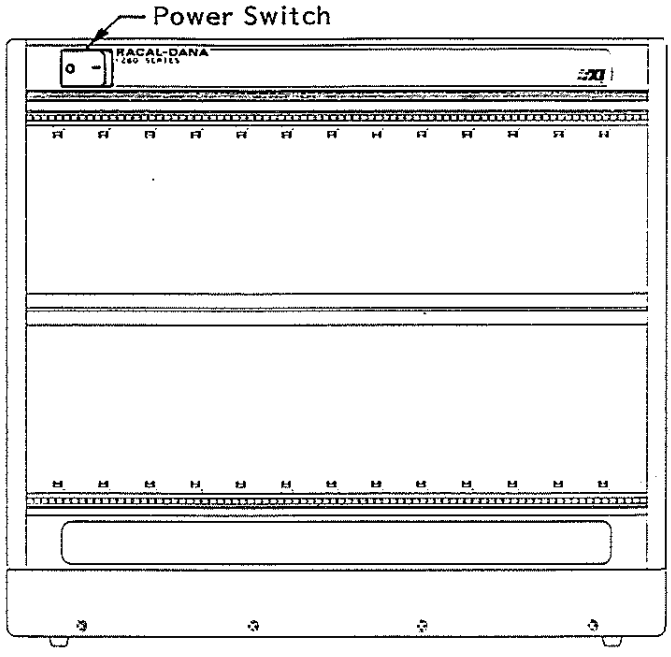

Figure 3-1, 1261A Front View

Table 3-1, 1261A Rear Panel Descriptions

Reference	Description
J400	AC Line input receptacle. Accepts 115 or 230 VAC line input connector from AC supply to power the chassis.
J401	IEEE-STD-488 port. Used in conjunction with Option P. See Section 1.4.5.
S400	115/230 VAC configuration switch. The setting of this switch should comply with the AC line voltage being used to power the unit. See Section 2.4.
S401	GPIB address switch. Sets the GPIB address of the chassis. Also disables the power-on SRQ function. Used in conjunction with Option P. See Section 1.4.5.
S400	Fuseholder. Contains the AC line input fuse, value 10 A slow-blow for 115 VAC operation, or 5 A slow-blow for 230 VAC operation.
	Air inlet filters. Two filters are located on the bottom rear of the chassis.

3.5 Option P Intelligent System Monitor

3.5.1 A functional block diagram of the Intelligent System Monitor option is shown in Figure 3-3. The core of the option is a 6805 micro-controller. The micro-controller interfaces to the LCD and the monitoring electronics via an 8-bit parallel interface. The monitoring functions are executed using window comparators to monitor the seven system voltages, an airflow sensor in the chassis intake, and a temperature sensor in the exhaust.

monitor is functioning while in monitor mode. The alarm status message is displayed for several seconds whenever the "ALARM ENABLE" switch is pressed on the front panel. The microprocessor will continuously poll the seven power supply voltages, the airflow sensor and the temperature sensor. If consecutive measurements are found to be out of tolerance, the controller will enter the Fault Mode.

3.5.2.2 Fault Mode

3.5.2.2.1 Upon entering Fault Mode, the micro-controller will blank the LCD display. The controller will send an SRQ to the GPIB controller and cause the display to indicate the nature of the fault detected. The controller may also cause an audible warning to be emitted if enabled via the front panel Alarm Enable switch.

3.5.2.2.2 The micro-controller will exit Fault Mode and enter Monitor Mode when it detects the Fault Clear switch has been actuated, or when a GPIB Device CLear (DCL or SDC) command is received over the IEEE-488 bus. Normal operation will begin until another fault is detected. Unless the physical cause of the condition creating the fault is removed, the system monitor will continuously return to the Fault Mode.

3.5.2.2.3 Table 3-2 lists the supported fault messages.

Table 3-2, Fault Messages Displayed

FLT: +24V OVER
FLT: +24V UNDER
FLT: +12V OVER
FLT: +12V UNDER

FLT: +5V OVER
FLT: +5V UNDER
FLT: -2V OVER
FLT: -2V UNDER

FLT: -5V OVER
FLT: -5V UNDER
FLT: -12V OVER
FLT: -12V UNDER

FLT: -24V OVER
FLT: -24V UNDER
FLT: OVER TEMP
FLT: AIR FLOW

1.4.2.5.7 The GPIB capability of the Option P is summarized below in Table 3-4. The rear panel GPIB switch (S401) allows the user to select the GPIB address and enable "Power On" SRQ generation. The Power On SRQ feature is enabled when the switch is set to the "1" position. The micro-controller responds to a serial poll with the status byte "C0"(hex). When a system fault causes a SRQ, the micro-controller sends the status byte "48"(hex) during a serial poll.

Table 3-4, Compliance to IEEE-488.1-1987 Subset Capability

COMPLIANCE TO IEE-488.1-1987 SUBSET CAPABILITY		
GPIB SUBSET	**DESCRIPTION**	**APPLICABLE CAPABILITY**
SH1	Source Handshake	Complete Capability
AH1	Acceptor Handshake	Complete Capability
T6	Talker	1) Basic Talker 2) Serial Poll 3) Unaddress if MLA
L4	Listener	Complete Except Listen Only 1) Basic Listener 2) Unaddress if MTA
SR1	Service Request	Complete Capability
RL0	Remote/Local	No Capability
PP0	Parallel Poll	No Capability
DC1	Device Clear	Complete Capability 1) DCL-Device Clear 2) SDC-Selected Device Clear
DT0	Device Trigger	Complete Capability GET-Group Execute Trigger
C0	Controller	No Capability
E1	Open Collector Bus Drivers	

SECTION 4 CUSTOMER DEFINED FEATURES